Australian
Competition &
Consumer
Commission

Assessment of Telstra's ULLS monthly charge undertaking

Final Decision

Public version

August 2006

Contents

Abbreviations

2003 Core Services Decisions	ACCC, *Assessment of Telstra's undertakings for PSTN, ULLS and LCS—final decision*, December 2004.
2003 Model Price Terms & Conditions	ACCC, *Final Determinations for Model Price Terms and Conditions of the PSTN, ULLS and LCS Services*, October 2003.
2004 Undertaking	Telstra's Undertaking for the Unconditioned Local Loop Service, received 14 December 2004.
2005 Discussion Paper	ACCC, *Telstra's Undertakings for the Unconditioned Local Loop Service: Discussion Paper*, January 2005.
2005 Final Decision	ACCC, *Assessment of Telstra's ULLS and LSS Monthly Charge Undertakings, Final Decision*, December 2005.
2006 Discussion Paper	ACCC, *Telstra's Undertakings for the Unconditioned Local Loop Service: Discussion Paper*, January 2006.
AAPT	AAPT Limited
ACCC	Australian Competition and Consumer Commission
ACT	Australian Competition Tribunal
CAM	Customer access module
CAN	Customer access network
CAPM	Capital asset pricing model
CCC	Competitive Carriers Coalition
CMUX	Customer multiplexer
COLR	Carrier of last resort
CRAI	CRA International
DA	Distribution area
DoIR	Department of Industry and Resources
DSL	Digital subscriber line
ERP	Equity risk premium
ESA	Exchange service area

IDD	International Direct Dial
IEN	Inter-exchange network
IRIM	Integrated remote integrated multiplexer
LAN	Local area network
LAS	Local access switch
LCS	Local Carriage Service
LSS	Line sharing service (also known as SSS)
LTIE	Long Term Interests of End–users
Macquarie	Macquarie Telecom Pty Ltd
MJA	Marsden Jacob Associates
MJAEE	Marsden Jacob Associates and Europe Economics
MRP	Market risk premium
MST	Minimum Spanning Tree
NECG	Network Economics Consulting Group
n/e/r/a	NERA Economic Consulting (formerly National Economic Research Associates)
NTP	Network termination point
Optus	SingTel Optus Pty Ltd
Optus Submission	Optus, *Optus Submission to Australian Competition and Consumer Commission on Telstra's ULLS Undertakings*, March 2006.
PIE	PSTN Ingress and Egress model
POI	Point of interconnection
Primus	Primus Telecommunications Pty Ltd
PSTN	Public Switched Telephone Network
PSTN O/T	PSTN Originating and Terminating Access Services
RAF	Regulatory accounting framework
RBOC	Regional Bell Operating Company

RIM	Remote integrated multiplexer
RSS/RSU	Remote switching stage/ remote switching unit
SAOs	Standard Access Obligations
SSS	Spectrum Sharing Service (also known as LSS)
STD	Subscriber Trunk Dialling
STS	Standard telephone service
TCAM	Telstra Customer Access Module
Telstra	Telstra Corporation Limited
Telstra service	Service of a particular technical attribute as specified by Telstra in the undertaking
Telstra's 2005 Supporting Submission	Telstra, *Telstra's Submission in Support of the ULLS Monthly Charges Undertakings Dated 23 December 2005*, 23 December 2005.
Telstra's Submission to the 2006 Discussion Paper	Telstra, *Telstra's Submission in Response to the ACCC's Discussion Paper in Respect of ULLS Dated January 2006*, 14 March 2006.
TPA	*Trade Practices Act 1974*
TS	Transit switch
TELRIC	Total element long-run incremental cost
TSLRIC	Total service long-run incremental cost
TSLRIC+	Total service long-run incremental cost plus indirect costs
ULLS	Unconditioned Local Loop Service
Undertakings	Telstra's ULLS access undertakings lodged with the ACCC on 23 December 2005
USF	Universal Service Fund
USO	Universal Service Obligation
VoIP	Voice over IP
WACC	Weighted average cost of capital

Glossary

Access Provider	Carrier or carriage service provider who supplies declared services to itself or other persons — see s. 152AR of the TPA.
Access Seeker	Service provider who makes, or proposes to make, a request for access to a declared service under s. 152AR of the TPA.
Customer access network	The network which enables the connection of telephones and other customer premises equipment to switching technology. It consists of a network of conduits and pipes in the ground with a mixture of cables containing copper wires and optical fibres. It has two parts – the distribution network and the feeder network.
Distribution network	That part of the customer access network connecting the distribution point (typically a pillar) to the network termination point.
Exchange	A generic term for a major node in an exchange service area (e.g. an IRIM, RSS/RSU, LAS, TS).
Feeder network	That part of the customer access network connecting the exchange to the distribution point (typically a pillar).
Integrated remote integrated multiplexer	This device consists of a protective housing, cable and optical fibre terminating strips, and multiplexing equipment, erected in street-based housing. 'Integrated' means that the housing contains multiplexers that enable different services to be carried over the same transmission cable (i.e. special services, telephone services, public telephone services, ISDN services are all carried over the same transmission cable/fibre). The transmission protocol is integrated with the telephone exchange software.
Inter-exchange network	The network connecting exchanges to each other.
Local access switch	This equipment provides ring current, dial

	tone and battery feed to end-users, as well as switching calls locally to other local access switches. It also provides number analysis for call routing and call charge recording, and enhanced (or supplementary) services such as call waiting and call diversion.
Multiplexer	A device that combines two or more signals into a single composite data stream for transmission on a single channel.
Network termination point	The termination point of the public switched telephone network at the end-user's premises. Cabling beyond this point is customer wiring.
Pre-selection	Function that enables an end-user or service provider to select a preferred carrier or carriage service provider for a certain type of call (e.g. long distance calls).
Remote subscriber stage	A customer access module of the LM Ericsson AXE telephone switching exchange located in buildings remote from the group switching function.
Remote subscriber unit	A customer access module of the Alcatel S12 telephone switching exchange located in buildings remote from the group switching function.
Service provider	Defined in s. 86 of the *Telecommunications Act 1997*. Means a carriage service provider or a content service provider.
Total service long run incremental cost	See Australian Competition and Consumer Commission, *Access Pricing Principles – Telecommunications: A guide*, July 1997.

Summary

Telstra Corporation Limited (Telstra) lodged access undertakings with the Australian Competition and Consumer Commission (ACCC) on 23 December 2005. The undertakings specify certain terms and conditions under which Telstra undertakes to meet its standard access obligations (SAOs) in respect of the unconditioned local loop service (ULLS).

Amendments to the *Trade Practices Act 1974* (the TPA) in 2002 encouraged the lodgement of undertakings as a means of addressing access to declared services.[1] The 2005 undertakings follow a series of decisions on ULLS monthly charges made by the ACCC since 2003.

The two 2005 undertakings under consideration relate to the monthly charge for the ULLS. In reaching its final decision, the ACCC undertook extensive work on the assessment of appropriate price terms and conditions for the supply of the ULLS and consulted widely with interested parties on all relevant issues. The ACCC issued a discussion paper in January 2006 and received a number of submissions on the undertakings. Further, the ACCC commissioned its own external expert advice on matters relating to the PIE II model and ULLS-specific costs. The ACCC issued a draft decision to reject the undertakings in June 2006.

Under Part XIC of the TPA, the ACCC must accept or reject the undertakings. The process the ACCC follows to assess undertakings is open and public, allowing parties to express their views and provide relevant information to the ACCC. In assessing these undertakings, the ACCC has examined and published (where possible and appropriate):

- Telstra's 23 December 2005 ULLS monthly charges undertakings and their supporting submissions
- the ACCC's Final Determination of model price terms and conditions for the PSTN, ULLS and LCS services, issued in October 2003
- the ACCC's draft decision on Telstra's 14 November 2003 ULLS undertaking
- the ACCC's final decision on Telstra's 13 December 2004 ULLS and LSS monthly charges undertakings
- all submissions related to the current undertakings, submitted in response to both the ACCC's discussion paper and draft decision
- consultancy advice commissioned by the ACCC
- other material including economic and technical literature.

Subject to confidentiality restrictions, all of the above can be found at the ACCC's website www.accc.gov.au. The full list of documents examined can be found in Appendix H of this report.

The ACCC's final decision is to reject the ULLS undertaking. This decision is based on an assessment of the key components of Telstra's proposed undertakings against

---

[1] Explanatory Memorandum, *Telecommunications Competition Bill 2002*, p. 1.

the matters set out in s. 152AH of the TPA. The ACCC is not satisfied that the terms and conditions specified in the undertakings are reasonable.

1. Introduction

The unconditioned local loop service (ULLS) is a service for access to unconditioned cable, usually a copper wire pair, between an end user and a telephone exchange. The ULLS essentially gives an access seeker the use of the copper pair without any dial tone or carriage service. This allows the access seeker to use its own equipment in an exchange to provide a range of services, including traditional voice services and high speed internet access, to the end-user.

The ULLS was first "declared" by the Australian Competition and Consumer Commission (ACCC) under Part XIC of the *Trade Practices Act 1974* (the TPA) in August 1999.[2] The ACCC continued the declaration of the ULLS in July 2006 for a further three years.[3] The ULLS declaration places access obligations on all potential providers of a ULLS. In practice these obligations primarily fall upon Telstra as the incumbent telecommunications provider.

Declaration of the service has two important consequences. Firstly, Telstra, as a supplier of the ULLS, is required to supply the service to all service providers upon request. Secondly, if Telstra and a service provider cannot agree on the terms and conditions of supply, one of them can notify the ACCC of a dispute. The ACCC can then arbitrate and resolve the dispute.

To reduce the scope for disputes, and therefore the need for the ACCC to conduct arbitrations, a supplier of a declared service can offer the ACCC an undertaking setting out particular terms and conditions of supply. If the ACCC accepts the undertaking, then it is prevented from making an arbitration determination that is inconsistent with the undertaking.

Telstra lodged access undertakings for the ULLS with the ACCC on 23 December 2005. The undertakings specify certain terms and conditions upon which Telstra undertakes to meet its standard access obligations (SAOs) for the supply of the ULLS. The undertakings primarily relate to the monthly charge payable by access seekers for the ULLS. Each undertaking covers a separate period, one from 1 January 2006 to 30 June 2007 and one from 1 July 2007 to 30 June 2008.

The ACCC released a discussion paper on the undertakings in January 2006 and a draft decision in June 2006. It received submissions from interested parties in response to both of these papers.

This report is the ACCC's final decision on Telstra's undertakings.

---

[2] ACCC, *Declaration of local telecommunications services*, July 1999.

[3] ACCC, *Declaration inquiry for the ULLS, PSTN OTA and CLLS—final determination*, July 2006.

2. Background

2.1. Declaration and the regulatory framework

The ULLS was first declared under Part XIC of the TPA in August 1999 and then declared again in July 2006 for a further three years.[4]

Once a service is declared, carriers and carriage service providers supplying the declared service to themselves or others are subject to the SAOs. These obligations constrain the manner in which those carriers and carriage service providers can conduct themselves in supplying the declared service.

Section 152AR of the TPA sets out the SAOs applying to carriers and carriage service providers supplying the declared service to themselves or others. In summary,[5] if requested by a service provider,[6] the carrier/carriage service provider is required to:

- supply the declared service
- take all reasonable steps to ensure that the declared service supplied to the service provider is of equivalent technical and operational quality as that which the carrier/carriage service provider is supplying to itself
- take all reasonable steps to ensure that the fault detection, handling and rectification which the service provider receives in relation to the declared service is of equivalent technical and operational quality as that provided by the carrier/carriage service provider to itself
- permit interconnection of its facilities with those of the service provider
- provide particular billing information to the service provider.

The terms and conditions on which a carrier/carriage service provider is to comply with these obligations are as agreed between the parties. If they cannot agree, one of them can notify the ACCC of an access dispute under s152CM of the TPA. Once notified, the ACCC can arbitrate and make a determination which resolves the dispute. However, the ACCC's determination need not be limited to the matters specified in the dispute notification. It can deal with any matter relating to access by the access seeker to the declared service.[7]

The TPA enables a carrier/carriage service provider to resolve potentially contentious issues with the ACCC outside the arbitral process. It can do this by giving the ACCC an access undertaking under s152BS of the TPA, setting out the terms and conditions on which it proposes to comply with particular SAOs.

---

4 ACCC, *Declaration inquiry for the ULLS, PSTN OTA and CLLS—final determination*, July 2006.

5 There are some exceptions to these obligations. These are set out in s152AR, and in any exemption issued under s152AS or s152AT of the TPA.

6 A service provider is a carriage or content service provider within the meaning of the *Telecommunications Act 1997*.

7 *Trade Practices Act 1974* (Cth) ss. 152CP(2).

If accepted by the ACCC, the undertaking becomes binding on the carrier/carriage service provider. If a carrier/carriage service provider breaches the undertaking, the Federal Court can make an order requiring compliance with the undertaking, the payment of compensation, or any other order that it thinks fit (s. 152CD). In addition, in accepting an undertaking, the ACCC is limiting its flexibility in arbitrating access disputes. Once an undertaking is in operation, the ACCC must not make an arbitral determination that is inconsistent with the undertaking.[8]

2.2. The declared service

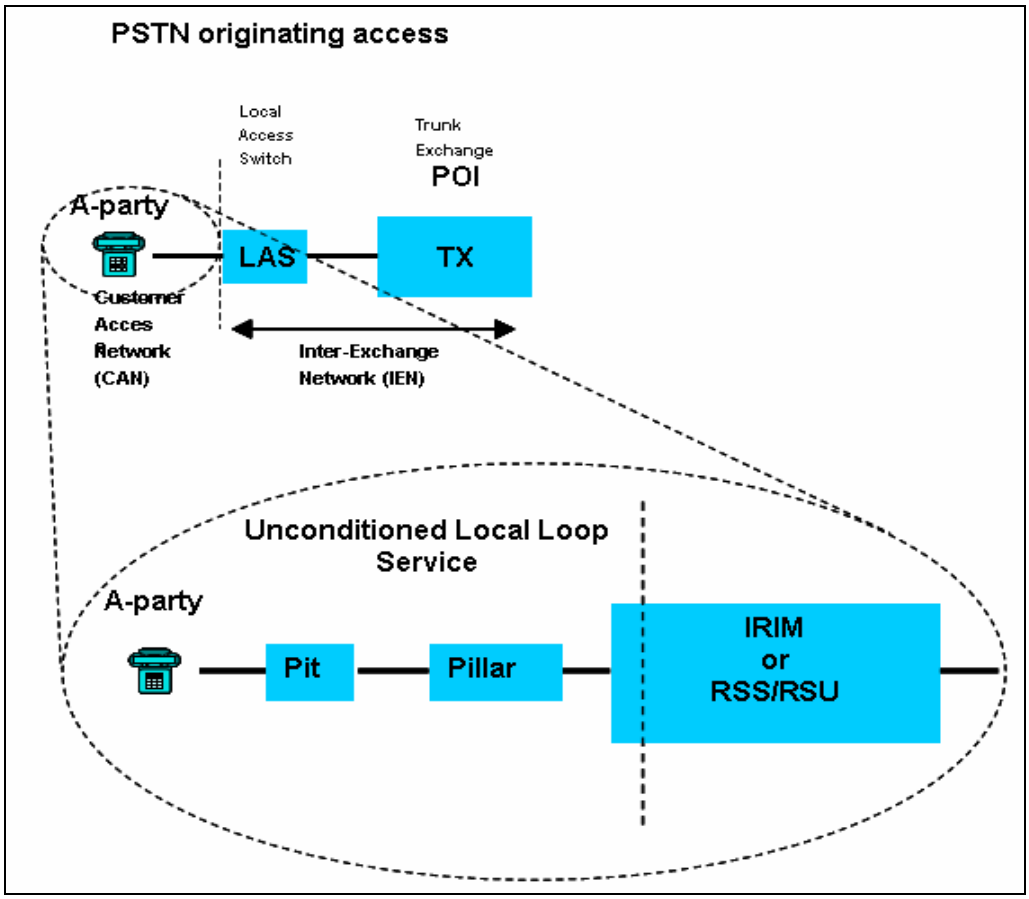
2.2.1. Unconditioned Local Loop Service

The ULLS involves the use of unconditioned cable, primarily copper pairs, between end-users and a telephone exchange, where the unconditioned cable terminates.

Under Telstra's customer access network (CAN) architecture, customers are connected to the broader network by cables, which run from a customer's premises to what is known as Customer Access Module (CAM) equipment. CAM equipment includes remote switching units or stages (RSUs/RSSs), remote (and integrated remote) integrated multiplexers (RIMs/IRIMs) or newer generation remote customer multiplexers (C-MUXs). The CAM equipment can then be connected (directly, or by means of other CAM equipment) to a Local Access Switch (LAS) and/or a data/Internet Protocol network. Voice traffic is currently routed to the LAS for carriage using a circuit switched network, while data traffic is routed to a data/IP network (not separately shown below). This is illustrated in Figure 2.2.1. In some areas, notably in CBDs, customers are directly connected to a LAS which effectively serves as the CAM.

[8] *Trade Practices Act 1974* (Cth) ss. 152CQ(5).

Figure 2.2.1 Use of the ULLS



In Figure 2.2.1, the ULLS refers to the unconditioned twisted copper pairs that connect a customer's premises to the nearest CAM (IRIM, RSS or RSU in the above diagram).

Telstra, as the predominant supplier of this service, has ownership of a copper CAN located throughout Australia.

The declared ULLS is used by access seekers to connect their own networks to existing infrastructure and deliver new and innovative high-speed and data-based services to end-users more efficiently. It can also potentially be used to provide voice services more efficiently using voice over IP and DSL technologies. Possible services include high speed Internet access, 'tele-working', distance learning, video-on-demand, remote local area network (LAN) access and other multimedia and data applications, as well as traditional local, STD and IDD call services in competition with Telstra.

3. Summary of the undertakings

3.1. Introduction

On 23 December 2005 Telstra submitted to the ACCC two undertakings in respect of the monthly charges for ULLS. The first takes effect on 1 January 2006 and expires on 30 June 2007. The second takes effect on 1 July 2007 and expires on 30 June 2008. At the same time Telstra provided to ACCC a submission in support of the undertakings. Apart from the differing time periods Telstra's ULLS Undertakings are equivalent in every aspect.

On the same day Telstra withdrew its access undertaking in respect of the connection and disconnection charges for the ULLS dated 13 December 2004, stating that the withdrawal was to come into effect immediately.

Telstra has also provided submissions and supporting material in response to the ACCC's discussion paper and draft decision.

3.2. Terms and conditions of the undertakings

In order to assess an undertaking it is necessary to form a view as to what are the terms and conditions of the undertaking.

In summary, the undertakings:

- describe the technical attributes of the service that Telstra will supply
- specify the price that Telstra proposes to charge for this service
- set out limited non-price terms and conditions on which the service is to be supplied.

3.2.1. Proposed charges

The proposed ULLS charges in the undertakings relate only to services connected to a RSS/RSU. Telstra did not submit proposed charges for services connected to IRIM/RIM/CMUX as Telstra considers there is currently only limited demand for these connections.

The following prices are GST exclusive.

Table 3.1.1.1 ULLS Monthly Charge 1 Jan 2006 to 30 June 2007

Location of ULL POI	Monthly Charge
RSS/RSU	$30 per month
IRIM/RIM/CMUX	Not dealt with by undertaking

Table 3.1.1.2 ULLS Monthly Charge 1 July 2007 to 30 June 2008

Location of ULL POI	Monthly Charge
RSS/RSU	$30 per month
IRIM/RIM/CMUX	Not dealt with by undertaking

As can be seen, Telstra proposes the same $30 monthly charge in both undertakings. Combined, these undertakings cover the period from 1 January 2006 to 30 June 2008.

The charges in the above tables do not apply to the supply by Telstra to the access seeker of Telstra ULLS in a Contestable Area if the access seeker becomes approved as a competing universal service provider under the TPA in respect of that Contestable Area[9]. If the access seeker becomes so approved, Telstra has pledged in its Undertakings that the parties will enter into good faith negotiations with regard to the charges for the supply of Telstra ULLS by Telstra to the access seeker in that Contestable Area.

The undertakings specify that each Unconditioned Local Loop Service must be acquired for a minimum term of three months. The $30 monthly charge is payable for the whole of that minimum term, even in the event that the access seeker cancels the ULLS prior to the expiration of that period.

Not all of the charges payable by the access seeker to Telstra for Telstra's ULLS are covered by the undertakings. Specifically, the connection charge, which is a once only charge payable at connection, is not covered by these undertakings. Similarly, charges for operational aspects of the service such as service qualification inquiries and order withdrawals are not covered. The only charge payable by the access seeker that is covered by the undertakings is the ongoing monthly charge.

3.2.2. Basis for proposed charges

Telstra has submitted that it has estimated the long run 'efficient' costs of supply of the ULLS across the periods covered by the undertakings. These cost estimates are replicated in Table 3.2.1 below. Each estimate presented in this Table, and its supporting justifications, is further examined by the ACCC in this final decision.

Table 3.2.1 Telstra's estimate of long run efficient cost of supply of ULLS

	1 January 2006 to 30 June 2006	2006-07	2007-08
Network costs	[c-i-c]	[c-i-c]	[c-i-c]
ULLS-specific costs	[c-i-c]	[c-i-c]	[c-i-c]
USO adjustment	[c-i-c]	[c-i-c]	[c-i-c]
Total	[c-i-c]	[c-i-c]	[c-i-c]

3.2.3. Non-price terms

Telstra's undertakings relate principally to matters of pricing. The only significant non-price terms in the undertakings relate to network modernisation and the Standard Access Obligations (SAOs).

Telstra has submitted that the changes to its network modernisation provisions, compared to its previously submitted ULLS undertakings:

---

[9] Contestable Area has the same meaning given by the Universal Service Subsidies (2001-2003 Contestable Areas) Determination (No. 1) 2001 as amended from time to time or otherwise determined by ACMA or the Minister.

> …assist access seekers by promoting clarity and certainty around their investment decisions and that the network modernisation provisions, as a whole, strike an appropriate balance between Telstra's need to maintain and update its network and the interests of access seekers in having sufficient notice of changes that will affect them.[10]

These changes can be separated into two groups based on the nature of the conditions that the access seeker accedes to.

The first group of changes relates to the conditions that the access seeker "agrees to":

- Previously the access seeker agreed that provision of ULLS did not prevent, limit or restrict Telstra from modernising its network in accordance with agreed terms and conditions
- The revised clause states that the access seeker agrees that:
  - Telstra has the right to maintain and upgrade its network
  - provision of the ULLS does not prevent, limit or restrict Telstra from maintaining or upgrading its network
  - maintenance and upgrade includes a wide variety of activities, including remediation, reconfiguration, enablement, augmentation, maintenance and repair, and specifically includes decommissioning copper and replacing it with fibre optic cable.

The second group relates to the conditions that the access seeker "acknowledges":

- Previously the access seeker acknowledged that any modernisation may include installing RIMs or CMUXs closer to end users than traditional exchanges, and that access seekers' ULLS might be truncated, that POIs might move to those RIMs or CMUXs and that the deployment class of access seeker equipment might change.
- The revised clause now states that the access seeker acknowledges that:
  - a network upgrade might include installation of a TCAM (Telstra customer access module)[11] closer to end-users than an exchange
  - such an upgrade might require truncation of a ULLS, that new access seeker POIs might have to be established at the new TCAMs and that the deployment class of access seeker equipment might change
  - a network upgrade might mean that ULLS can no longer be supplied or may adversely affect the quality of the ULLS
  - Telstra will provide not less than 15 weeks notice where a ULLS needs to be moved to a new POI or a ULLS can no longer be supplied. An exception is "Emergency network upgrades" for which Telstra does not give a minimum guaranteed level of notice.[12]
  - if a network upgrade is such that the access seeker needs to establish a new POI and it does not do so, or if a network upgrade means that a ULLS can

---

[10] Telstra's 2005 Supporting Submission, p. 35.

[11] A TCAM is a Telstra device that provides dial tone, ring current and power to the end user, and includes RSS, RSU and IRIM.

[12] An emergency network upgrade is defined as "a network upgrade that is required to protect the security or integrity of Telstra's Network or the health or safety of any person"

no longer be supplied, Telstra has the right to terminate the ULLS and the access seeker must comply with a notice for hand-back.

The only other significant non-price terms relate to the SAOs. Telstra undertakes to, as required under Part XIC of the TPA, treat each access seeker on a non-discriminatory basis as required by the Standard Access Obligations in relation to the supply of the ULLS. Specifically Telstra proposes that it will take all reasonable steps to ensure that:

- the technical and operational quality of the ULLS is equivalent to that which Telstra provides to itself; and
- the access seeker receives, in relation to the ULLS, fault detection, handling and rectification of a technical and operational quality and timing that is equivalent to that which Telstra provides itself.

All other non-price terms which are not included in the undertakings, such as the terms and conditions of facilities access, must instead be negotiated between Telstra and the access seeker. The access seeker will need to enter into such facilities access arrangements with Telstra as are necessary for it to connect its network to a Telstra ULLS at the ULL POI.

4. Legislative Background

4.1. Form and contents of an undertaking

Section 152BS of the TPA provides that an ordinary access undertaking is a written document given to the ACCC under which the relevant carrier or provider undertakes to comply with the terms and conditions specified in the undertaking in relation to the applicable SAOs.

Section 152BS sets out that an ordinary undertaking may be one of the following types:

- an undertaking containing terms and conditions that are specified in the undertaking; or
- an undertaking where the terms and conditions are specified by adopting a set of model terms and conditions set out in the telecommunications access code, as in force from time to time.[13]

Telstra's undertakings fall into the first category where the terms and conditions are specified in the undertakings.

4.2. Criteria for acceptance of an undertaking

Section 152BV sets out the matters which the ACCC must be satisfied before it can accept the undertaking. It applies where an ordinary access undertaking is given to the ACCC and the undertaking does not adopt a set of model terms and conditions set out in the telecommunications access code. Both of Telstra's ULLS undertakings are ordinary access undertakings.

Each of the matters set out in s. 152BV are explained in turn below.

4.2.1. Public process

Sub-section 152BV(2)(a) of the TPA provides that the ACCC must not accept an undertaking unless the ACCC:

- has published the undertaking and invited people to make submissions on the undertaking; and
- has considered any submissions that were received within the time limit specified by the ACCC when it published the undertaking.

The ACCC has posted electronic copies of public submissions on its website www.accc.gov.au. Where parties have provided submissions in confidence or where parts of submissions have contained confidential information, as claimed by submitters, these have not been included on the website.

---

[13] Section 152BS(3) and (4).

4.2.2. Consistency with the standard access obligations

Sub-section 152BV(2)(b) provides that the ACCC must not accept an undertaking unless the ACCC is satisfied that the undertaking is consistent with the SAOs that are applicable to the carrier or provider.

The SAOs are set out in s. 152AR of the TPA. In summary, if requested by a service provider, an access provider is required to:

- supply the declared service
- take all reasonable steps to ensure that the technical and operational quality of the service supplied to the service provider is equivalent to that which the access provider is supplying to itself
- take all reasonable steps to ensure that the fault detection, handling and rectification which the service provider receives in relation to the declared service is of equivalent technical and operational quality as that provided by the access provider to itself
- permit interconnection of its facilities with the facilities of the service provider
- take all reasonable steps to ensure that the technical operational quality and timing of the interconnection is equivalent to that which the access provider provides to itself
- take all reasonable steps to ensure that the service provider receives interconnection fault detection, handling and rectification of a technical and operational quality and timing that is equivalent to that which the access provider provides to itself
- if a standard is in force under s. 384 of the *Telecommunications Act 1997*, take all reasonable steps to ensure that the interconnection complies with the standard
- if requested by the service provider, provide billing information in connection with matters, or incidental to, the supply of the declared services
- if an access provider supplies an active declared service by means of conditional-access customer equipment, the access provider must, if requested to do so by a service provider supply any service that is necessary to enable the service provider to supply carriage services and/or content services by means of the declared service and using the equipment.

The question of whether Telstra's undertaking is consistent with the applicable SAOs is considered in Section 5.

4.2.3. Consistency with Ministerial pricing determination

Division 6 of Part XIC of the TPA provides that the Minister may make a written determination setting out principles dealing with price-related terms and conditions relating to the SAOs.[14]

Paragraph 152BV(2)(c) provides that the ACCC must not accept an undertaking dealing with price or a method of ascertaining price unless the undertaking is consistent with any Ministerial pricing determination.

Telstra has asked the Government to issue a Ministerial pricing determination in relation to the averaged network cost terms in its ULLS undertakings. To date, a Ministerial pricing determination has not been made. Accordingly, the ACCC is not required to assess the undertaking under this criterion until such time that a Ministerial pricing determination is made, if at all.

4.2.4. Whether terms and conditions are reasonable

Paragraph 152BV(2)(d) of the TPA provides that the ACCC must not accept an undertaking unless the ACCC is satisfied that the terms and conditions specified in the undertaking are reasonable.

In forming a view about whether particular terms and conditions are reasonable, the ACCC must have regard to the range of matters set out in s. 152AH(1) of the TPA. In the context of assessing Telstra's undertakings, these are:

- 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 (the 'long-term interests of end-users')
- the legitimate business interests of Telstra, and its investment in facilities used to supply the declared services
- the interests of all persons who have rights to use the declared services
- the direct costs of providing access to the declared services
- the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or facility
- the economically efficient operation of a carriage service, a telecommunications network or a facility.

In addition, the ACCC may consider any other relevant matter.[15]

Set out below is a summary of the key phrases and words used in the above matters. While, in general, these phrases and words have not been the subject of judicial interpretation, in order to have regard to those matters it is necessary for the ACCC to form a view as to what they mean.

---

[14] In Section 152CH of the TPA 'price-related terms and conditions' means terms and conditions relating to price or a method of ascertaining price.

[15] Section 152AH does not use the expression 'any other relevant matter'. Rather, s. 152AH(2) states that the matters listed in s. 152AH(1) do not limit the matters to which the ACCC may have regard. Thus, the ACCC may consider any other relevant matter.

1. Long-term interests of end-users (LTIE)

The ACCC has published a guideline explaining what it understands is meant by the phrase 'long-term interests of end-users' in the context of its declaration responsibilities (although there have been amendments to the TPA definition of the LTIE since that guide was published).[16] The ACCC's view is that a similar interpretation is appropriate in the context of assessing an undertaking.

In a broad sense, the ACCC considers that terms and conditions in an undertaking might promote the long-term interests of end-users if they are likely to contribute towards the provision of services at lower prices and/or higher quality, or contribute to a greater diversity of services being available to end-users.

More specifically, in determining whether a particular thing promotes the long-term interests of end-users, s. 152AB(2) of the TPA requires the ACCC to have regard to whether the terms and conditions are likely to result in the achievement of three specific objectives. Subsection 152AB(3) restricts the ACCC to have regard to these three objectives alone when assessing whether an undertaking is in the LTIE. These objectives are:

- the objective of promoting competition in markets for carriage services and services supplied by means of carriage services
- the objective of achieving any-to-any connectivity in relation to carriage services that involve communication between end users
- the objective of encouraging the economically efficient use of, and economically efficient investment in:
  - the infrastructure by which carriage services and services provided by means of carriage services are supplied, and[17]
  - any other infrastructure by which listed services are, or are likely to become, capable of being supplied.[18]

LTIE objective one – promoting competition

In determining the extent to which an undertaking is likely to result in the achievement of promoting competition in markets for listed services the TPA obliges the ACCC to have regard to the extent to which the undertaking will remove obstacles to end-users of listed services gaining access to listed services. However, the ACCC is not limited to this and may consider other matters in determining whether an undertaking will achieve the promotion of competition in markets for listed services.

LTIE objective two – achieving any-to-any connectivity

Subsection 152AB(8) of the TPA specifies that the objective of any-to-any connectivity is achieved if, and only if, each end-user who is supplied with a carriage service that involves communication between end-users is able to communicate, by

---

16 ACCC, *Telecommunications Services — Declaration Provisions: a Guide to the Declaration Provisions of Part XIC of the Trade Practices Act*, July 1999.

17 s. 152AB(2)(e)(i)

18 s. 152AB(2)(e)(ii)

means of that service, with each other end-user who is supplied with the same service or a similar service, whether or not the end-users are connected to the same telecommunications network.

LTIE objective three – encouraging efficient use of and investment in infrastructure

In the ACCC's view, having regard to 'the objective of encouraging the economically efficient use of, and economically efficient investment in ... infrastructure' requires an understanding of the concept of economic efficiency. This concept consists of three components:

- Productive efficiency

  This is achieved where individual firms use resources such that goods and services are produced using the least cost combination of inputs

- Allocative efficiency

  This is achieved where the prices of resources reflect their underlying costs so that resources are then allocated to their highest valued uses (i.e. those that provide the greatest benefit relative to costs)

- Dynamic efficiency

  This reflects the need for industries to make timely changes to technology and products in response to changes in consumer tastes and in productive opportunities

Subsection 152AB(6) lists the matters the ACCC must have regard to in determining the extent to which the terms and conditions of an undertaking is likely to result in the achievement of the above objective. Those matters are:

- Whether it is, or likely to become, technically feasible for the services to be supplied and charged for, having regard to:
  1) the technology that is in use, available or likely to become available; and
  2) whether the costs that would be involved in supplying, and charging for, the services are reasonable or likely to become reasonable; and
  3) the effects, or likely effects, that supplying, and charging for, the services would have on the operation or performance of telecommunications networks
- the legitimate commercial interests of the supplier or suppliers of the services, including the ability of the supplier or suppliers of the services, including the ability of the supplier or suppliers to exploit economies of scale and scope;
- the incentives for investment in:[19]
  1) the infrastructure by which the services are supplied; and

[19] S. 152AB(7A) was assented to the TPA in September 2005. This section requires that the ACCC, in determining incentives for investment, must have regard to the risks involved in making the investment.

2) any other infrastructure by which the services are, or are likely to become, capable of being supplied.

However the ACCC is not limited to these matters in its assessment of the extent to which a particular undertaking is likely to achieve the above objective (s. 152AB(7)).

Subsection 152AB(2) has been the subject of recent legislative changes that received assent in September 2005. The ACCC understands that the purpose of these amendments was to "ensure that the incentives for investment in new infrastructure by which services under consideration may be supplied, and the risk of making such an investment, is one of the matters to which regard should be had" when considering the efficient use and efficient investment aspect of the LTIE.[20]

While this amendment makes the consideration explicit, the ACCC has considered this aspect in its previous assessments. The ACCC does not consider that the amendments require significant change to the ACCC's approach in assessing whether an undertaking promotes the economically efficient use of, and investment in, the infrastructure by which the service is supplied or any relevant infrastructure.

2. Legitimate business interests of the carrier, and the carrier's investment in infrastructure used to provide the service

The ACCC is of the view that the concept of legitimate business interests should be interpreted in a manner consistent with the phrase 'legitimate commercial interests' used elsewhere in Part XIC of the TPA. Accordingly, it would cover the carrier's or carriage service provider's interest in earning a normal commercial return on its investment.

However, as is explained in the ACCC's guide "Access Pricing Principles – Telecommunications" it is unlikely the access provider's legitimate business interest would extend to achieving a higher than normal commercial return through the use of market power.[21] For example, access prices should not, in most cases, be artificially inflated by the lack of competition in the supply of infrastructure services. However, carriers should also not be precluded from earning higher than normal commercial returns where these returns are generated from, for example, innovative investments or unique cost-cutting measures rather than through the exercise of market power.

Following on from this, the access provider's legitimate business interests do not extend to receiving compensation for loss of any 'monopoly profits' that occurs as a result of increased competition. In this regard, the Explanatory Memorandum for the *Trade Practices Amendment (Telecommunications) Bill 1996* states:

> ... the references here to the 'legitimate' business interests of the carrier or carriage service provider … are intended to preclude arguments that the provider should be reimbursed by the third party seeking access for consequential costs which the provider may incur as a result of increased competition in an upstream or downstream market. [22]

---

[20] Telecommunications Legislation Amendment (Competition and Consumer Issues) Bill 2005, Explanatory Memorandum, p. 7.

[21] ACCC, *Access Pricing Principles – Telecommunications*, July 1997, p. 9

[22] *Trade Practices Amendment (Telecommunications) Bill 1996 Explanatory Memorandum*, p.46.

When considering the legitimate business interests of the carrier or carriage service provider in question, the ACCC also considers what is necessary to maintain those interests. This can provide a basis for assessing whether particular terms and conditions in the undertaking are reasonable to maintain those interests.

3. Interests of persons who have rights to use the declared service

Persons who have rights to use a declared service will, in general, use that service as an input to supply carriage services, or a service supplied by means of carriage services, to end-users. In the ACCC's view, these persons have an interest in being able to compete for the custom of end-users on their relative merits. Terms and conditions that favour one or more service providers over others and thereby distort the competitive process may prevent this from occurring and consequently harm those interests.

4. Direct costs of providing access to the declared service concerned

Direct costs are those costs necessarily incurred in or caused by the provision of access. As stated in the same explanatory memorandum mentioned above:

> ... the references here … the 'direct' costs of providing access are intended to preclude arguments that the provider should be reimbursed by the third party seeking access for consequential costs which the provider may incur as a result of increased competition in an upstream or downstream market.[23]

This requires that an access price should not be inflated to recover any profits the access provider (or any other party) may lose in a dependant market as a result of the provision of access.

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 access.[24]

5. The operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or facility

The ACCC understands this criterion to mean that 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.[25]

6. Economically efficient operation of a carriage service, telecommunications network, or a facility

In the ACCC's view, the phrase 'economically efficient operation' embodies the concept of economic efficiency set out in section 4.2.4. It would not appear to be limited to the operation of carriage services, networks and facilities by the carrier or carriage service provider supplying the declared service, but would seem to include those operated by others (e.g. service providers using the declared service).

---

[23] *Trade Practices Amendment (Telecommunications) Bill 1996 Explanatory Memorandum*, p.46.

[24] Stand-alone costs are the costs an access provider will incur providing a service assuming the access provider produced no other services.

[25] ACCC, *Access Pricing Principles – Telecommunications*, July 1997, p. 10.

To consider this matter in assessing an undertaking, the ACCC may consider whether particular terms and conditions enable a carriage service, telecommunications network or facility to be operated in an efficient manner. This may involve, for example, examining whether they allow for the carrier or carriage service provider supplying the declared service to recover the efficient costs of operating and maintaining the infrastructure used to supply the declared service under consideration.

In general, there is likely to be considerable overlap between the matters that the ACCC takes into account in considering the long-term interests of end-users and its consideration of this matter.[26]

The question of whether Telstra's Undertakings are reasonable is considered in Section 6.

4.2.5. Expiry date

Sub-section 152BS(7) of the TPA provides that an ordinary access undertaking that specifies the text of the terms and conditions, as opposed to one that adopts a set of model terms and conditions set out in the telecommunications access code, must specify the expiry time of the undertaking. Further, s. 152BV(2)(e) provides that the expiry time of the undertaking must be within three years after the date on which the undertaking comes into operation.

4.3. Procedural matters

4.3.1. Confidentiality

In arriving at its final decision, the ACCC has relied on commercial-in-confidence information supplied by Telstra and interested parties. The ACCC has assessed this material in terms of its policy on treatment of information[27] and has determined that, in most instances, it should not reproduce that material in this report.

Accordingly, where information that is commercially sensitive has been relied upon in reaching a conclusion in this report, it has either been aggregated to a level such that it is no longer commercially sensitive or, where this is not possible, masked with the designation **[c-i-c]**. Unless otherwise indicated, the information masked with **[c-i-c]** is information provided by Telstra over which it has made a confidentiality claim.

The ACCC recognises that its decision making processes should be as transparent as practicable. In this regard it notes that interested parties can obtain the commercial-in-confidence information from the provider of that information upon the giving of appropriate confidentiality undertakings. The ACCC notes that interested parties have been able to negotiate such undertakings in respect of some of the confidential information that has been relied upon by the ACCC. However the timeliness of the

---

[26] In considering whether particular terms and conditions will promote the long-term interests of end-users, the ACCC must have regard to their likely impact on the economically efficient use of, and economically efficient investment in, the infrastructure by which carriage services and services provided by means of carriage services are supplied. Clearly there is overlap between the phrase 'economically efficient use of …' in the LTIE criteria and the phrase 'economically efficient operation of …' in this criterion.

[27] ACCC, *Collection and Use of Information*, 2000.

provision of confidential information continues to be an ongoing matter of concern to the ACCC, given the substantial delays experienced throughout this process.

The ACCC notes that, unless it can corroborate commercial-in-confidence information in some way, it is constrained in the weight that it can give to information that has not been subject to broader industry scrutiny.

4.3.2. Information requests and further submissions from Telstra

The ACCC has the power under s. 152BT(2) to request that the applicant give the ACCC further information about the undertaking in order to facilitate the ACCC's consideration of the undertaking.

The ACCC made a request to Telstra for further information under s. 152BT(2) on 23 March 2006. Telstra provided a partial response to the ACCC on 13 April 2006. The ACCC notes that information requested to allow the ACCC to:

- understand and analyse the differences between the PIE II model and the ACA's (now ACMA) NUSC model, used to determine universal service subsidy amounts
- disaggregate and analyse PIE II's cost estimates for the ULLS in comparison with Telstra's regulatory accounts

was not provided, for the reasons set out in Telstra's response.

4.3.3. Information relied upon

The ACCC, in its assessment of the Undertakings, has primarily used the supporting submission of Telstra, as well as the submissions of interested parties made in response to the ACCC's discussion paper and draft decision. Telstra provided a single submission, with several annexures, in support of its undertakings on 23 December 2005. Telstra provided a further submission, with attachments, and resubmitted material it had submitted on its last undertaking in response to that draft decision.

The ACCC sought comments on its draft decision by 5:00 pm 21 July 2006. A number of submissions were received by the deadline. However none were received from Telstra by that time. Since that deadline, the ACCC has received seven submissions from other interested parties, including from Optus. Telstra has provided in excess of fifty submissions in response to the draft decision spread across a period starting after the deadline for submissions up to the making of this final decision. Notwithstanding that some five weeks has elapsed since 21 July 2006, Telstra continues to lodge material, and has not yet advised the ACCC that its submissions are complete. The late submission of material has impacted on the ability of the ACCC to publish and seek comments of interested parties on this new material. However, the ACCC has examined all submissions and material received prior to the making of this final decision, and is satisfied that it has sufficient information on which to make a fully informed decision.

The ACCC has also relied upon relevant information from sources other than submissions where this has further facilitated its analysis, including previous ACCC reports and related processes, expert advice from consultants engaged by the ACCC, and other material such as journal articles, etc. All information the ACCC has examined in making this final decision is specified in Appendix H.

4.3.4. Decision-making period

The ACCC has a six month statutory time frame in which it must make a decision to accept or reject an access undertaking. When calculating the six month timeframe, certain periods of time are disregarded, namely the period allowed for comments on the undertaking and the time taken by a person to comply with a request for further information made under s.152BT of the TPA.[28]

Section 152BU(7) of the TPA allows the ACCC to extend or further extend this six month period by a period of not more than three months. Notwithstanding the large number of submissions lodged outside the time limit specified at the date of publication of the draft submission, the ACCC has not extended the original six month period. In declining to extend the time, the ACCC has taken into the account the desirability of making decisions within the statutory timeframe. The ACCC is not satisfied that the mere failure of a party or parties to comply with reasonable timeframes is sufficient reason to delay its decision or extend the statutory timeframe, particularly where the ACCC is satisfied that it has sufficient information on which to make a fully informed decision within the statutory timeframe.

[28] See sub-section 152BV(2)(a) and (b) of the TPA.

5. Consistency with standard access obligations

5.1. The standard access obligations

Under s. 152BV(2)(b), the ACCC must not accept an Undertaking unless it is satisfied that they are consistent with the SAOs that are applicable to the relevant carrier or provider – in this case, Telstra. The SAOs are set out in s. 152AR of the TPA. An access provider that supplies a declared service to itself or others must comply with any applicable specified obligations. These obligations were referred to above in section 4.2.2. The purpose of this provision is to ensure that an undertaking is only accepted by the ACCC where the undertaking is consistent with the SAOs applicable to the carrier or carriage service provider for the declared services. This ensures that the carrier or carriage service provider is not subject to inconsistent obligations if the undertaking is accepted.

This chapter assesses whether Telstra's Undertakings are consistent with the applicable SAOs. Section 5.2 sets out the ACCC's approach to assessing consistency with the SAOs. Section 5.3 contains the actual assessment.

5.2. Approach to assessing consistency with the standard access obligations

The TPA does not detail a specific approach for assessing whether the terms and conditions in an undertaking are consistent with the access provider's SAOs. The ACCC finds it useful to consider whether the terms and conditions in an undertaking raise any inconsistencies with the SAOs. If the terms and conditions are not inconsistent with the obligations, the ACCC is likely to regard them as consistent.

The ACCC considers that terms and conditions specified in an undertaking would be inconsistent with the SAOs if an access provider in giving effect to those terms and conditions would not satisfy each of the applicable obligations. Such inconsistency could arise either expressly or by implication from the circumstances in which the terms and conditions could be satisfied.

The purpose of this assessment is to ensure that an access provider would comply with the SAOs should the Undertakings be accepted. The ACCC is not here concerned with the reasonableness of the terms and conditions of the Undertakings. Reasonableness is assessed separately in section 6.

The ACCC has especially considered whether any of the non-price terms and conditions specified in the Undertakings (including the attachments) are inconsistent with each of the applicable SAOs. The price terms and conditions are more relevant to an assessment of reasonableness with reference to the matters to which regard must be had in s. 152AH and outlined in section 4.2.4 above.

5.3. Assessment

Clause 3.1 of each of the respective Undertakings provides that Telstra will comply with the terms and conditions specified in the various attachments to the Undertakings to satisfy the relevant SAOs.

The terms and conditions principally relate to pricing, although the attachments also contain clauses that may be classified as non-price terms and conditions.

The Undertakings specify services of particular technical attributes (Telstra services) and then set out the terms and conditions upon which these Telstra services will be supplied. These terms and conditions do not specify all the matters which an access provider and access seeker would need to agree on in the supply of the services.

5.3.1. Non-exhaustive scope of the Undertakings

While the price and non-price terms and conditions that are contained in the Undertakings do not cover all of the matters relating to the supply of a service, it is the ACCC's view that it is not necessary for an undertaking to exhaustively address all matters that could relate to the applicable SAOs.

Any relevant matters that are not addressed in the Undertakings could be settled by commercial negotiation. Should the parties be unable to reach agreement, the matters could be determined in an ACCC arbitration if a dispute was notified.

Accordingly, the ACCC considers that the absence of terms and conditions about certain matters does not, of itself, make an undertaking inconsistent with the SAOs. However, it is open to the ACCC to take the absence into account in conducting its assessment under subsection 152BV(2).

5.3.2. Whether the Undertakings specify terms and conditions for services other than the Telstra services

The ACCC notes that there could be uncertainty about the scope of the Undertakings as they specify terms and conditions for services which are not defined in the precise form used to define the relevant declared services. In certain respects, the Telstra services would appear more limited than the declared services. Some of these limitations are noted below.

The ACCC's interpretation is that the price and non-price terms specified in the Undertakings apply *only* to the services supplied by Telstra (the Telstra Services) and not to the relevant (corresponding) declared services if there are differences in definition or specification. In other words, Telstra would not be required to supply, on the terms in the Undertakings, a form of the declared service that was different to or beyond the scope of a Telstra Service.

If the Undertakings were interpreted as specifying terms and conditions for *all* possible forms of the declared services, then Telstra could, in accordance with the Undertakings, refuse to supply any form of the declared service other than the Telstra Service specified in the Undertakings. If such an interpretation was given to the Undertakings, the ACCC could not be satisfied that the Undertakings were consistent with Telstra's SAOs.

Accordingly, the views expressed below assume that the Undertakings specify terms and conditions only for the supply of Telstra Services and not for every possible form of the relevant declared services.

The practical consequence of this distinction depends on the extent to which a Telstra service would not actually cover all instances of the corresponding declared service.

The ACCC notes the following about the Undertakings:

- the Telstra service will support a connection with DC continuity – there is no requirement for the Telstra service to support any other service

- the Telstra service involves the use of a continuous metallic twisted pair, whereas the declared service involves the use of an unconditioned copper based wire
- the Undertakings do not specify prices for ULLS where the end user is connected to IRIM/RIM/CMUX and therefore arguably does not cover connection to these points. By contrast, the declared service enables connection to any of these network nodes.

The ACCC's consultation with access seekers has not revealed any significant current or prospective use of the relevant declared services that would not fall within the scope of the services definitions or specifications in the Undertakings. The ACCC has not been presented with evidence that such a use will emerge before the expiry of either Undertaking.

However, if an access seeker was to seek access to a form of a declared service other than as specified in the Undertakings, then the ACCC believes that it would be open to the access seeker to negotiate access to the different form of the declared service from Telstra. If Telstra and the access seeker could not agree on terms and conditions of access to such a form of the declared service, the access seeker could ask for the ACCC to arbitrate.

5.3.3. Supply, quality and fault handling in relation to the declared services

The attachments to the Undertakings specify certain technical requirements and applicable codes or industry standards relating to supply of the Telstra services. The ACCC has not received submissions contending that these requirements would be inconsistent with the obligation to provide services of an equivalent technical and operational quality.[29] On their face, the provisions of the Undertakings do not appear to be inconsistent with this obligation insofar as they relate to the Telstra services.

The Undertakings do not contain provisions specifying how Telstra will satisfy its obligations regarding the quality and timing of fault detection, handling and rectification for the Telstra services. Nor do they contain provisions on the commencement, refusal, suspension or termination of supply.

The ACCC does not consider that this necessarily makes the Undertakings inconsistent with the SAOs specified in section 152AR(3) of the TPA. Rather, Telstra has simply chosen not to specify in these Undertakings all aspects concerning how these obligations will be satisfied in respect of the Telstra services[30]. The ACCC considers that, should agreement not be reached on these matters, any such disagreement could be resolved by the ACCC in arbitration.[31]

---

[29] The ACCC has previously sought industry comment on the appropriateness of these or quite similar technical attributes.

[30] It is understood such aspects are addressed by Telstra in its individual access agreements.

[31] It should be noted that the ACCC has also published its views on the model (non-price) terms and conditions for the ULLS and this view would also inform any dispute on such matters.

Overall, the ACCC is of the view that the Undertakings in so far as they stand are consistent with the standard access obligations in relation to the supply and quality of the Telstra services and related fault handling obligations.

5.3.4. Interconnection of facilities

The attachments to the Undertakings specify how the location of points of interconnection (POI) between Telstra's network and the service provider's network are to be determined. The Undertakings state that the POI:

> means, in relation to a line, a point that is an agreed point of interconnection located at or with a TCAM and located on the ULL End Customer side of the TCAM.[32]

In particular, the Undertakings specify that the POI will be at a point agreed by Telstra and the service provider.

The ACCC has noted in past undertaking assessments that it is unclear to the ACCC why the POI would be defined by relation to a TCAM, when the use of a ULLS should mean that there is no Telstra equipment involved in the provision of services to the end-user. It would be expected that the access seeker would provide the customer access module if it was acquiring an ULLS. While the ULLS line would attach to Telstra's MDF, the ACCC understands that an MDF would not be considered as a TCAM. However the ACCC notes that this issue has not been raised by interested parties and therefore may not be a concern.

The Undertakings do not contain further provisions relating to the technical and operational quality and timing of interconnection, or provisions in relation to interconnection, fault detection, handling and rectification. The ACCC considers that the terms and conditions set out in the Undertakings relating to interconnection of facilities would not make the Undertakings inconsistent with the SAO to permit interconnection of facilities (s. 152AR(5)). While Telstra has chosen not to specify in its Undertakings all the terms concerning interconnection of facilities, the ACCC does not consider that this makes the Undertakings inconsistent with the SAO to permit interconnection of facilities. Should the negotiations contemplated by the terms and conditions, or negotiations concerning other aspects of facilities interconnection, not result in agreement, the ACCC considers that those matters could fall for determination by the ACCC in arbitration.

Overall, the ACCC considers that the Undertakings are consistent with the SAOs relating to interconnection of facilities.

5.3.5. Provision, timing and content of billing information

Sub-section 152AR(7) of the TPA provides that the billing information that must be provided by an access provider to a service provider must be given at such times and in a manner ascertained in accordance with the *Trade Practices Regulations*. Regulation 28S provides that billing information must be given in a manner and form, and at the times, agreed by the access provider and service provider. It also sets out the type of billing information that must be given.

---

[32] Attachment A to the Undertakings – Service Schedule x167 – Telstra Unconditioned Local Loop Service – definitions.

The Undertakings do not contain terms and conditions on the provision, timing and content of billing information. The ACCC therefore considers that billing matters would be resolved by commercial negotiation or arbitration, and considers at this time that the Undertakings are not inconsistent with the billing information SAOs.

5.3.6. Conclusion

The ACCC's view is that the Undertakings in as far as they address relevant provisions are consistent with Telstra's SAOs.

However, the ACCC wishes to emphasise that it considers the Undertakings cover only certain forms of the declared services – Telstra's Services – and that it would be open to access seekers to seek other forms of the declared services, including by recourse to arbitration by the ACCC if agreement cannot be reached between Telstra and the access seeker. However, the ACCC acknowledges that it is unlikely that access seekers would seek to access the declared services in different forms from that specified by Telstra during the period of operation of the Undertakings.

The ACCC also emphasises that the Undertakings do not contain a complete set of terms and conditions or deal with all aspects of the acquisition of the services covered in the Undertakings. However the Undertakings are not required to be exhaustive, and other terms and conditions of supply could be determined by commercial negotiation, or failing agreement, through arbitration by the ACCC.

6. Final Decision on Telstra's ULLS monthly charge undertakings

On 23 December 2005 Telstra submitted to the ACCC two undertakings in respect of the monthly charges for ULLS. At the same time Telstra provided to ACCC a submission in support of the undertakings.

The terms and conditions of Telstra's undertakings were outlined in further detail in section 3.2.

In coming to its final decision, the ACCC has examined material submitted by Telstra and other interested parties in response to the discussion paper and draft decision, as well as other material it has considered appropriate and informative. This other material includes:

- previous ACCC reports and processes related, but not limited, to the ULLS
- expert advice from consultants engaged by the ACCC
- general material such as academic writings.

Where appropriate and available, citations have been provided.

The ACCC has included a list of documents examined in the course of making this final decision in Appendix H.

6.1. The approach used by the ACCC to assess the undertakings

Subsection 152BV(2)(b) provides that the ACCC must not accept an undertaking unless the ACCC is satisfied that the undertaking is consistent with the standard access obligations that are applicable to the carrier or provider. The ACCC's assessment of this issue can be found section 5.

As stated in 4.2.3, no Ministerial pricing determination has been made. Therefore, the ACCC is not required to be satisfied that the undertaking is consistent with such a determination (as required by subsection 152BV(2)(c) of the TPA).

As set out in Appendix A, subsection 152BV(2)(d) precludes the ACCC from accepting an undertaking unless the ACCC is satisfied that the terms and conditions in the undertaking are reasonable. Section 152AH provides that, in determining whether terms and conditions are reasonable, the ACCC must have regard to certain matters. In coming to its decision, the ACCC has assessed all the price and non-price terms and conditions having regard to those matters. The assessment has considered the various terms and conditions individually, combined into relevant concepts, and on a global or "whole-of-undertaking" basis. The "conceptual" analysis can be found in the following Appendices:

- the estimation of network costs is examined in Appendix B
- the proposed averaging of network cost charges is examined in Appendix C
- the appropriateness of the WACC is examined in Appendix D
- the ULLS specific cost charge is examined in Appendix E
- the USO adjustment is examined in Appendix F
- the proposed network modernisation provisions are examined in Appendix G

6.2. ACCC's final decision on the undertakings

The ACCC has made the following findings:

- the undertakings are consistent with the standard access obligations;
- in the absence of a Ministerial pricing determination, there is no need to consider whether the undertaking is consistent with such a determination; and
- to the extent that the undertakings seek to impose price and non-price terms and conditions in accordance with Telstra's proposals on these matters, the ACCC is not satisfied that the terms and conditions of the undertaking are reasonable.

In relation to the finding on the reasonableness of the terms and conditions, the ACCC has concluded on an overall basis that the proposed price and non-price terms and conditions contained in the undertakings:

- are unlikely to promote the LTIE, as they will not promote competition and will not encourage the economically efficient use of, and investment in infrastructure
- result in Telstra recovering more than is necessary to promote Telstra's legitimate business interests
- would harm the interest of access seekers and the persons who have rights to use the service
- exceed the direct costs of providing access
- do not have a material effect on the operational and technical requirements necessary for the safe and reliable operation of telecommunications services
- are not likely to facilitate the economically efficient operation of the ULLS.

Accordingly, the ACCC's view is that it is not satisfied that the terms and conditions specified in the undertaking are reasonable.

The ACCC's final decision is therefore to reject Telstra's undertakings.

Appendix A. The ACCC's approach to assessment

This Appendix outlines the ACCC's approach to assessment of key components of Telstra's ULLS undertakings, as conducted in the following Appendices. In general, the approach followed and the matters taken into consideration are standardised across each Appendix to the greatest extent possible. However variations to the standard approach are made in certain circumstances in order to reflect differences in the matters under consideration. The application of the standard approach, and any variations to that approach, are specified in the introduction to each Appendix.

A.1. Approach to assessment

Sub-section 152BV(2)(d) of the TPA provides that the ACCC must not accept an undertaking unless the ACCC is satisfied that the terms and conditions specified in the undertaking are reasonable.

In forming a view about whether particular terms and conditions of Telstra's undertaking are reasonable, the ACCC must have regard to the following matters set out in s. 152AH of the TPA:

- 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 (the 'long-term interests of end-users')
- the legitimate business interests of Telstra, and its investment in facilities used to supply the declared services
- the interests of all persons who have rights to use the declared services
- the direct costs of providing access to the declared services
- the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or facility
- the economically efficient operation of a carriage service, a telecommunications network or a facility
- in addition, the ACCC may consider any other relevant matter.[33]

In conducting its assessment, the ACCC will have regard to these matters in accordance with the interpretations set out in section 4.2.4 above.

In the following Appendices, each matter is considered, either directly or indirectly. Where a particular matter is not considered to be relevant to the situation under consideration, the ACCC has included express statements to that effect.

---

[33] Section 152AH does not use the expression 'any other relevant matter'. Rather, s. 152AH(2) states that the matters listed in s. 152AH(1) do not limit the matters to which the ACCC may have regard. Thus, the ACCC may consider any other relevant matter.

A.2. Applying the 'future with and without' analysis

In considering the various matters set out in s. 152AH, the ACCC may utilise, where appropriate, the 'future with and without' analysis set out in the Sydney Airports case.[34] This analysis involves the ACCC, when considering particular terms and conditions, contrasting the outcome under the section 152AH assessment in the event the undertaking was accepted against the outcome in the event the undertaking was rejected. The ACCC does not consider that the 'future with or without' analysis will assist the ACCC in assessing all of the matters to which it must or may have regard to in assessing reasonableness, and the ACCC will only use the methodology where it facilitates the ACCC's analysis. Where the ACCC has used the methodology, this has been stated.

Where the methodology has been used, the ACCC has considered the effect that acceptance of the undertaking (the 'future with') based on the relevant claims made by Telstra would have on the outcomes under s. 152AH.

With respect to considering the outcome 'without' the undertaking, the ACCC notes that a number of alternative pricing outcomes might arise. The service remains declared under Part XIC and access seekers will retain rights under that section. Access seekers may continue to seek to determine terms and conditions of access via commercial negotiation.

Division 8 of Part XIC of the TPA gives the ACCC power to arbitrate access disputes. The ACCC has made its views on appropriate price terms and conditions clear to industry, and progressively updates these views as circumstances require. The ACCC appreciates that given commercial imperatives for certainty and the costs involved with pursuing a regulatory outcome, an access seeker will in some instances negotiate an access price higher than it believed could be obtained using regulatory means. However, the ACCC notes that its views are likely to influence industry in respect to achieving commercial or regulatory outcomes, and therefore that all relevant 'without' scenarios are likely to lie within a reasonable bound of the ACCC's views on appropriate price and non-price terms and conditions, where the industry could reasonably expect that it would seek to apply these views through its arbitral powers.

---

[34] *Sydney Airports Corporation Ltd* (2000) 156 FLR 10

Appendix B. Network Costs

B.1. Introduction

Telstra proposes to charge $30 a month for the ULLS for the 30 month period from 1 January 2006 to June 2008. In estimating its proposed efficient network costs over this period, Telstra has used the PIE II model. In addition, to demonstrate the reasonableness of its claim, Telstra has compared these prices to Telstra's own historic and current costs as provided to the ACCC under the Regulatory Accounting Framework.

This Appendix contains the ACCC's assessment as to whether it can be satisfied that network cost claims based on the PIE II model are reasonable having regard to the matters set out in s. 152AH.

B.2. Past consideration of network costs

Pricing principles for the ULLS were initially determined in March 2002, including network costs based on an adaptation of the n/e/r/a model. Telstra had proposed in the course of that determination a de-averaged estimation of network costs. This position was accepted by the ACCC and the industry in response to the concerns expressed by Telstra and reflected in the final pricing principles which adopted Telstra's proposed banding structure.[35]

Subsequent to the publication of these prices, Telstra developed a new network cost model known as 'PIE II'. The PIE II model was formally submitted to the Commission in January 2003, in support of its undertakings for PSTN O/T and ULLS. Since this time, the Commission has continued to raise concerns regarding:

- the model's lack of transparency – arising from a lack of documentation and user manual;
- users' inability to manipulate the model;
- the model's overestimation of network costs in regional and rural areas (in particular Band 4); and
- Telstra's unwillingness to change the model as a result of the ACCC's and industry's concerns.

The ACCC has raised its concerns publicly, and in its assessments of various undertakings.

---

[35] Telstra, *Unconditioned Local Loop – Pricing*, Discussion with the ACCC, 09 December 1999, p. 9.

Telstra, *Unconditioned Local Loop Service*, Meeting with ACCC, 19 July 2000, p. 3.

Telstra, *Pricing of Unconditioned Local Loop Services and Review of Telstra's Proposed ULLS charges – Telstra's Submission to the ACCC's Draft Discussion Paper*, 15 September 2000, p. 3.

Telstra submitted undertakings in January 2003 proposing partially de-averaged prices for the ULLS. Following the passage of the *Telecommunications Competition Act 2002*, the ACCC was required to issue Model Terms and Conditions for core services, including the ULLS. The ACCC considered the appropriateness of utilising the PIE II model to inform itself of network costs for the ULLS in the course of that inquiry and concluded that:

> As noted in the Draft Determination, the Commission continues to have reservations over the appropriateness of Telstra's PIE II model. This has been reinforced following feedback from industry participants which questions the model's underlying architecture, assumptions and methodologies. At this stage, and without further analysis of the model, the Commission considers that these concerns combined with the model's lack of transparency limit the extent to which it can be directly utilised in determining indicative price terms and conditions or for other regulatory purposes.
>
> This said, given its preferred pricing approaches (as set out in sections 8, 9 and 10 below) the Commission has used the PIE II model less directly to inform itself of the broad quantum of network costs associated with the PSTN and ULLS. The Commission considers this is not unreasonable as despite the concerns noted above, its preliminary assessment of the model reveals outcomes, particularly call conveyance costs, not unlike those of the n/e/r/a model adjusted for similar periods and input values. Further, the charges being determined are only indicative and will be used to guide the industry in negotiations.
>
> Should the Commission set binding prices in the context of an arbitration, it would consider using Telstra's, or any other model, only after a fuller assessment of the model is undertaken and industry participants have had the opportunity to analyse its modelling framework and assumptions in more detail than has been possible in the current processes.[36]

Accordingly, the ACCC cautiously utilised the PIE II model to inform itself of likely indicative starting point prices for parties to negotiate access prices for Bands 1-4, however noting that:

> The indicative rates for Bands 3 and 4, however, are only loosely based on underlying costs and it would be expected that should Telstra offer services in these areas, more specific pricing proposals would need to be submitted in undertakings or in bilateral agreements.[37]

The ACCC has in previous proceedings continued to utilise the PIE II model to inform itself of the broad quantum of network costs, however it has never directly used the model to set prices in the market, and has continued to express the concerns set out above.[38]

---

[36] ACCC, *Final Determination: Model Price Terms and Conditions of the PSTN, ULLS and LCS services*, October 2003, p. 31.

[37] ibid, p. 107.

[38] ACCC, *Final Determination: Model Price Terms and Conditions of the PSTN, ULLS and LCS services*, October 2003.

ACCC, *Draft Determination on Telstra's core services undertakings*, October 2004.

ACCC, *Final Decision on ULLS and LSS undertakings*, December 2005.

ACCC, *Local Services Review*, July 2006.

Telstra's current undertakings propose an averaged network cost charge, and therefore have necessitated a fuller examination of the PIE II model than has been undertaken in previous proceedings. This has been difficult due to the lack of transparency in the model and the inability to manipulate the model. This has in turn led to difficulties in determining whether the PIE II model and the conclusions drawn from use of that model are sufficiently robust to satisfy the ACCC of the appropriateness and accuracy of the relevant data.

B.3. PIE II Model

Telstra has estimated the efficient network and associated costs using its PIE II model for the 30 month period from January 2006 to June 2008. The PIE II model has been used by Telstra for network cost estimation in support of several recent Undertakings.

The ACCC has reviewed the appropriateness of the PIE II model in assessing Telstra's previous Undertakings. It concluded that it could not be satisfied that the results generated by the PIE II model are sufficiently robust to support a conclusion that terms and conditions that rely upon it are reasonable. Specifically, the ACCC was concerned about the appropriateness of numerous key assumptions underlying the model and its results.[39] The ACCC has also found a lack of transparency in the model that has limited the model's effectiveness as an analytical tool. Despite being requested to do so, Telstra has not supplied adequate information to overcome this lack of transparency.[40] Accordingly Telstra has been unable to satisfy the ACCC that the PIE II model is capable of generating reasonable estimates of the network costs of the ULLS.

The ACCC considers that, in general, prices which reflect the costs of providing the service are most likely to achieve access prices consistent with the matters to which regard must be had under s. 152AH. It is the ACCC's view that for the majority of services, including the ULLS, access prices should be based on the TSLRIC of providing the service, plus a contribution to common costs (known as TSLRIC+). Any access price for the ULLS consistent with TSLRIC+ is therefore likely to be found to be reasonable under s. 152AH.

Telstra's PIE II model is intended to be a TSLRIC+ model. The ACCC's assessment therefore is centred around whether or not it can be satisfied that the PIE II model generates reasonable estimates of TSLRIC+. This leads to an assessment whether the relevant terms and conditions in the undertaking which rely upon these estimates can be considered reasonable when the ACCC has regard to the matters set out in s. 152AH.

The ACCC expressed concerns in its Draft Decision regarding PIE II in the following areas:

- Network provisioning
- The methodology used in estimating operation and maintenance (O&M) costs

---

[39] ACCC, *Assessment of Telstra's undertakings for PSTN, ULLS and LCS*, December 2004, App. C.

[40] e.g. Telstra, *Response to request by Commission under section 152BT of the Trade Practices Act 1974 (Cth)*, 13 April 2006.

- Network planning costs
- Trench sharing
- Network design parameters including the lack of cluster algorithms within the PIE II model, the use of rectilinear distances and the use of minimum spanning trees (MST)[41]

B.3.1. Telstra's Support of PIE II

In its recent Undertaking, Telstra noted[42]:

> …that the ACCC has made number of criticisms of Telstra's PIE II model…Telstra believes that these criticisms made by the ACCC are unfounded and, as a result, the conclusions that the ACCC has reached are incorrect.

In support of its claim that the ACCC's criticisms are unfounded, Telstra submitted that:

- By its nature, the model must necessary be complex and that complexity, by itself cannot be a reason for rejecting the model.
- Telstra had gone to great lengths and cost to make the PIE II model available for all interested parties, to provide detailed documentation and to assist with problems encountered by parties assessing the model.
- The input parameters in the model need to be consistent and that it is often impossible to adjust one parameter without impacting on others. Furthermore, Telstra argued that the model was not designed for changes to be made regarding underlying assumptions.
- The ACCC's claim that inputs and assumptions cannot be changed was factually wrong as the ACCC itself had adjusted certain parameters.
- The ACCC's claim that Telstra has not adjusted the PIE II model in response to criticisms made of it is not a consideration as to whether the undertaking price is reasonable pursuant to s. 152AH. The reason Telstra has not made these adjustments is that Telstra disagrees with them, and Telstra is entitled to use input parameters and assumptions in its model that it believes are most accurate.

Furthermore, regarding the ACCC's criticism of the structure of the model, Telstra submitted that:

- The ACCC claims that it is far from clear that the use of rectilinear distance is appropriate but has not offered an alternative.
- The ACCC lists Telstra's optimisation of trench distances as a concern. Telstra noted that, given that the MST algorithm employed by Telstra minimises trench distances and trench costs account for the majority of CAN costs, it is difficult to understand that concern.

---

41 Rectilinear distances and minimum spanning trees are discussed further below at section B.4.6.

42 Telstra's 2005 Supporting Submission.

- The ACCC claims that Telstra's use of predetermined engineering rules does not necessarily produce an optimal network. Telstra argues that a TSLRIC model cannot be built without engineering rules and such rules were employed by the ACCC's own consultants in the development of a TSLRIC model for the ACCC.
- Telstra does not understand the ACCC's concern or confusion over the manner in which operation and maintenance (O&M) cost percentages are calculated within the model as these are set out in Telstra's description of the model. As for adjusting for the level of efficiency of actual costs, Telstra excluded O&M costs related to legacy technology from its calculation of O&M percentages and applies those percentages to the efficient capital costs.
- Network planning is not a once-off exercise and hence Telstra disagrees with the ACCC's position that these costs be excluded from the cost pool. Telstra also argues that these costs are not duplicated in the PIE II model as the ACCC continues to claim.

In addition, in its submission to the Draft Report, Telstra has submitted reports from CRAI[43] that provide commentary on MJAEE, Analysys and n/e/r/a.

B.3.2. Marsden Jacob Associates and Europe Economics Study

The Competitive Carriers Coalition (CCC) commissioned a study prepared by Marsden Jacob Associates and Europe Economics (MJAEE) to examine the issues associated with the PIE II model.[44] The study acknowledges the effort that has been put into the design and workings of the PIE II model, noting that the model is comparably a fairly advanced cost model of the network and it has the potential to become an important tool for regulatory purposes. Nevertheless, the study makes a significant conclusion that the PIE II model lacks transparency and is 'one of the least accessible' models MJAEE have examined.[45]

In assessing the PIE II model, the study points to problems with the model's methodology and approach:

- PIE II cannot be regarded as a forward-looking cost model based on best practice network technology as it should include forward-looking technologies in the core network.
- The rolling forward methodology is inappropriate.
- There would appear to be inconsistencies between the allocation and dimensioning in the access network leading to overestimated ULLS unit costs.

---

[43] Mitchell, B.M., *"ULLS Commentary on NERA/Optus Submissions" and "ULLS Commentary on Marsden Jacob Associates and Analysys Submissions"* Report Prepared for Telstra by CRA International, August 2006

[44] Marsden Jacob Associates and Europe Economics *Comments on Discussion Paper—Telstra's Undertaking in relation to the Unconditioned Local Loop Service*, 4 May 2006.

[45] Marsden Jacob Associates and Europe Economics *Comments on Discussion Paper—Telstra's Undertaking in relation to the Unconditioned Local Loop Service*, 4 May 2006, p. 1.

- Key parameters used to annualise costs (price trends and asset lives) used for the access network deviate from international practice and would, when adjusted, result in lower unit costs of the ULLS.
- Trench sharing should be set to a long-term 'equilibrium' new estate trench amount (proxied by historical developments) that is held constant over the regulatory period. This would increase sharing in the model and lead to lower ULLS unit costs.
- Efficient O&M costs are overestimated.
- The model fails to optimise based on annualised cost (incl. O&M), but bases its technology choice on investment cost only.

The study concludes that the PIE II model is likely to overestimate the forward-looking cost of ULLS and urges the ACCC to commence modelling of a new core and access network model given the lack of transparency of the PIE II model and the industry's move to Next Generation Networks (NGN).

Optus' View on PIE II

In its submission to the ACCC[46], Optus argued that the PIE II model no longer presents a reasonable estimate of forward looking efficient costs. Optus contends that today's predominantly copper switched network is no longer an efficient forward looking network. Optus argues that this was acknowledged by Telstra in its Network Strategy briefing of 16 November 2005. Optus notes:

> In that briefing Telstra indicated that it plans to transform both its access and core network with the aim of delivering "integrated triple-play of voice, data and video services".

In addition, Optus argued that even if it was appropriate to model an efficient copper based switched network, PIE II was not likely to provide reasonable estimates of the TSLRIC in the CAN

> If best methods and assumptions are not used in the model, then the inefficiencies in the hypothetical network design may well be greater than in the actual existing network.

This led Optus to conclude that:

> the PIE II model and its underlying assumptions do not produce a reasonable estimate of the TSLRIC of the CAN, and as such, the output of the model can not be relied upon to produce estimates for the basis of establishing access prices which can be considered reasonable under the statutory criteria.

Furthermore, Optus does not believe that the cost estimates generated by the PIE II model are reasonable estimates of efficient forward looking costs of the CAN, because the PIE II Model is opaque and inflexible and is unable to be appropriately audited and tested.

B.3.3. ACCC's View on PIE II

The ACCC continues to have concerns about utilising the PIE II model to estimate efficient costs. In particular, one of the main concerns regarding the PIE II model is

---

[46] Optus *Submission to ACCC on Telstra's PIE II model*, May 2006

its lack of transparency. This has been a common theme amongst industry participants. MJAEE in addressing the issue of transparency state:[47]

> The authors of this report have worked with numerous other models and by comparison the PIE II model is one of the least accessible. Although the model has a reasonable (but not ideal) user interface, the documentation is poor and manipulation of the model is practically impossible (at least for a new user). Much of the model's key working are hidden in Visual Basic code making it difficult and time consuming to audit. Although there is some commentary in the code, it is far from satisfactory. In our view, transparency could be greatly improved by provided a detailed user manual or training manual, that also sets out (in a comprehensive manner) the way the different modules and code scripts work together. In our experience such manuals could easily amount to a thousand pages of explanation and commentary…Without transparency, it is difficult to gain faith in the workings of the model.

Furthermore, MJAEE go on to acknowledge that Telstra has put much effort and time into the design and workings of the PIE II model and acknowledge that the model is a fairly advanced cost model of the access network, however they conclude by noting that:

> It is unfortunate that Telstra has not been more forthcoming in increasing transparency.

As noted above, Optus argues that:[48]

> The PIE II model is opaque and inflexible and is unable to be appropriately audited and tested…In particular, n/e/r/a found that the model was so unresponsive that "some of the comparisons we would like to have made have proved impossible

The ACCC concurs with industry participants that the PIE II model lacks transparency. Accordingly, the ACCC reiterates that:

- While it is true that Telstra has made the PIE II model available to interested parties, the ACCC and other industry participants remain of the view that the model's lack of transparency, the absence of detailed documentation of its code, and the restrictions imposed on third parties regarding manipulation of its code to test its underlying assumptions make it difficult for the ACCC and other interested parties to assess Telstra's network claims and be satisfied that the model accurately estimates efficient costs.
- Despite being requested to do so, and thereby being on notice of the ACCC's concerns, Telstra has not provided information on its assumptions nor has it provided a detailed breakdown of the outputs of the model. For instance, to assess Telstra's claim that the RAF data supported its undertakings, the ACCC sought information under s. 152BT on the breakdown of the estimated network costs provided by PIE II in line with the RAF data.[49] Telstra did not

---

47 Marsden Jacob Associates and Europe Economics *Comments on Discussion Paper—Telstra's Undertaking in relation to the Unconditioned Local Loop Service*, 24 May 2006.

48 Optus Submission to Australian Competition and Consumer Commission on Telstra's PIE II Model. May 2006.

49 ACCC, *Re: ULLS Monthly Charges Undertaking for the period 1 January 2006 to 30 June 2008 (Undertaking) – Request for further relevant information*, 23 March 2006, p. 2.

provide the requested information,[50] nor address the ACCC's concerns in a way that satisfies the ACCC that the model accurately estimates efficient costs.

- By its nature PIE II is a complex model and the ACCC agrees with Telstra's assertion that this alone is not a basis for rejection. The ACCC notes that the outputs of the PIE II model have not been rejected on this basis. However, the lack of transparency, and the inability of parties other than Telstra to scrutinise and sensitivity test its underlying assumptions means that the ACCC cannot be satisfied that the model accurately estimates efficient costs. Accordingly, Telstra has not satisfied the ACCC that the terms and conditions which rely on conclusions drawn from the PIE II model are reasonable.
- The ACCC is aware that models require underlying assumptions to be made in developing the network architecture or structure. Nevertheless, to the extent that Telstra has not made changes to the model as a result of the ACCC's and industry's concerns, questions remain regarding the suitability of the model. This again leads to a failure on Telstra's part to satisfy the ACCC as to the reasonableness of the relevant terms and conditions.

In an effort to counter the lack of information in Telstra's submissions, and to further assess the appropriateness of the PIE II model, the ACCC commissioned UK consulting firm Analysys to review the PIE II model.[51] Its major findings are:

- Trench lengths may be overstated due to the model's use of rectilinear distances and the minimum spanning tree algorithm.
- The likelihood of overestimation of trench and cable distances due to the absence of a clustering algorithm is higher in relatively lower density areas.
- The availability of free trenches in new estates provides an opportunity for a new entrant planning its network deployment over a number of years that is greater than currently acknowledged in the PIE II model.
- A new entrant would optimise the sharing of trenches and ducts between the IEN and the CAN rather than reflect Telstra's actual or historical deployment.
- The engineering rules employed in rural areas do not reflect the technological choices available today, such as WIMAX.
- There is a significant risk of over-estimation of O&M costs for assets that are treated in a purely top-down fashion.
- In provisioning for future and heterogeneous demand, some of the modularity of the equipment used may result in higher charges.

Many of the issues noted by the studies prepared for the Competitive Carriers Coalition, for Optus and by Analysys have been discussed in previous Undertakings.

---

[50] Telstra, *Response to request by Commission under section 152BT of the Trade Practices Act 1974 (Cth)*, 13 April 2006.

[51] Analysys, *Review of Specific Issues in Telstra's PIE II Model*: *Report for the Australian Competition and Consumer Commission*, 9 May 2006.

As set out above, for the ACCC to accept a model for use in calculating access prices, the ACCC needs to be satisfied that the model's outputs are accurate and the terms and condition which rely on these outputs are reasonable when the ACCC has regard to the matters set out in s. 152AH.

B.4. Reasonable requirements for modelling

For the ACCC to accept a model for use in calculating access prices, the model needs to produce estimates which the ACCC believes are accurate. It is up to Telstra to satisfy the ACCC of this. In the circumstances, the ACCC is not satisfied that the model produces a reasonable estimate of TSLRIC+ nor that, given that any estimate is by definition an approximation, PIE II's modelling assumptions represent a balancing of the interests of access seekers and the access provider on both model parameters and inputs.[52]

The ACCC continues to believe that, given these requirements, a model must:

- be sufficiently transparent that the ACCC and access seekers could reasonably assess the inputs and outputs at a disaggregated level
- allow users to test the assumptions in the model and analyse the impact of different changes in inputs (and architecture) on outputs by understanding the linkages within the model
- allow users to assess how element costs and capital are allocated within services.

B.4.1. Appropriateness of modelling assumptions

The ACCC has continuously noted that Telstra has made no adjustments to the modelling assumptions underlying the PIE II model in its estimation of the efficient network and associated costs.

In its submission, Telstra states that:[53]

> The reason that Telstra has not made these adjustments is that Telstra disagrees with them. Telstra believes it is entitled to use input parameters and assumptions in its model that it believes are most accurate.

The ACCC understands that Telstra is entitled to its opinions and therefore entitled to use input parameters and assumptions it sees fit. The ACCC accepts that parties can legitimately disagree on what they consider to be appropriate modelling assumptions when engaging in detailed cost modelling. However, Telstra, in putting forward its own cost model, must satisfy the ACCC that its preferred set of assumptions are likely to generate cost estimates which could be held to be efficient cost estimates. In order to do so, the onus remains upon Telstra to enable the ACCC, and other parties, to sufficiently scrutinise its model and to enable sensitivity testing of its preferred assumptions and inputs such that the ACCC can be satisfied that the model is capable of generating efficient cost estimates.

---

[52] *Trade Practices Act 1974 (Cth)*, sub-sections 152AH(1)(c) and (b).

[53] Telstra's 2005 Supporting Submission, p.9.

To the extent that the ACCC (and access seekers) cannot make significant changes to the input parameters, assumptions and coding of the model to test Telstra's assumptions, and given Telstra has declined to discuss and resolve key differences, the ACCC is concerned that the model in its current form is a "take it or leave it" proposition that, for instance, cannot be manipulated to take into account relevant changes in technology.

Despite these concerns in relation to the transparency of and inability to manipulate the model, Telstra appears to have made no attempt to make appropriate adjustments to the model in response to the identified concerns of industry participants and the ACCC. The PIE II model is now more than four years old and based on technologies in use prior to that time. The ACCC accordingly does not consider PIE II to be forward-looking. For instance, new wireless access technologies such as WiMAX were not available at the time of PIE II's construction, however Telstra has made no attempt to adjust the model to take account of technological progress of this type in either the access or core networks.

B.4.2. Network Provisioning

The ACCC has previously stated that it does not agree with Telstra's current approach to network provisioning and that there is an onus on Telstra to show that the assumptions that are used are reasonable.

Telstra's view

Telstra submitted that:[54]

- The ACCC appears to misunderstand the reasons for dimensioning the network in particular ways, and attributes the need for 'spare capacity' solely to take account of possible increases in demand.

- The ACCC also states that the costs of provisioning for future demand should be recovered from that demand once it eventuates.

- The ACCC says that the level of provisioning claimed by Telstra to be required to meet future demand is excessive. Telstra has previously presented evidence that provisioning need not necessarily be driven by increasing demand and that demand uncertainty and heterogeneity can be drivers of the need for providing for spare network capacity.

In addition in its Response to the ACCC's Draft Decision[55] Telstra notes that the issue in the Draft Decision is whether the PIE II model provisions a reasonable amount of spare capacity. Further Telstra argues that the consultants MJAEE and Analysis have erred in their assessment. In particular, Telstra notes the following about the consultant's reports:

---

[54] Telstra's 2005 Supporting Submission, Appendix E, p. 8.

[55] Telstra's *Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*. pp 12-13

- MJA comments that there is space in pillars for up to **[c-i-c]** more copper pairs. Telstra argues that this space is intentionally left to allow technicians to work inside the pillar, and that with no spare space, it would be difficult and costly to undertake maintenance.
- MJA claims that every SIO is dimensioned with 2 copper pairs in Urban DAs. Telstra notes this is not correct, while acknowledging that the maximum capacity of a pillar allows for **[c-i-c]** pair of distribution cables to service Urban DAs and Urban DAs containing **[c-i-c]** and **[c-i-c]** SIOs, the PIE II model does not necessarily dimension up to **[c-i-c]** pair of distribution cable in the distribution area (DA). Further Telstra argues that MJA appear to acknowledge that dimensioning 2 copper pair for each SIO as provided by their evidence of the Danish and Swedish cost models. However, Telstra considers that in any event provisioning of 2 copper pairs per SIO, on average, is good engineering practice.
- Analysys' claim that main cable dimensioning may be excessive in rural areas is not valid. Telstra argues that if a DA has, say, 62 SIOs, then that DA will be served by a **[c-i-c]** pair cable. It is not efficient for Telstra to purchase customized main cable in 62 pairs (or any dimension less than **[c-i-c]** pair) due to the costs of holding in inventory and distributing to different parts of the network many different sizes of main cable.
- That with regard to the ACCC claims that it cannot ascertain with any degree of confidence the impact of network provisioning on network costs, Telstra contends that it is not a simple matter of turning provisioning on and off in the PIE II model and calculating the difference in costs.

Marsden Jacob Associates and Europe Economics view

While MJAEE accept that modelling spare capacity is common for future provisioning, their general assessment is that the cost implications seem to be overestimated. However, in making this judgement, they note that they have not been able to be conclusive in this area because the PIE II dimensioning in this part of the model is highly non-transparent. Their assessment is based on the following views:[56]

- Two copper pairs on average for each network termination point appear to be excessive.

- The fill factors used in the PIE II model appear to be too low and hence it is unclear to MJAEE if the average fill factors which would result from the PIE II methodology are appropriate.

- It is also unclear to MJAEE how a Year 1 rolling forward approach as adopted in the PIE II model would cater for a correct (i.e. operated according to the principles of economic depreciation) recovery of the investment costs. This is because a rolling forward approach would not explicitly take into account the evolution of traffic volume over the years, especially if the annualisation

[56] Marsden Jacob Associates and Europe Economics, *Comments on discussion paper—Telstra's Undertakings in Relation to the Unconditioned Local Loop Service*, 4 May 2006, p. 20.

formula used includes a "tilt" that takes into account only equipment price changes (and not evolution of traffic).

ACCC's view

The ACCC has in the past disagreed with Telstra on how the costs of provisioning for future demand should be recovered.

Analysys[57] in its assessment of the PIE II model notes two areas of concern. Firstly Analysys agrees that telecommunication providers tend to overprovision those elements of the network that may be more susceptible to larger statistical demand fluctuations. In recent work undertaken for Ofcom, the UK regulator, on the effect on the annualised cost of spares provisioned in the CAN, Analysys' findings suggest that the significant changes in the number of spares may have a small impact on costs. Nevertheless, Analysys point out that in rural DAs with fewer than **[c-i-c]** SIOs the issue may be significant in that Telstra's dimensioning of **[c-i-c]** pair cable may be excessive. Telstra argues that providing customized main cable may not be efficient due to the costs of holding inventory and distributing to different parts of the network. The ACCC agrees that this may be the case if each cable had to be customized. If cables can be customized than Telstra could purchase cables of different sizes, say of 4 or 5 different sizes to meet Telstra's requirements in different geographic areas. If this is possible, then Telstra has not provided sufficient evidence of the cost/benefits of Telstra continuing to serve DAs with a **[c-i-c]** pair cables. The ACCC notes that Telstra has criticised Analysys' point of view by stating that Analysys has focussed solely on capital costs in forming its conclusions, and overlooking O&M considerations.[58] The ACCC is not satisfied that this criticism is well founded, given that Telstra's model focuses on capital costs only, with O&M costs as an exogenous input, and particularly where Telstra has not supported its qualitative arguments with evidence on what it claims to be the higher costs which would result.

Telstra's example of a hypothetical 62 SIO DA appears arbitrary and would not appear to be representative of the range of circumstances under which the PIE II model uses **[c-i-c]** pair cables not just to feed DAs, but to also connect every SIO within that DA.[59] That is, there are very few alternative deployment methods for rural DAs, and on the available evidence, the ACCC is not satisfied that the use of **[c-i-c]** pair cables are appropriate in every circumstance given that in practice the number of SIOs connected to such a cable could be significantly less than Telstra's chosen 62 SIO example

The ACCC stated in its Draft report that it could not assess with any degree of confidence the impact of network provisioning on network costs. Both MJAEE and Analysys have expressed concern in this area. For the ACCC to accept these rules,

---

[57] Analysys, *Review of Specific Issues in Telstra's PIE II Model*: *Report for the Australian Competition and Consumer Commission*, 9 May 2006.

[58] Telstra, *Telstra's confidential submission in response to the Analysys report,* 21 August 2006, pp. 3-4.

[59] Telstra, *Annexure A – Description of the PIE II Model*, 13 February 2003, p. 5.

the onus is on Telstra to show that its assumptions and methodology are reasonable. Telstra concedes that:[60]

> it is not a simple matter of turning provisioning on and off in the PIE II model and calculating the difference in costs.

The ACCC considers that this concession reaffirms why it cannot be satisfied as to the impact of the network provisioning rules on network costs as estimated by PIE II.

Further, the ACCC is concerned that these provisioning rules may have a substantial impact on cost structures in rural areas as pointed out by Analysys. If this is the case then this has a particular impact under an averaged ULLS approach as suggested by Telstra. The ACCC is therefore not satisfied that the network provisioning rules and their impact on network costs are reasonable.

B.4.3. Operational and Maintenance Factors

The ACCC continues to express its concern regarding the manner in which operation and maintenance (O&M) cost percentages are calculated within the model. The ACCC believes that Telstra needs to provide further justification as to the manner in which all the proposed cost percentages are determined.

Telstra's view

In its submission, Telstra refers to the ACCC concerns regarding adjusting these costs for the level of efficiency. Telstra states that:[61]

> Telstra does not understand the ACCC's confusion over the calculation of O&M percentages in PIE II…As for adjusting for the level of efficiency of actual costs Telstra excludes O&M costs related to legacy technology from its calculation of O&M percentages.

Telstra, in its response to the Draft report,[62] noted:

- The PIE II model is consistent with international best practice in terms of calculating O&M expenses
- No model has attempted the daunting task of modelling directly the O&M activities
- MJA claim than rural O&M costs are higher than urban O&M costs. However, this is not important since the costs are averaged across geographic Bands to determine an averaged ULLS price. What is relevant is whether the sum of urban and rural O&M costs is reasonable.
- The PIE II model calculation avoids overstating O&M expenses for long lived assets despite the Commission's claim to the contrary. For short-lived assets, the calculation ensures that O&M costs associated with older and less efficient network assets are not used to project forward-looking O&M expenses.

---

[60] Telstra's *Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*. pp 13

[61] Telstra's 2005 Supporting Submission,, p. 10.

[62] Telstra's *Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*. pp 14

- Mitchell[63] discusses that the inclusion of aerial cable costs in O&M costs is likely to have only a minimal impact on the overall O&M expense estimate and also suggests that Analysys have overstated the impact in their calculation.

Marsden Jacob Associates and Europe Economics view

MJAEE raise a number of issues regarding the O&M calculations in the PIE II model. Their assessment is that using O&M percentages is likely to overstate direct O&M costs and where this is the case it may also exaggerate indirect O&M costs. The study finds that:[64]

- While applying O&M percentages may be pragmatic, there is concern that the percentages used are aggregates and may not provide a realistic view of O&M costs. MJAEE considers that the approach may overestimate these costs.
- The use of O&M percentages in PIE II implies that the O&M costs in some rural areas will be more than ten times those in urban areas. While it is acknowledged that rural costs would be higher, MJAEE question the extent of the difference.
- Where assets are largely depreciated, the use of O&M percentages applied to the capital costs in the PIE II model would result in an overstatement of costs. This is because this results in the PIE II model using the historical O&M costs incurred by Telstra for these assets. MJAEE notes two issues with this approach. First, it assumes that its O&M costs are efficient and this can be questioned, given Telstra's recent announcement to shed up to 12,000 jobs over the next five years. Further, a study by the Danish regulator on TDC's operating costs showed that these costs were 90 per cent efficient and adjusted O&M percentages accordingly. Secondly, it notes that while copper has not changed substantially over time, the copper lines in the existing Telstra network are unlikely to be of similar quality to that which would be laid today resulting in fewer faults and repairs. This would result in lower costs.

ACCC's view

The ACCC has in the past expressed its concerns over Telstra's calculation of O&M costs in the PIE II model.

Analysys[65], in assessing the PIE II model, acknowledge that the treatment of O&M in the model constitutes a practical solution to bottom-up modelling of operating costs. However, they conclude that there is a significant risk that O&M costs are overestimated by a factor of over 10 percent for long lived assets that are treated in a purely top-down fashion. This is because:

---

63 Mitchell, B.M., *ULLS Commentary on Marsden Jacob Associates and Analysys Submissions, Report Prepared for Telstra*, August 2006

64 Marsden Jacob Associates and Europe Economics, *Comments on discussion paper—Telstra's Undertaking in Relation to the Unconditioned Local Loop Service*, 4 May 2006, p. 39.

65 Analysys, *Review of Specific Issues in Telstra's PIE II Model*: *Report for the Australian Competition and Consumer Commission*, 9 May 2006.

- If the network produced by the model is more compact or has less network elements than Telstra's actual network, then a portion of the O&M costs would certainly not be incurred
- The use of O&M for a mixture of technologies is inconsistent with the objective to produce a forward-looking MEA-adjusted cost. For example, some of Telstra's expenses linked to the distribution network may include the maintenance of overhead distribution cables, which the PIE II model does not deploy, and which are typically higher than for buried cable. Bridger Mitchell however argues that the use of a composite O&M percentage for cable will have a small impact on costs. By contrast, Analysys suggest that these costs could be overestimated by around 15 percent, a point subsequently refuted by Bridger Mitchell.[66]

The ACCC has had reservations on the use of O&M percentages, particularly as applied to long-lived assets. The ACCC is not satisfied that Mitchell's arguments on the impact of aerial cabling are well founded. Annexure B to both his 2005 statement outlines the relevant O&M factors applied to aerial, buried and underground cabling in US models.[67] O&M factors applied to aerial cabling exceed those applied to underground cabling by several orders of magnitude. Analysys demonstrated that replacement of aerial cabling with other forms of cabling, even where aerial cabling is only **[c-i-c]** percent of total cabling will result in significant O&M savings, and a failure to recognise these savings in Telstra's O&M calculations is likely to lead to significant overstatement of Telstra's forward-looking O&M costs. The use of historic O&M costs raises a number of issues. Telstra's historic costs are not necessarily those of an efficient and forward-looking operator. Even allowing for adjustments due to the exclusion of legacy technologies, it is not clear these costs reflect those of an efficient forward-looking operator.

The ACCC is concerned that Telstra's O&M costs estimates in rural areas may overestimate their true costs. Telstra suggests this is not important since the costs are averaged across geographic Bands to determine an average ULLS price. However, to the extent that rural estimates are overestimated, averaged estimates will similarly be overestimated. Further, the ACCC has consistently sought Telstra's calculations on O&M costs and notified Telstra of its concerns regarding these calculations, Telstra to date has not provided the ACCC with information beyond the qualitative description of the linkages involved in the determination of direct O&M, indirect O&M and indirect capital costs as provided in Telstra's description of the PIE II model in 2003. This qualitative description is insufficient for the ACCC to satisfy itself that Telstra's O&M calculations are reasonable. Hence, on the evidence made available to the ACCC, it cannot be satisfied that Telstra's claimed O&M costs are reasonable.

B.4.4. Network Planning Costs

The ACCC has in the past stated its views regarding network planning costs. The ACCC has previously held the view that although recovery of these costs associated

---

66 Mitchell, B.M., *ULLS Commentary on Marsden Jacob Associates and Analysys Submissions*, Report Prepared for Telstra, August 2006

67 Mitchell, B. M., *Appropriateness of Telstra's 2005 cost modelling methodology*, Annexure B.

with the ongoing maintenance and replenishment of infrastructure is appropriate, any such costs should be appropriately covered by operation and maintenance costs which are allowed for by the ACCC.

Telstra's view

Telstra submits that: [68]

> …the Commission believes that these should be excluded from the cost pool, as Telstra's costs of planning its network are long recovered. To include network planning costs would, the Commission says, result in Telstra recovering costs it does not actually incur. This is incorrect. Network planning is not a once-off exercise. Telstra incurs network planning costs on an ongoing basis in the development and maintenance of its network and indeed is currently in the midst of a major assessment and planning exercise. Furthermore, as Telstra has explained a number of times, these costs are not duplicated in the PIE II model as the Commission continues to claim.

In its response to the Draft report, Telstra notes that the O&M expense factors have been calculated in a way that excludes network planning costs.[69]

Marsden Jacob Associates and Europe Economics view

MJAEE note that the PIE II model includes a percentage relating to network planning costs. However they point out that it is unclear why network planning has achieved such a special treatment as it is common practice to include any network planning within O&M costs.[70] Further, since the TSLRIC concept implies that a model should cost the optimised network as if it were already in place, this would exclude any major network planning costs relating to building the network.

ACCC's view

It would appear from Telstra's comments that it has not taken into account the ACCC views as outlined in its Final Report 2005.[71] As outlined in the report, the ACCC was concerned that these costs may have been recovered from O&M costs. Nevertheless, in the 2005 report the ACCC accepted Telstra's position that O&M costs do not include network planning costs. The ACCC, however wishes to stress that this issue arises from Telstra declining to provide the calculations which give rise to its claimed direct and indirect O&M costs, as discussed in the previous section.

B.4.5. Trench sharing

Trench sharing has the overall effect of reducing the cost of trenches in the provision of PSTN services. This can occur in two main ways, reflecting the two basic types of trench sharing.

First, there is sharing which reduces the total trench length. This comprises:

- sharing within a network, e.g. within the feeder network

---

[68] Telstra's 2005 Supporting Submission, p. 10.

[69] Mitchell, B.M., *ULLS Commentary on Marsden Jacob Associates and Analysys Submissions, Report Prepared for Telstra*, August 2006 pp-14

[70] Marsden Jacob Associates and Europe Economics, *Comments on discussion paper—Telstra's Undertaking for the Unconditioned Local Loop Service*, 4 May 2006, p. 42.

[71] ACCC's 2005 Final Decision.

- sharing between feeder and distribution networks
- sharing between the customer access and conveyance networks.

Second, there is sharing that reduces the costs that should be allocated to PSTN services. This comprises:

- sharing with other telecommunications carriers and Pay TV operators
- sharing with utilities in new estates.

Telstra's view

Telstra asserts that the ACCC position on trench sharing is not justified. It argues that:[72]

- In recent years Telstra has extended the PSTN to provide new services in new estates and these accounts for **[c-i-c]** per cent[73] of basic access lines.

- For Telstra to share with third parties, it is necessary that both parties build the infrastructure at the same time. Shared existing closed over trenches with others is impractical, as they would need to be opened.

- Telstra argues that the ACCC's proposal should reflect the assumption that 13 percent of Telstra's network is comprised of new estates, and that therefore the PIE II model should exclude 13 percent of trench costs, is unjustifiable and incorrect because:

    - It assumes a cumulative figure of 13 percent on the basis that trenches opened during the last 10 years could be shared with third parties

    - Such a high figure is an inappropriate input for the PIE II model, as the trench sharing factor is applied to all ESAs in the network, regardless of their location or characteristic. It is clearly unreasonable to assume that 13 percent of CBD inner metropolitan distribution trenching ever formed part of any "new estates"

Telstra in its response to the Draft report states that the PIE II model allows for **[c-i-c]** per cent of SIOs to be supplied using trenches that are to be shared with developers in new estates.[74]

Further Telstra counters the contention that the actual level of trench and duct sharing for Telstra in relation to PSTN reflects inefficient practices and that an efficient operator building the PSTN afresh would share its trenches and conduits at levels different from those of Telstra.[75]

---

[72] Telstra's 2005 Supporting Submission, Appendix E, p. 18.

[73] Telstra's Submission to the 2006 Discussion Paper, Appendix A, p. 20.

[74] Telstra's *Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*. pp 14

[75] **[c-i-c**]Statement of **[c-i-c],** 21 July 2006.

Telstra argues that the potential for Telstra to share new PSTN trenches it builds with the utilities (gas, water, sewage, power and other telecommunication companies) is subject to:

- There being a common alignment in the need for the trench at a particular location between the utility and Telstra. This would require that Telstra's end-points – exchange building, RSS, pillars and IRIMs need to be located in close proximity to equivalent existing equipment of the utility with which the trench is shared. Telstra argued that if there is no alignment of "end-points" it would be more cost effective for Telstra to build its own trenches which directly connect Telstra's CAN network rather than share facilities. Further Telstra argues that even in new estates, alignment between utilities was not possible and therefore trench sharing was not cost effective.
- Telstra's distribution infrastructure must comply with appropriate separation standards for external distribution infrastructure on public land. That is, the distance the relevant items must be physically apart from each other. Depending on the utilities with which trenching is shared, separation of the infrastructure ranges from 10mm to 300mm. There are also regulations regarding the depth of the trench.[76] Telstra argues that depending on these requirements, this implies that that the trenches may need to be dug deeper or wider to accommodate these regulations. Further, Telstra argues that where boring is used (i.e. a horizontal tunnel is drilled by machinery) and one utility needs to share the "tunnel" a larger tunnel must be bored or more than one tunnel must be bored. Telstra argues that "This of course increases cost".
- Telstra and other utilities undertake the planning and building of the trench at the same time. Telstra notes that sharing is cost effective if the utility or telecommunications company and Telstra build their infrastructure at the same time. This is because once a trench is built by the utility or other telecommunications company and covered up, it no longer exists and thus Telstra has to incur all the costs associated with building a new trench even it follows the alignment
- Operational issues not preventing such sharing. Telstra argues that on occasion it must install an access point such as a pit or a manhole to access existing conduits. And accordingly there are a number of occupational and health and safety implications of excavating around the facilities of other utilities in a shared trench. Telstra notes that although Telstra could share its trenches with either water, sewer or gas utilities, it does not share its conduits with those utilities because it would not be cost-effective to do so, and such sharing could become very dangerous in case of a water and/or gas leak.

Marsden Jacob Associates and Europe Economics view

MJAEE argue that the real issue in considering trench sharing lies in the interpretation of "time" in the forward looking concept. For the purpose of modelling, they point out that the network from a technical perspective is built overnight (or instantaneously) but all input parameters (trench sharing, equipment prices etc) are

---

[76] Telstra quotes the Electrical Safety (Network Assets) Regulations 1999 (Vic)

verifiable and reflect the costs of actual network builds.[77] That is, sharing of trenches may reflect normal planning and construction activity. Therefore trench sharing and trench sharing in new estates should reflect a cumulative (or historical) trench sharing measure.

Optus view

Optus in its submission to the ACCC makes the following points with regards to trench sharing:

- A reasonable model would reflect Telstra's capacity to have optimally shared trench costs for new estates established throughout the construction of the PSTN rather than simply in the year of modelling. On this basis a **[c-i-c]** per cent trench sharing assumption in new estates is not reasonable.
- The PIE II model underestimates the level of trench sharing with third parties. In addition, Optus notes that Telstra's approach to accounting for trench sharing is not reasonable since it deducts from its cost base those leasing revenues that it actually achieves, rather than leasing revenues that it could efficiently achieve. Optus notes that this point has been recognised by the Productivity Commission.
- The PIE II model underestimates the benefits of duct sharing. In particular, the PIE II model assumes that Telstra receives revenue of **[c-i-c]** per/km for duct sharing, whereas Optus will be paying an effective rate of **[c-i-c]** per/m.
- The PIE II model assumes that **[c-i-c]** percent is the level of sharing between the CAN and IEN networks. Optus argues that this is low compared with n/e/r/a international benchmarks of **[c-i-c]** percent.

ACCC's view

The ACCC notes that the issue of trench sharing in general, and more specifically the issue of trench sharing in new estates and between the CAN and IEN, is one of the ways the process of construction is reflected in the PIE II model. While it is valid for Telstra to point out that approximately 1 percent of services are connected in new estates per annum, it is also true that the CAN would not be able to be constructed in one period (or instantaneously). Further, as Analysys[78] points out, in practice many years are required to construct a network, during which a new entrant could progressively make use of open trenches in new estates. Hence Analysys concludes that a new entrant would be able to access trenches in new estates higher than that currently acknowledged in the PIE II model.

The ACCC therefore continues to believe that trench sharing in new estates should be of the order of 13 percent, reflecting historical trench sharing measures, rather than Telstra's 1 percent of trench costs.

Furthermore, with regards to Telstra's response, the ACCC notes:

---

[77] Marsden Jacob Associates and Europe Economics, *Comments on discussion paper—Telstra's Undertaking for the Unconditioned Local Loop Service*, 4 May 2006, p. 38.

[78] Analysys, *Review of Specific Issues in Telstra's PIE II Model*: *Report for the Australian Competition and Consumer Commission*, 9 May 2006.

- That Telstra has not provided any evidence as to the reasons why a hypothetical, efficient operator may not consider the establishment of its nodes close to other utilities end-points to maximise potential trench sharing
- While noting that in some instances the need for the infrastructure to be separated may not be conducive for sharing, the ACCC acknowledges that separation may require building larger trenches. However, Telstra has not argued its case that separation or building larger trenches would necessarily lead to higher costs where that cost is shared between utilities and Telstra
- While Telstra argues that operational issues may prevent sharing and that it does not share it trenches with water, sewer or gas utilities because it would not be cost-effective, the ACCC wishes to note that Telstra has not provided evidence why such sharing would not be cost-effective.

In considering trench sharing between the CAN and the IEN, Analysys point out that based on historical information the PIE II model assumes that 5.6 percent of total IEN length is shared. Analysys argues that a new entrant would be able to optimise the sharing of trenches between the CAN and IEN and therefore reduce the costs in the access network.

The ACCC also notes that there appears to be a discrepancy in the material presented by Bridger Mitchell with regards to the trench and structure sharing opportunities for carriers with third parties. That is, the FCC considered it appropriate to estimate trench and structure sharing on a forward-looking basis for a carrier operating in an efficient manner, and that the opportunities for sharing increase with density. Accordingly, the sharing percentages *rise* as line density increases, rather than the inverse relationship suggested by Mitchell.[79]

Overall, the ACCC has noted a number of significant concerns with Telstra's trench sharing modelling approach. Telstra's position on trench sharing is not sufficiently robust for the ACCC to be satisfied that the relevant terms and conditions which rely on the approach are reasonable when one has regard to the matters set out in s. 152AH.

B.4.6. Network design parameters

The ACCC continues to be concerned that the architecture of the network as devised by the PIE II model is far from optimal. Its concerns relate to the PIE II model not using appropriate clustering algorithms and the use of rectilinear distances and the application of minimum spanning trees.

Lack of Clustering Algorithms

The PIE II model divided each exchange service area (ESA) into discrete areas called distribution areas (DAs) ranging in size from **[c-i-c]** square km to **[c-i-c]** square km. The PIE II model classifies these DAs into 4 categories: high density urban, urban, non-urban and non-urban alternative access.

---

[79] Mitchell, *Appropriateness of Telstra's 2005 cost modelling methodology*, 2005, pp. 48-49. The relevant discrepancy is apparent from a consideration of footnote 76 in Mitchell's statement.

Optus has submitted that there are fundamental inefficiencies in the grid method used by Telstra. Based on a 2003 n/e/r/a report, Optus argued[80]:

- Given the availability of detailed and accurate geographic data, the employment of relatively large grids for the definition of distribution areas is inappropriate, not best practice and will lead to significant overestimation of trench lengths and copper wire lengths;
- The grid mechanism fails to distinguish between built up and non-built up areas within a grid and imposes arbitrary borders which results in significant over estimation of trenches and cable costs, and
- Using a clustering algorithm to identify DAs rather than the grid approach would have significantly improved the output of the model without adding significant computational cost to the process.

Further, Analysys tends to agree with the issues raised by n/e/r/a.[81] To reinforce its case, Analysys points out that it would be odd to use a radio technology simply because a SIO was 100m from its nearest neighbour, but over the boundary into an otherwise unoccupied DA. However, Analysys, note:

> It is extremely difficult to estimate the possible size of this effect due to the lack of statistical information on whether there are in fact significant 'clustering' effects…

While conceding that a small, systematic error in the overall estimate of density may not have a massive effect on network costs, Analysys argues that to the extent the DA placement affects the amount of infrastructure deployed this may cause too much duct and cable to be deployed when the infrastructure is placed in an inefficient location.

The ACCC notes that the issue regarding lack of clustering algorithms used in the PIE II model have been discussed since 2003. To date, Telstra has not addressed these points by making appropriate changes to the model. The FCC's HCPM model use optimisation techniques in clustering algorithms. These techniques, it is observed[82], can reduce total distances by as much as 50-60 percent; and more typically by 10-30 percent.

The ACCC notes that to the extent that clustering algorithms are not used in the PIE II model, there is potential for trench and cable distances to be overestimated. Accordingly, the ACCC cannot be satisfied that the estimates provided by the PIE II are reasonable.

Rectilinear distance estimation

Trench distances in the PIE II model are calculated using unadjusted rectilinear estimates. In general, a number of possible distance metrics can be used to estimate

---

[80] Optus *Submission to Australian Competition and Consumer Commission on Telstra's PIE II Model*, May 2006. pp 5-6

[81] Analysys, *Review of specific issues in Telstra's PIE II model. Final report for the Australian Competition and Consumer Commission*. 24 May 2006. pp 16-20

[82] Bush, C.A., Kennet, D.M., Prisbey, J., Sharkey, W.W., Gupta, V., "Computer Modeling of the Local Telephone Network. October 1999.

the distance between two points d(A,B) where A and B are two given points. The generalised distance metric takes the form:

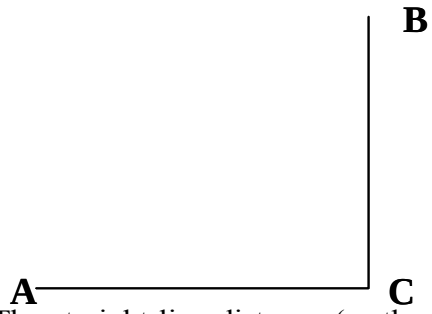
$$d(A,B) = k\left[\left|a_1 - b_1\right|^p + \left|a_2 - b_2\right|^p\right]^{\frac{1}{p}}$$

Where: (a_1,a_2) and (b_1,b_2) are the coordinates of A and B respectively;

k is an adjustment (or correction) factor

The PIE II model as noted above uses an adjusted rectilinear form. That is, it assumes the adjustment factor k is equal to one and the value of $p = 1$. To illustrate, the PIE II model estimates the distance between the points A and B in the diagram below as:

d(A,B) = AC + CB.



The straight-line distance (or the Euclidean metric) is obtained from the generalised form by setting k=1 and p=2. In the above graph, the Euclidean metric is estimated as:

d(A,B) = AB

Telstra's view

Telstra in its latest submission argues that:[83]

- The ACCC has concerns with the application of rectilinear distances but has offered no alternative.
- The PIE II model is significantly more sophisticated in several respects than the n/e/r/a model which is still relied on by the ACCC to help gauge the reasonableness of ULLS estimates.
- The ACCC has erred in claiming than an improvement on its own modelling is unreasonable.

In its response to the Draft report, Telstra notes:

- The Commission has expressed its view that lower estimates of cost can be achieved by using different algorithms. Telstra submits that this is not true, and even if it were, the proposed alternative algorithms assume efficiencies that are unachievable
- In relation to rectilinear distances, the Commission claims that shorter trench distances can be obtained in the PIE II model by adopting Cartesian distance

[83] Telstra's 2005 Supporting Submission, Appendix E, p. 21.

algorithm rather than rectilinear. However, Telsta counters by noting that Mitchell[84] provides evidence from a US highway study which shows that the correction factor that could be applied to rectilinear distances is between 0.94 and 1.05, with a mean of 0.995, where 1 implies no correction factor should be applied. In other words, Mitchell argues that there is little, if any, bias from using the rectilinear measure.

Marsden Jacob Associates and Europe Economics view

MJAEE note that the PIE II model uses rectilinear distance with no correction factor.[85] In urban areas where the geography resembles a grid-like structure an uncorrected rectilinear distance is appropriate. However, when this is not the case, as in rural areas, the accuracy of an unadjusted rectilinear distance is reduced. They concur with Bridger Mitchell when he states that the rectilinear measure could be improved by conducting studies of representative areas and developing correction factors for these areas[86] and suggest that Telstra should conduct such analysis in less dense areas. Their view is that applying such a correction factor in less dense areas (such as rural areas) would be expected to result in a reduction in trench lengths.

Optus view

Optus noted that the use of rectilinear distances in the PIE II model does not provide reasonable estimates of efficient trench lengths. In particular, Optus noted that:

- The use of rectilinear distances overstates real distances significantly
- Telstra has not presented sufficient evidence to justify why a corrected Cartesian estimate would not yield a more reasonable distance estimate than a rectilinear estimate; and
- Telstra has not provided sufficient methodological evidence to explain how the rectilinear estimation is applied in the PIE II model.

ACCC's view

The ACCC's concerns with the application of rectilinear distances have been noted in previous reports.[87] In this regard it is relevant to consider the advice of CRAI to Telstra on the appropriateness of its use of rectilinear distances in the PIE II model:

> In most cost models, one or two estimates are generally considered: Cartesian (direct) distance measures, and rectilinear measures. Some models use only one of the two estimators, others use both and give the model user the *option of choosing*. Irrespective of which metric is used, the measurement formula *must be parameterized with a*

---

84 Mitchell, B.M., *ULLS Commentary on Marsden Jacob Associates and Analysys Submissions Prepared for Telstra*. CRAI August 2006.

85 Marsden Jacob Associates and Europe Economics, *Comments on discussion paper—Telstra's Undertaking for the Unconditioned Local Loop Service*, 4 May 2006, p. 36.

86 Mitchell, B.M., *Appropriateness of Telstra's 2005 Cost Modelling Methodology*, December 2005, p. 45.

87 ACCC, 2005 Final Decision, p. 101.

> *correction factor* that reflects local geographic conditions that relate the estimated road distance to actual distance.[88] (emphasis added)

The ACCC stated in its final decision to reject Telstra's 2004 ULLS monthly charge undertaking that:[89]

> The PIE II model does not provide users with a choice of estimation method.

The ACCC considered that it may be appropriate for Telstra to provide users with a choice of the two alternatives, as suggested by CRAI's advice, although Telstra to date has not done so.

Analysys[90] in assessing rectilinear distances as used in the PIE II model agrees that a rectilinear approach may be relevant in urban areas due to street grids but this approach may not be relevant in rural areas. Further, while noting that it would be difficult to assess the impact of this effect, Analysys suggests that there is a real risk of overstating the trench length by a factor of around 2 percent although this estimate would be dependent on Australian geographic conditions.

Further, in their latest advice to Telstra CRAI note:

> I have previously recognized that distance measurement in the PIE II model could be more accurate and more reliable if a sufficient representative sample of trench lengths were obtained and those data were then used to calibrate a distance metric. In particular, road distances can be modelled more accurately by using more general distance metrics that fit samples of actual road distance better than both the rectangular and Cartesian measures. These generalized measures, however, must be constructed to fit representative samples of actual distances between nodes; the parameters differ substantially over various data sets.[91]

The ACCC wishes to stress that the issue is whether the network costs as estimated by PIE II are appropriate and reasonable. To the extent that Telstra has not made any adjustments to the model with regards to the appropriate use of rectilinear distance or undertaken further analysis in support of its claim that the rectilinear approach provides reasonable estimates in all geographic areas, the ACCC cannot assess whether these estimates are reasonable.

Minimum spanning trees

The PIE II model utilises a Minimum Spanning Tree (MST) algorithm to estimate trench distances.[92] Previously, the ACCC has expressed concerns regarding the optimality of the approach adopted. In particular, it notes that this algorithm may produce results inferior to other algorithms available. n/e/r/a on behalf of Optus previously noted that the introduction of additional points of connection, called

---

88 Mitchell, B.M, and Kennet, M., *Confidential Commentary on PIE II Model Assumptions—Final Report Prepared for Telstra*, CRA International, May 2005, p. 4.

89 ACCC's 2005 Final Decision, p. 101.

90 Analysys, *Review of Specific Issues in Telstra's PIE II Model*: *Report for the Australian Competition and Consumer Commission*, 9 May 2006.

91 Mitchell, B.M., "*ULLS Commentary on Marsden Jacob Associates and Analysys Submission*" Report prepared by CRA International, August 2006, pp 7.

92 A minimum spanning tree is the minimum cost graph connecting all the vertices in a graph.

Steiner nodes, was likely to improve the optimality of network design relative to the conventional MST approach preferred by Telstra.

Optus in its Submission to the ACCC, noted that Telstra's application of the MST algorithm to estimate trench lengths is likely to provide an over-estimate of efficient costs because minimising trench lengths the algorithm ignores the cost of copper and therefore creates a network that utilises more copper than what would be efficient. Optus noted

> that algorithms exist that take into account both trench lengths and local loop lengths and these algorithms should significantly reduce modelled costs.

CRAI's recent work for Telstra confirms that this is the case:

> While the [MST] approach guarantees the minimum structure cost for building a network assuming that the only points of connection between "tree" branches are the RAUs and POCs, in the real world additional points of connection are feasible and often preferable… Clearly, the Steiner solution will, in general, reduce total distance.[93]

Telstra submitted that:[94]

- The ACCC has overlooked that the use of Steiner nodes also involves additional costs of installing the junction node that has to be traded off against any reduced costs of routing infrastructure.[95]
- Without rebuilding the entire model, its impossible to determine whether Steiner nodes results in lower costs.

The ACCC does not agree with Telstra's submission. Indeed, Analysys[96] point out that the minimum Steiner tree is known to be up to a maximum of 13.4 percent shorter than the minimum spanning tree although in practice it is often within a few percent; this appears to confirm n/e/r/a's[97] report that there is a possibility of a 5 per cent overstatement in the length of trenches. Further, MJAEE agree with Telstra that the Steiner nodes will introduce additional costs for supporting infrastructure. These additional costs however need to be compared with the reduction in trench and conduit length and other savings in support structures eg manholes, distribution points and maintenance costs.

As noted by Optus, the algorithm used by PIE II ignores the cost of copper. As stressed there are algorithms in use that are able to weigh the benefits of minimising

---

93 Mitchell, B.M, and Kennet, M., *Confidential Commentary on PIE II Model Assumptions—Final Report Prepared for Telstra*, CRA International, May 2005, pp. 1-2.

94 Telstra's 2005 Supporting Submission, Appendix E, p. 22.

95 This point is also made by Mitchell, B. M., "*ULLS Commentary on Marsden Jacob Associates and Analysys Submission*" Report Prepared for Telstra by CRA International, August 2006; and in Telstra *Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*. pp 16

96 Analysys, *Review of Specific Issues in Telstra's PIE II Model*: *Report for the Australian Competition and Consumer Commission*, 9 May 2006.

97 n/e/r/a, *Comments on PSTN Conveyance Costs in PIE II—A Report for Singtel Optus,* March 2004.

total trench distance and minimising total cable distance[98] or the cost of copper. The ACCC considers that the following diagrammatical representations of the impact these algorithms have on the design of the network clearly demonstrate the importance of these algorithms, and related network design parameters:[99]

Figure 5a: Minimum Structure Distance Network

Figure 5b: Star Network

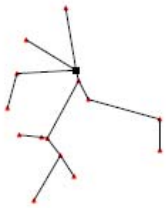


Figure 5c: Balanced Network

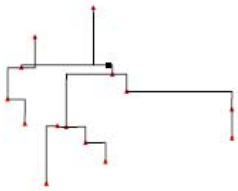


Figure 5d:: Balanced Network with Rectilinear Distance

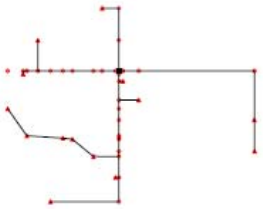


Figure 5e: Balanced Network with Junction Nodes and Airline Distance

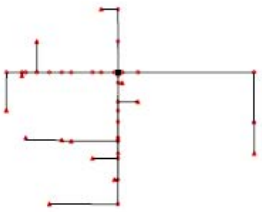


Figure 5f: Balanced Network with Junction Nodes and Rectilinear Distance

As shown in Section B.5.1, there is a significant discrepancy between the estimated copper costs using current cost accounting data and the PIE II model. Telstra has

---

[98] Bush, C.A., Kennet, D.M., Prisbey, J., Sharkey, W.W., Gupta, V., "Computer Modeling of the Local Telephone Network. October 1999.

[99] Bush, C.A., Kennet, D.M., Prisbey, J., Sharkey, W.W., Gupta, V., "Computer Modeling of the Local Telephone Network. October 1999, p. 14.

claimed that trench costs are the majority of CAN costs, and that copper costs are relatively less significant, however as shown in Table B.5.1.1 this may no longer be the case. Accordingly, the ACCC is not satisfied that the maintenance of the minimum spanning tree approach in these circumstances, on Telstra's original justification is accurate.

Given the potential improvements in network optimality available from consideration and testing of alternative algorithms, the ACCC believes that it cannot be satisfied that it is appropriate for Telstra to continue to advocate minimum spanning trees as being optimal without scrutinising readily available alternatives.

B.4.7. Annualisation of Capital Costs

In estimating network costs, the PIE II model uses a tilted annuity to estimate annualised costs. The annuity calculation depends on two key factors, the price trends used in the annuity and the asset life of the network elements.

Price Trends

The price indices for each asset category used to revalue assets and to annualise costs in the PIE II model are presented in the table below. These price indices have been constructed by Telstra staff.

Price Indices	**CAGR 3 Years**
Main Cable	[c-i-c]
Main conduit & trenching	[c-i-c]
Distribution cable	[c-i-c]
Distribution conduit & trenching	[c-i-c]
Network Land and Buildings	[c-i-c]
Indirect Capital	[c-i-c]

Source: Telstra Submission

MJAEE have made comments and compared Telstra's price trend based on publicly available information on the magnitude of price trends used in regulatory proceedings in Europe. MJAEE expressed their concerns with regards to the price indices used by Telstra by noting that:[100]

> The price trends used are at too aggregrate level…a number of the price trends seem to be too negative (or are not too positive enough)…when this is the case, the resulting depreciation rate would be increased and annual costs overstated…

In response to the price trends used, Telstra relies on the statement of **[c-i-c]**. The ACCC has examined this statement which outlines the methodology for estimating

[100] MJAEE *Comments on Discussion Paper Telstra's Undertaking in relation to the Unconditioned Local Loop Service Report for the Competitive Carriers Coalition*. 4 May 2006 pp 24

the price indices as set out in the table above. Telstra however does not provide further evidence on whether the price trends used are at a too broad level nor does it examine whether there is any validity in MJAEE's claim that a number of the price trends are too negative or are not too positive enough.

Asset Lives

After reviewing the values of the asset life used in the PIE II model and comparing them with overseas data in Europe, MJAEE express concern with the figures used in the PIE II model. They note:

- The asset life of distribution conduit is 10 years shorter than main conduit,
- The asset life of distribution cable is 15 years longer than main cable; and
- Asset lives are used at too aggregate level.

Telstra in its response notes that, with regard to asset lives used, it relies on the report of Ernst & Young titled "Global Telecom Depreciation Survey" dated 2002 and PriceWaterhouseCoopers titled "Telco Network Service Lives" dated March 1999 and the statement of **[c-i-c]** dated 9 August 2006.

The ACCC has examined the consultant's reports submitted by Telstra.

- The Ernst and Young report acknowledge that different asset lives are adopted across the three regions investigated, namely, Asia Pacific, the Americas and Europe. The report provides information on the asset lives of CAN network elements:
  - For Main Cable
    - 55 per cent of respondents use a 11-15 year asset life
    - 45 per cent use 16-20 yr asset lives
  - For Distribution Cable
    - 45 per cent use a 11-15 year asset life
    - 37 per cent use 16-20 years
    - 18 per cent use 21+ years
  - For Main Ducts
    - 23 per cent use a 16-20 year asset life
    - 77 per cent use 21 + years
  - Distribution Duct
    - 25 per cent use a 11-15 year asset life
    - 25 per cent 16-20 years
    - 50 per cent 21+years.
- PriceWaterhouseCoopers notes:
  - The part of the network to which it relates (backbone v local) does not generally appear to make a difference on the economic life. Their research indicates that 15 years appears to be a reasonable average for the industry with regards to copper cables. With regards to ducts/pipes, European telcos uses a range between 10 and 40 years, in the US between 40-50 years; and in the Asia in the range 15-35 years.

The ACCC has also examined the statement by **[c-i-c]**[101]. That statement describes the process by which asset lives are determined within Telstra that are used for both internal and external purposes. Factors used in determining the asset lives include: future technology, Telstra's major plans or programmes which impact on asset lives, Telstra's future business plans and international trends in the market, including the trends of Telstra's equipment suppliers. The asset lives determined by Telstra in this consultative process are reviewed by the Australian National Audit Office. Further, in his statement **[c-i-c]** comments on the appropriateness of a number of asset lives used in the PIE II model. He notes that:

- For radio spectrum an asset life of **[c-i-c]** years is appropriate
- For network management the use of a **[c-i-c]** year asset life is appropriate
- For main cable a **[c-i-c]** year asset life is appropriate whilst noting that main cable was expected to be replaced by optic fibre technology to satisfy a growing demand for bandwidth.

The ACCC's interest in this area is with the life of copper cables used in the PIE II model as copper represents a major cost of the total CAN costs. The ACCC notes that Telstra use of a **[c-i-c]** year asset life may be appropriate for accounting measures. However, the ACCC agrees with MJAEE that the asset life should correspond to its economic life rather than the accounting life. It appears from Telstra's statement that their decisions are based on an accounting framework. Nevertheless, on the basis of the Ernst and Young report used by Telstra, Telstra's use of **[c-i-c]** year asset life for main cable is at the lower end of the spectrum of the participants to the survey. The PriceWaterhouseCoopers report on the other hand notes that the economic life of an asset does not appear to depend on the different part of the network where the asset is utilised. Further, it notes that their research indicate that 15 years appears to be a reasonable average for the industry with regards to copper cables.

On the evidence available, the ACCC is not satisfied that Telstra's claim of a **[c-i-c]** year (economic) asset life for main cable used by Telstra in the PIE II model is reasonable.

B.4.8. New Matters Raised by Telstra in Response to ACCC Draft Report

Telstra in its response to the ACCC Draft Report raised new matters including lead-in costs, trench costs and a section on the conservative elements of the PIE II model.

Lead-In Costs

Telstra has not raised the issue of the cost of lead-ins in previous ULLS Undertaking assessments, although it has previously discussed the issue.

Telstra has submitted to this undertaking assessment that:[102]

> it is reasonable to recover the cost of lead-ins from ULLS prices. Such costs have not been included in earlier estimates of ULLS network costs and in the vast majority of cases Telstra does not recover these costs elsewhere.

---

[101] **[c-i-c]** *Statement made by **[c-i-c]***, 9 Aug 06.

[102] Telstra, *Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated* 23 December 2005, pp 22

Telstra argues that that the connection fee which is levied at the time customers request a PSTN basic access service, depends on the work that is required to connect the service. Telstra notes that it charges an "in-place" fee of $59 (GST Inc) for connections that have an existing socket and where a Telstra technician is not required to visit the property or premises. This recovers the cost of the connection at the exchange and does not contribute to the cost of the lead-in. Telstra charges an "in-place" fee of $125 for connection at premises where a previous service existed and where a technician is required to visit the customer's residence but where no cabling is required. This charge recovers the cost of making the connection and the technician's visit to the customer's premises. It does not contribute to the cost of the lead-in.

Telstra also charges a "new service" fee of $299 for connections at premises where a telephone service had not previously been connected at the property or premises or where the connection requires a technician to undertake cabling work. In most cases, the technicians' visits do not involve the installation of a lead-in. The $299 Telstra claims does not necessarily contribute to the ongoing costs of these lead-ins after the customer transfers the line to a ULLS access seeker.

Accordingly, Telstra estimates that the additional lead-in costs that need to be added to the PIE II model amount to **[c-i-c]** per SIO per month.

ACCC View

As noted above, Telstra has not sought to recover the cost of lead-ins in previous ULLS undertaking assessments. Rather, Telstra has submitted that the cost of lead-ins is recovered through the amounts it charges for connections: [103]

> A lead-in is the connection from Telstra's network to a customer's premises. The lead-in cable runs from the network point of presence in Telstra's network to the network boundary point in a customer's premises. The cost of lead ins has been excluded from the calculation of efficient network costs of the UT Services. Telstra attempts to recover those costs through connection revenue.

The ACCC is concerned with the apparent conflict between Telstra's current claims and its historical claims, as set out in the extract from a 2003 submission above.

Firstly, Telstra has argued in the current assessment that connection fees do not cover lead-in costs.[104] However, this is in contrast to the 2003 statements made by Telstra in an earlier submission as noted above.

Secondly, despite Telstra's earlier statement, and despite the fact that connection charges have increased since that statement was made to the ACCC, Telstra has not sought in any way to off-set any such revenue against its new cost claim.

Thirdly, Telstra claims that 'ongoing' costs associated with lead-ins transferred to ULLS users would not be recovered. However, the ACCC cannot be satisfied on

---

[103] Telstra's *Detailed Submission in Support of its PSTN OTA and LCS Undertakings dated 9 January 2003*, 31 July 2003, p. 31.

[104] Telstra, *Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated* 23 December 2005, pp 22

Telstra's evidence that it is not already otherwise recovering such costs through its O&M mark-ups, which ULLS access seekers clearly contribute to.

Given these concerns, the lack of information that has been provided by Telstra to the ACCC in support of its changed position on lead-in costs and the late stage at which the lead-in cost information was produced, the ACCC is not satisfied that Telstra's claims on its proposed lead-in costs are reasonable.

Trench Costs

Telstra claims that the PIE II model assumes conservative values for several network design parameters in relation to trenching costs[105]. Specifically, Telstra argues that:

- The PIE II model cost estimates do not take into account that there are driveways in the way of trenches, where trenches would need to be constructed by underground boring rather than digging. Equally the PIE II model does not provide for the costs of the cables having to be laid under concrete pathways
- Further, the PIE II model does not include the costs for back filling trenches with soil and re-instating the surface with turf for main cable and IEN trenches where cables are laid in areas which do not have existing infrastructure.

Telstra argues that based on their analysis, the network costs for each Band increased by the following amounts **[c-i-c]**, **[c-i-c]**, **[c-i-c]** and **[c-i-c]** for Band 1, Band 2, Band 3 and Band 4 respectively. Accordingly Telstra submits that the ACCC consider these additional costs when assessing the reasonableness of the Undertakings.

In addition, Telstra claims that the PIE II model underestimates network costs as in the PIE II model there is no detailed information or multipliers to adjust for the gradient of the terrain within an ESA or Distribution area or to account for obstacle factors. Further, the PIE II model assumes that Telstra does not incur any trenching costs when trenches are dug by the developers of new estates. This assumption is conservative because developers often charge Telstra for access to trenches.

By contrast, Optus[106] claims that its engineering staff who have had lengthy periods of employment at Telstra and who are thus familiar with Telstra's engineering practice, have consistently noted that:

- Telstra's comments are not based on its actual network practices. Optus understands that historically Telstra laid its cables in nature strips to avoid any additional costs associated with concreting. The costs Telstra has identified have clearly not been incurred by Telstra
- If Telstra were laying the copper today, it would clearly seek to avail itself of the existing conduits laid by gas, electric or water utilities as these conduits are unlikely to be full.

---

[105] Telstra *Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*. pp 23

[106] Optus, *Optus Comments on Telstra's post 21 July submissions to the ACCC's of Telstra's ULLS undertaking*, 18 August 2006, pp. 2-3.

Further Optus submits that Telstra's claims are inconsistent with the principles of setting efficient access prices.

ACCC View

The ACCC has argued in the past that there are significant issues regarding the network cost estimates produced by the PIE II model. Telstra has acknowledged that there are some significant limitations in the model. However, Telstra now claims, based primarily on qualitative argument, that despite the range of flaws and inaccuracies that PIE II's estimates are nevertheless 'reasonable'.

The ACCC considers that it is not in a position to assess Telstra's new claims on trench costs. There are a large number of issues that need to be considered in Telstra's submissions. However, given that Telstra has introduced this issue late in the undertaking assessment process, Telstra's claims have not been subject to an suitable scrutiny. Telstra's new claims arise from cost calculations performed exogenously to the PIE II model, and there is no flexibility to adjust PIE II for either Telstra's new claims, or any of the parameters that the ACCC would seek to model. Accordingly it is not clear that Telstra's claims can be satisfactorily related to network cost estimates arising from the model, and therefore the ACCC cannot be satisfied that, even where the adjustments were ultimately found to be appropriate, that a redesign of the model to endogenously determine the correct estimations for these adjustments would result in estimates similar to those proposed by Telstra.

The ACCC considers that Telstra's new claims on trench costs, given the approach to calculation, the limited supporting information and the limited scrutiny possible, cannot lead the ACCC to be satisfied that the PIE II model is capable of generating accurate estimates. In fact, the new claims may act to further affirm the ACCC's concerns over the functionality of the model. In turn, this means that the ACCC cannot be satisfied that the terms and conditions which rely on these estimates are reasonable.

B.5. Assessing ULLS Network Costs Using RAF Data

In assessing the reasonableness of Telstra's $30 claim the ACCC in its Draft Report[107] undertook two pieces of analysis using historic and cost accounting data as reported by Telstra in its the Regulatory Accounting Framework (RAF). This was in response to Telstra's own use of such comparisons as part of its justification for its proposed ULLS charges, which is examined separately, see B.5.2 below. The ACCC:

- estimated the CAN cost pool using the historic and current cost data for the PSTN from which estimates of ULLS costs are obtained, and compared these with estimates from the PIE II model
- examined the ULLS unit costs as set out in the historic and current costs data as assessed by Telstra.

The analysis undertaken by the ACCC in the Draft Report using the RAF data is set out below for completeness.

[107] ACCC *Assessment of Telstra's ULLS monthly charge Undertaking*, Draft Decision, June 2006

B.5.1. Estimating the CAN Cost Pool using RAF Data

The Regulatory Accounting Framework provides disaggregated data on network categories and services. The ACCC notes that trying to align RAF data and the PIE II model cost estimates requires a number of assumptions regarding the allocation of capital/assets and costs. Further the RAF data provides information on Telstra's existing network while PIE II by contrast is intended to model a hypothetical, efficient and optimised PSTN, including the CAN.

The ACCC is therefore cautious in making comparisons between the data sets. However, large differences between the RAF data sets and PIE II may suggest possible areas of concern and the need for further investigation.

Table B.5.1.1 provides a comparison of historic, current cost accounting and the PIE II model. It shows that according to the PIE model the capital cost of constructing the CAN is **[c-i-c]**. By contrast the historic and current cost accounting data shows the capital cost of the existing CAN network at **[c-i-c]** and **[c-i-c]** respectively. Such large differences in the outputs of the PIE II model with regard to CAN capital costs are a concern to the ACCC as the cost of capital represents a substantial component of total CAN costs.

Table B.5.1.1 Comparison Historic, Current and PIE II CAN Capital Costs* for 2004/05

Description	Historic	Current	PIE II
Ducts and Pipes	[c-i-c]	[c-i-c]	[c-i-c]
Copper Cables	[c-i-c]	[c-i-c]	[c-i-c]
Pair Gain Systems	[c-i-c]	[c-i-c]	[c-i-c]
Radio Bearer Equipment	[c-i-c]	[c-i-c]	[c-i-c]
Total	[c-i-c]	[c-i-c]	[c-i-c]

**Excludes Buildings and Indirect Capital*

Table B.5.1.1 shows that:

- The current cost data aligns with the PIE II data for ducts and pipes. The ACCC notes that although the costs align in this area, this does not necessarily imply acceptance of these costs as current costs do not necessarily reflect the costs of an optimal and forward-looking operator.
- The current costs and the PIE II data shows significant differences for copper cables and radio bearer equipment capital costs, implying significantly higher levels of copper and radio assets as compared to what is currently in place. The ACCC cannot pinpoint with any degree of confidence the reasons for these differences. However, such differences may reflect the ACCC's concerns regarding the PIE II model's underlying assumptions.

Table B.5.1.2 compares the network costs of the CAN for historic, current cost accounting and the PIE II model. It should be noted that in estimating the CAN cost pool for historic and current cost data, the ACCC has included all the services (retail and wholesale) included in the RAF accounts. To the extent that this set of services are greater than the services included in PIE II, the historic and cost accounting results overestimate the CAN cost pool as compared to the PIE II model.

In estimating the CAN cost pool for current costs, the ACCC has given due consideration to what items in the adjustments should be excluded when calculating costs.[108] The ACCC has formed the view that all items in the CCA adjustments should be included for the purpose of calculating network costs. This is consistent with the approach undertaken by the Irish regulator.[109] Further, the ACCC wishes to emphasise that the aim of using the current cost information is not to estimate a TSLRIC proxy. The purpose of the analysis is given the current cost information as provided by Telstra what is the appropriate CAN cost pool and hence what is the ULLS monthly cost.

Table B.5.1.2: CAN Network Costs - Historic, Current and PIE II for 2004/05

($M)	**Historic**	**Current**	**PIE II**
CAN Network Costs[1]	[c-i-c]	[c-i-c]	
Cost of Capital[2]	[c-i-c]	[c-i-c]	
CCA Adjustment[3]		[c-i-c]	
Total	[c-i-c]	[c-i-c]	[c-i-c]

*1. Includes All CAN costs for **all services** included in the RAF. Organisational and Product Costs allocated to CAN costs as a direct proportion of total network costs as reported in the RAF*

2. WACC of **[c-i-c]** *used to derive cost of capital*

3. All CCA Adjustments are included. CAN CCA adjustments are allocated as a direct proportion of total network costs.

Table B.5.1.2 shows that the PIE II cost pool is approximately **[c-i-c]** per cent higher than the current cost data and **[c-i-c]** per cent higher than the historic cost data. A significant proportion may be attributed to the difference in the capital cost of construction and in turn to the cost of capital as reported in the RAF and the PIE II model. However, without similarly disaggregated outputs for the PIE II model, the ACCC is unable to assess the cause or causes of these differences.

Estimating ULLS Costs

Estimates of the monthly ULLS costs are derived by dividing the total CAN cost pool by the number of copper lines and then divided by 12 to obtain monthly rates. For consistency, the ACCC has used the **[c-i-c]** copper lines as provided by Telstra.

In estimating the required CAN cost pool, the ACCC has deleted the costs associated with CAN Radio Bearer Equipment as in the PIE II model. Further, the ACCC has also deleted the costs associated with Pair Gain Systems as this technology may not

---

[108] Telstra in its Submission excludes the following items from its CCA adjustments - holding gains/losses (item 4-4-01-1) and the inflation adjustment (item 4-4-01-4).

[109] EIRCOM, *Current Cost and Long Run Incremental Cost Statements For year ended 31 March 2005, Accounting Document*, 12 October 2005. The current cost statements are prepared under the financial capital maintenance convention in accordance with the principles set out in the handbook "Accounting for the Effects of Changing Prices" published in 1986 by the Accounting Standards Committee in the UK.

be used in the provision of ULLS services and it is considered a "broadband blocker", as noted by Telstra.[110]

Table B.5.1.3 presents the estimated average monthly ULLS costs using historic costs, current costs and the PIE II results as submitted by Telstra. The ACCC notes that the average monthly results for the historic and current costs shown in Table B.5.1.3 should be treated as indicative and only used as a guide. In its Draft Report, the ACCC noted:[111]

> the ACCC cannot be conclusive as to the magnitude and direction of the differences between the historic and current costs and the true cost of ULLS as reflected by TSLRIC. On the one hand, to the extent that pair gain systems are excluded, the results may under-estimate the true cost as more copper may have had to be deployed in the absence of pair gain systems. On the other hand, to the extent that costs are reflective of all services included in the RAF and to the extent that historic and current costs do not reflect the costs of an optimal and forward looking operator, it may be argued that the unit costs shown in [Table B.5.1.3] overestimate the true costs.

Table B.5.1.3: Average Monthly ULLS Costs for Historic, Current and PIE II for 2004/05

Historic[1]	Current[1,2]	PIE II[3]
[c-i-c]	[c-i-c]	[c-i-c]

1. Deletes Pair Gains and Radio and WACC of **[c-i-c]** *percent*

2. Includes all CCA Adjustment

3. PIE II estimates are Telstra's estimates

Further, the ACCC went on to note that given these differences between the CAN capital costs and operational costs in the RAF accounts and the PIE II model, and the concerns which the ACCC has expressed with the PIE II model, the ACCC considers that since Telstra wishes to use PIE II to support its network prices, it is incumbent on Telstra to:

- make the model's inputs, outputs and assumptions sufficiently transparent to enable both the ACCC and access seekers to make a well informed decision about the estimates of the model
- explain the cost differences between the results in the RAF database and PIE II at an appropriate level of disaggregation and provide appropriate analysis of any large discrepancies.

If Telstra wants the ACCC to accept the outputs generated by the PIE II model it is incumbent on Telstra to address the ACCC's concerns regarding the model. The ACCC continues to believe that Telstra has not discharged this onus. In coming to this conclusion, the ACCC notes that the factors it previously raised as concerns have not yet been addressed by Telstra, and therefore the ACCC is not satisfied with the reasonableness of the PIE II model.

---

[110] Telstra, "Telstra Technology Briefing" ASX announcement, 16 November 2005.

[111] ACCC *Assessment of Telstra's ULLS monthly charge Undertaking*, Draft Decision, June 2006

B.5.2. ULLS Unit Costs Using Historic and Current Cost Accounting

In justifying the reasonableness of the $30/month ULLS Undertaking, Telstra has submitted an analysis of Telstra's own historic and current costs. Telstra's analysis is shown in Table B.4.2.1 below.

Telstra argued that the ULLS cost per month is **[c-i-c]** under the historic costs and **[c-i-c]** under current cost accounting methodology. In deriving its current cost estimates, Telstra excluded certain items: Holding Gains/Losses on Asset Adjustment (line 4-4-01-1) and the Inflation Adjustment (line 4-4-01-4) from the CCA adjustments, which had the effect of increasing the CCA estimates.

Table B.5.2.1: Telstra's Analysis as in ULLS Undertaking Dec 2005

($M)	**Historic**	**Current**
Wholesale Costs		
Organisation Costs	[c-i-c]	[c-i-c]
Product and Customer Costs (excludes installation)	[c-i-c]	[c-i-c]
Network Costs		
CAN costs (includes CAN Pair Gain Systems)	[c-i-c]	[c-i-c]
Other Network Costs	[c-i-c]	[c-i-c]
External Wholesale Cost of Capital	[c-i-c]	[c-i-c]
Total External Wholesale Cost	[c-i-c]	[c-i-c]
CCA Adjustments (excludes items 4-4-01 and 04)[1]	[c-i-c]	[c-i-c]
Total Adjusted External Wholesale Costs	[c-i-c]	[c-i-c]
($/mth)		
Average ULLS SIOs	[c-i-c]	[c-i-c]
Unit Organisational and Product & Customer Costs	[c-i-c]	[c-i-c]
Unit Can Costs	[c-i-c]	[c-i-c]
Unit Other Network Costs	[c-i-c]	[c-i-c]
Unit Wholesale Cost of Capital	[c-i-c]	[c-i-c]
Unit Network Costs	[c-i-c]	[c-i-c]
Unit Total Costs	[c-i-c]	[c-i-c]
Unit CCA Adjustment	[c-i-c]	[c-i-c]
Unit Adjusted total costs	[c-i-c]	[c-i-c]

Source: Telstra

ACCC's Analysis

The ACCC has assessed Telstra's data as set out in Table B.5.2.1. The ACCC notes:

- Telstra estimates of ULLS unit costs are obtained divides ULLS Organisational and Product Customer costs by the average number of ULLS lines. The ACCC considers that these costs include indirect O&M costs and ULLS specific costs. As the ACCC does not have disaggregated data on these components, it has chosen to provide an upper and lower bound by dividing Organisational and Product & Customer costs by the number of ULLS lines and by the total number of access lines. This is consistent with the ACCC ULLS Final Report December 2005. Further Telstra argues that the

Organisation and Product and Customer costs are classified as expenses in Telstra's accounts. ULLS specific costs are predominantly technology capital costs and are most likely to appear in account 2-2-01-4. The ACCC agrees with Telstra on this point. However, examining the Capital Employed data in the RAF, the ACCC wishes to note that the capital cost attributed to IT is **[c-i-c]** and **[c-i-c]** in the historical and current cost data for 2004-05.

- Telstra's Cost of Capital uses a WACC of **[c-i-c]** percent. The ACCC has on a number of occasions expressed its concerns with such a high WACC. The ACCC in its analysis has employed a WACC of **[c-i-c]** percent.
- The CAN costs exclude Pair Gains Systems and CAN Radio Bearers. It is the ACCC's view that these should be deleted. The deletion of Pair Gain Systems from the ULLS accounts is consistent with Telstra's Technology Briefing in November 2005 that pair gain systems are incompatible with the provision of ULLS services. The ACCC also excluded CAN Radio Bearers. This is in line with the PIE II model[112] calculation of ULLS costs. In paragraph 73, Telstra states:

> The cost pool that is used to derive the ULLS network costs is the total PSTN CAN cost pool, excluding the cost of the PSTN line cards and excluding the costs of radio access technologies.

  Further, it is the view of the ACCC, that ULLS cannot be provided via radio equipment and hence these should be deleted. Without further evidence, the ACCC considers that the costs associated with pair gains systems and CAN radio bearer systems in the RAF accounts for ULLS represent an error in the allocation methodology in allocating network elements between services in the accounts.
- The ACCC considers that all the items in the CCA adjustments should be included as discussed above. The ACCC has taken the view that for the current costs analysis to make sense all the CCA adjustments should be taken into account. The ACCC considers that it is inappropriate to use the current cost account to estimate ULLS by excluding one or some of the CCA adjustments.

Table B.5.2.2 provides the ACCC estimates of monthly ULLS based on the historic and cost accounting information after making appropriate adjustments for the above issues.

[112] Annexure B – Description of the Model

Table B.5.2.2: ACCC Estimates of Monthly ULLS Costs for 2004/05

($M)	Historic	Current
Wholesale Costs		
Organisation Costs	[c-i-c]	[c-i-c]
Product and Customer Costs (excludes installation)	[c-i-c]	[c-i-c]
Network Costs		
CAN costs (exclude CAN Pair Gain Systems)	[c-i-c]	[c-i-c]
Other Network Costs	[c-i-c]	[c-i-c]
External Wholesale Cost of Capital	[c-i-c]	[c-i-c]
Total Wholesale Cost	[c-i-c]	[c-i-c]
CCA Adjustments [1]	[c-i-c]	[c-i-c]
Total Adjusted External Wholesale Costs	[c-i-c]	[c-i-c]
ULLS Lines	[c-i-c]	[c-i-c]
Total Lines (m)	[c-i-c]	[c-i-c]
($/mth)		
Unit Organisational and Product and Customer Costs[2]	[c-i-c]	[c-i-c]
Unit Can Costs	[c-i-c]	[c-i-c]
Unit Other Network Costs	[c-i-c]	[c-i-c]
Unit Wholesale Cost of Capital	[c-i-c]	[c-i-c]
Unit Network Cost	[c-i-c]	[c-i-c]
Unit Cost Wholesale Cost	[c-i-c]	[c-i-c]
Unit CCA Adjustment	[c-i-c]	[c-i-c]
Unit Cost Adjusted External Wholesale Costs	[c-i-c]	[c-i-c]

1. All items in CCA Adjustments included

2. Specific costs divided by all lines

*3. WACC of **[c-i-c]***

4. Delete Pair Gain Systems and Radio Bearers.

The table shows that lower bounds for ULLS monthly costs using historic and current cost accounting data are estimated at **[c-i-c]** and **[c-i-c]** respectively. The upper bounds are estimated at **[c-i-c]** and **[c-i-c]** for historic and current cost data if organisation and product and customer costs are divided by ULLS lines. These estimates vary substantially from Telstra's estimates of **[c-i-c]** and **[c-i-c]** as shown in Table B.5.2.1

Further, using the RAF data in Table B.5.2.1, Telstra's unit network cost for ULLS is estimated at **[c-i-c]** and **[c-i-c]** (including CCA adjustment) for the historic and current cost data respectively. By contrast, the ACCC estimates for network costs are **[c-i-c]** and **[c-i-c]** respectively including all the CCA adjustments as shown in Table B.5.2.2.

Based on the analysis of ULLS costs provided by the RAF data, the ACCC is not satisfied with Telstra's claim that the historic and current cost data substantiates Telstra's Undertaking. Further in the Draft report, the ACCC noted that since Telstra wished PIE II to be used Telstra should:

> explain the cost differences between the results provided by the RAF analysis and PIE II at an appropriate level of disaggregation and provide appropriate analysis of any large discrepancies

The ACCC is not satisfied that Telstra has provided the level of analysis required to substantiate Telstra's claim. It therefore cannot support Telstra's claim that the historic and current cost data substantiates Telstra's Undertaking.

Telstra's Comments on ACCC Analysis

Telstra in its response to the Draft Report has noted that it does not agree with the analysis undertaken and believes that the ACCC has erred in its calculations. In particular, Telstra notes:

- excluding Pair Gain Systems or Radio Bearer equipment are installed to reduce CAN costs. If the ACCC removes the pair gain systems and radio bearer equipment costs, it must add the additional costs associated with replacing the pair gain systems and radio bearer equipment. Further, Telstra notes that the additional cost of copper would be larger than the cost of pair gain systems or radio bearer equipment
- that the ACCC assumes that Organisation and Product and Customer costs are made up of indirect O&M and ULLS specific costs. Telstra argues that when calculating unit costs, the ACCC considers that ULLS specific costs should be divided by total lines not ULLS lines. This Telstra considers is in error because:
    - Telstra's historic and current cost accounts have already been allocated between a number of services including ULLS
    - The allocation of Organisation and Product and Customer costs to ULLS already undertaken in Telstra's accounts is lower than the allocation that the ACCC does in its calculation of the cost of ULLS, which is based on the number of SIOs
    - Organisation and Product and Customer costs are classified as expenses in Telstra's accounts. ULLS specific costs are predominantly information technology capital costs and are most likely to appear in account 2-2-01-4, which includes all information technology capital costs.
- The ACCC uses a lower value for the WACC than what is used in Telstra's accounts.
- The ACCC includes item "4-4-01-1 Holding Gains/Losses on Asset Adjustment.

Optus' Comments on ACCC Analysis

Optus in its response to the Draft Report, notes:

- The data presented by the ACCC shows without any doubt that PIE II significantly overstates Telstra's network costs. This analysis indicates that had Telstra used its own RAF data to set ULLS prices then the network cost component from PIE II would be less than half that claimed by Telstra

- This is a very relevant and damning piece of analysis for Telstra. It supports the views presented by Optus and others that the PIE II model significantly overstates Telstra's cost.

ACCC View

The ACCC wishes to reiterate that the historic and current cost data is not a proxy for TSLRIC estimates. Nevertheless, where there are significant differences in the data, Telstra should be able to respond to the reasons for such differences. Nevertheless, the ACCC continues to believe that:

- Pair Gain Systems and Radio Bearer costs should be deleted from the ULLS Unit cost estimation when using the ULLS wholesale data as provided by the RAF accounts. The ACCC, however, agrees with Telstra that in estimating the total CAN pool for all services deleting Pair Gain Systems from the analysis may underestimate costs. The ACCC acknowledged this point in the Draft report.
- All CCA adjustments should be included in the analysis if a ULLS unit cost estimate is to be obtained from the current cost data.
- An examination of the IT capital costs under item 2-2-01-02 shows capital costs of **[c-i-c]** and **[c-i-c]** in the historical and current cost data for 2004/05.
- The assumed WACC in the RAF accounts exceed 14 percent which the ACCC considers too high

Accordingly, the ACCC is not satisfied that Telstra has provided the level of analysis required to substantiate Telstra's claim. The ACCC therefore cannot be satisfied that the historic and current cost data analysis provided by Telstra substantiates Telstra's Undertaking.

B.5.3. ULLS Geographic Price Averaging

Telstra in its Undertaking has proposed a charge of $30/month for ULLS averaged across all geographic areas. In assessing the reasonableness of the Undertaking, the ACCC in its examination of the PIE II model concludes that the likelihood of overestimating costs in rural areas is greater than in urban areas. This is because:

- while it is reasonable to use rectilinear distances in urban areas due to street grids, rectilinear distances in rural areas may overestimate costs
- Telstra's engineering rules in country areas without the use of clustering algorithms may overestimate costs in rural areas
- Telstra's PIE II model does not take into account new technologies such as WiMAX in country areas that have the potential to reduce costs.

The ACCC assessment is consistent with its finding in its Final Report in December 2005 where it argued that acceptance of cost estimates provided by the PIE II model would be unlikely to extend beyond Band 2.

To the extent that the ACCC considers that the PIE II estimates are likely to overestimate Band 4 costs, this is likely to lead to a disproportionate impact on geographically averaged prices for ULLS and the cost of providers seeking access to ULLS in Bands 1 and 2. Accordingly, having regard to the matters which it must take

into account, the ACCC considers that an averaged approach, as estimated by the PIE II cost model, across all geographic Bands is not appropriate.

B.6. ACCC's final conclusions on network costs

The ACCC acknowledges the difficulties and complexities inherent in any cost modelling process. The ACCC has consistently stated that it does not agree that Telstra has discharged its onus to provide sufficient documentation, and supporting evidence for the assumptions it has employed in its PIE II model. The ACCC considers that there must be an appropriate level of scrutiny of the modelling parameters and assumptions used in generating estimates of network costs in order for it to be satisfied that the terms and conditions of the undertaking are reasonable. Telstra has the evidentiary burden to establish that its network cost estimates are accurate estimates of efficient costs and that the terms and conditions which rely on these estimates are reasonable when having regard to the matters in s. 152AH.

The ACCC notes, in this regard, that on network costs it has asked Telstra to provide clarification on a range of issues, or for Telstra to adjust a subset of variables in a manner consistent with the ACCC's view as to the reasonable range for these variables for the purpose of sensitivity testing of Telstra's estimates.

Telstra is entitled to put forward its view as to the appropriate level of network costs, and indeed its PIE II model is constructed for this very purpose. However, the ACCC is guided by its statutory obligations, and as such, is bound to independently assess Telstra's claims on their merits.

The ACCC has clearly expressed on numerous occasions that it has difficulty accepting the PIE II model in general, and has raised concerns with respect to specific variables. The ACCC acknowledges, as noted by Telstra, that it is yet to advance its own model in preference to PIE II. The ACCC has clearly outlined on numerous previous occasions why it has continued to rely on a partially-adjusted PIE II model to inform itself only of a potential conservative upper bound of efficient network costs. However, the ACCC continues to believe that, given its strong concerns relating to those aspects of the model which cannot be externally adjusted, that it is not affirmatively satisfied that the network costs estimated by PIE II and the terms and conditions which rely upon this data can be accepted. This is particularly so while Telstra continues to reject recommendations for change or further analysis. To the extent that Telstra continues to submit network cost claims in accordance with its preferred variables which *can* be adjusted, the ACCC will continue to give consideration to the appropriateness of those variables.

Given the continued difficulties regarding the use of the PIE II model, the ACCC chose to appoint an independent external consultant, Analysys, to provide it with expert advice on the PIE II model in relation to the ACCC's assessment of Telstra's undertakings. Analysys was requested to further comment upon and analyse the matters previously examined by the ACCC and found to be of concern and potentially unreasonable.

The findings of Analysys' report serve to underline the ACCC's concerns with the PIE II model. Further, the ACCC notes the extreme difficulty facing third parties in examining in detail, and quantifying specific aspects of Telstra's model. These matters were clearly noted both by Analysys, and by MJAEE, in their expert advice to the CCC. The difficulties in reviewing and critiquing the PIE II model arise in two particular ways:

- Telstra does not provide third parties with a comprehensive document or user manual outlining the key workings of its code. This makes review and manipulation of the model for the purposes of critiquing it difficult.
- Telstra requires all third parties to sign confidentiality undertakings which, among other restrictions, prohibit third parties from making changes to the model's coding or structure.

The identification of these difficulties reinforces the ACCC's ongoing concerns that the model is not transparent. Further, the restrictions on third parties being able to modify the coding to properly sensitivity test the model severely inhibits expert advisors', and therefore the ACCC's, ability to quantify the concerns identified on the model.

As noted above, the ACCC has previously identified a range of concerns with the model, and reports received in this undertaking assessment act to further reinforce the ACCC's concerns with respect to the PIE II model. As the Australian Competition Tribunal (ACT) noted in its decision on Telstra's Line Sharing Service undertaking of June 2006[113] Telstra bears the onus of affirmatively proving the reasonableness of the terms and conditions of the undertaking. The ACT went on to state that where an access provider seeks approval of an access undertaking, it would be necessary that the access provider establish that its costs are efficient costs. This confirms the ACCC's views, as expressed on numerous occasions, that the onus is on Telstra to demonstrate the reasonableness of PIE II and its underlying assumptions and that therefore its costs are efficient. Only then can the ACCC assess whether the relevant terms and conditions are reasonable within the meaning of s. 152AH. The ACCC remains of the view that Telstra has failed to discharge this obligation in relation to the current ULLS undertaking process.

The ACCC notes that the concerns expressed by both Analysys and MJAEE increase in importance as population density within a given exchange area diminishes. This mirrors the ACCC's previous observations with regards to the model where it has stated that its acceptance of the model was unlikely to extend beyond Band 2.[114] The importance of these concerns take on increased significance in relation to these undertakings, as Telstra has sought to average its estimates of network costs across all Bands. This has introduced significant optimality concerns with regards to PIE II's modelling of low density regions given the impact on prices for Bands 1 and 2.

Given the range of concerns identified with respect to the PIE II model, particularly in relation to low density regions, the ACCC reaffirms that it cannot accept network costs generated by PIE II as reasonable. Further, Telstra's claim that the PIE II model does not take into account lead-in costs and trench costs suggests that even Telstra recognises the limitations of the PIE II model in estimating network costs.

The ACCC specifically noted in the draft decision that only Telstra can make the recommended changes to the PIE II model to quantify these impacts and submit this analysis for review to the ACCC. As an alternative, Telstra was requested to release

---

[113] Australian Competition Tribunal, *Telstra Corporation Limited (CAN 051 775 556)*, [2006] ACompT 4, 2 June 2006.

[114] See, e.g., ACCC's 2005 Final Decision, p. 103.

the ACCC's consultants from the restrictions imposed by its confidentiality undertaking and to work collaboratively with the ACCC and its consultants to further examine and quantify these issues raised. The ACCC stated in the draft decision that in the absence of either action, Telstra was unlikely to be able to demonstrate that the cumulative impact of these outstanding matters of concern would not have an impact on the overall reasonableness of the model.

Telstra has only made a very limited response to the options presented to it, by the ACCC in the draft decision, as potential ways forward.[115] While it has provided some estimates of sensitivity results, it has not quantified in any detail, or with any transparency, the impacts of the matters of concern raised in the ACCC's draft decision. In particular, it is unclear whether Telstra's sensitivity testing has occurred through endogenous alterations to the model and its coding to test their impact, or through exogenous estimations of the likely impact should the model be adjusted to take account of alternative parameters. Telstra has, however, seen fit to perform relatively more, although not fully supported, exogenous analyses of only those parameters it has newly introduced as considerations, and which may, if they were ultimately incorporated into a forward looking cost model, act to increase estimated costs. Given the significant informational asymmetries existing between Telstra and the ACCC (as well as access seekers), and given that only Telstra is able to manipulate the code (due both to transparency concerns and restrictions imposed by Telstra on third parties), Telstra's selective response to the matters raised in the draft decision is difficult to support.

Without discharging an appropriate evidentiary burden, it is difficult to see how Telstra can satisfy the ACCC of PIE II's ability to produce reasonable estimates of efficient network costs.

The ACCC has used historic and current cost accounting data as a guide to the reasonableness of Telstra's claim. The ACCC's comparative analysis of PIE II's modelled costs for the ULLS, with Telstra's actual historic and current cost accounting data was hampered by Telstra's failure to provide the ACCC with disaggregated data, despite the ACCC requesting this information under s. 152BT. The analysis the ACCC has been able to undertake has not supported Telstra's network cost claims.

The ACCC therefore considers that to the extent the price terms and conditions in the undertakings are based on Telstra's claimed network costs, those terms and conditions:

- are unlikely to promote the LTIE, as they will not promote competition and will not encourage the economically efficient use of, or investment in infrastructure
- result in Telstra recovering more than is necessary to promote Telstra's legitimate business interests

---

[115] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 45.

- would harm the interest of access seekers, and the persons who have rights to use the service would be limited in their ability to compete
- exceed the direct costs of providing access
- do not have a material effect on the operational and technical requirements necessary for the safe and reliable operation of the service.

After considering the evidence presented to the ACCC by Telstra and industry participants, the ACCC is not satisfied that the estimates of network costs in Telstra's Undertakings are reasonable.

Appendix C. Averaged ULLS charges

C.1. Introduction

Since the ULLS was declared in August 1999, ULLS charges have been based upon a de-averaged pricing structure. While cost reflective pricing encourages economic efficiency in the use of, and investment in, infrastructure, the ACCC acknowledges that it would be an administrative burden to calculate ULLS charges on a line by line or even exchange by exchange basis. It is therefore efficient to have a pricing structure that reflects significant price differentials between different areas where there are significant cost differences, while minimising the administrative burden. To date, Telstra has generally sought to achieve this balance by proposing a banded pricing structure that reflects the different cost of providing ULLS in CBD, metropolitan, regional and rural areas.

The chronological order of Telstra's proposed pricing structures for ULLS network costs has been: a four-band approach proposed in December 1999; a two-band approach proposed in January 2003; a four-band approach with adjustment mechanism proposed in October 2003; a revised four-band approach (without adjustment mechanism) proposed in December 2004; and finally its current averaged approach proposed in December 2005, which has a single ULLS price of $30 per month.

While there has not been an accepted ULLS undertaking in place, all parties to commercial agreements and regulatory proceedings have previously accepted the de-averaged (4 band) approach proposed in the ACCC's *Final Determination for model price terms and conditions of the PSTN, ULLS and LCS services*, October 2003.

C.2. Telstra's position

In describing the undertakings Telstra states that:

> The geographic averaging of the prices ensures an outcome consistent with the long term interests of end users across the nation by balancing the economic efficiency benefits associated with efficient cost based prices and an equitable distribution of the benefits associated with competition which ULLS declaration was designed to deliver. This is achieved by allowing Telstra and other carriers to deliver voice and DSL prices at equitable retail prices to all Australians.[116]

Telstra goes further to state that:

> Telstra's analysis of ULLS and the sustainability of cost recovery going forward, indicates that ULLS prices need to be averaged in order for Telstra to continue offering residential customers averaged retail prices, regardless of where those customers reside. Averaged ULLS charges also allow access seekers to viably offer services over ULLS in regional areas of Australia, something that is clearly not possible with de-averaged rates (at least so long as retail prices are required to be averaged).[117]

---

[116] Telstra's 2005 Supporting Submission, p. 5.

[117] *Ibid.*, p. 31.

Telstra's main argument in favour of averaged monthly network cost charges appears to be a response to the Government's retail price parity policy formalised in December 2005. Telstra is now required to offer a basic line rental product, specifically HomeLine Part and BusinessLine Part, at the same price across the country. Telstra claims that the continuation of de-averaged ULLS prices and the resulting increased competition in metropolitan areas will lead to substantial revenue losses for the company. It further claims that these lost revenues coupled with the losses it must endure in providing basic services to regional areas will result in an outcome that is "unsustainable"[118]. The implication is that an averaged network charge is the company's only viable option.

Telstra's position is further elaborated upon in section C.5.

C.3. Position of other interested parties

In the discussion paper the ACCC noted that there had been little public discussion in the industry over the appropriateness of averaged ULLS prices at that time. The ACCC posed a series of specific questions regarding the reasonableness of averaging network costs.

AUSTAR supports the 4-band approach based on population densities. In regards to averaging, AUSTAR notes:

> Fully averaged prices are not cost-reflective and do not provide the appropriate incentives to promote the long term interests of end users through development of alternative telecommunications infrastructure.[119]

More specifically, AUSTAR states:

> Artificially (through averaging) low charges for ULL services in regional areas may stimulate provision of some DSL based services, prompting localised services based DSL competition in some areas, but potentially at the expense of development of viable, longer term alternative infrastructure in those and other regional areas.
>
> Artificially (through averaging) high charges for ULL services in urban areas is likely to retard competition in urban areas that might otherwise be stimulated by the comparatively lower ULL prices in those areas that could be expected if de-averaged pricing was used.[120]

AUSTAR believes the effect of an averaged ULLS charge on an access seekers' ability to compete "would be generally detrimental".[121] AUSTAR notes that whilst Telstra may be under an obligation to provide a basic line rental service at an averaged price Australia wide, it is not required to provide broadband services and is unlikely to do so where this is not commercially viable or funded by subsidies. Under an averaged ULLS price, where artificially low rural prices provide a disincentive for wireless providers to roll-out infrastructure, an averaged price is likely to lead to a lower provision of broadband for rural customers than would be the case under de-averaged pricing. This is because:

---

118 Telstra's Submission to the 2006 Discussion Paper, p. 7.

119 AUSTAR, *Response to ACCC Discussion Paper – Telstra's Undertakings for the Unconditioned Local Loop Service, March 2006*, p. 4.

120 *Ibid.*, p. 5.

121 *Ibid.*, p. 7.

> …ULL is not a viable competitive infrastructure in many regional and rural areas.
>
> In regional Australia, wireless broadband can potentially reach many more prospective customers than ULLS, due to the distance constraints on DSL over copper services.[122]

AUSTAR also notes that it cannot comment on the appropriateness of the actual network costs due to the limited amount of information available to it.

The Western Australian DoIR notes that:

> DoIR believes that the discussion paper released for comment contains insufficient information for interested parties to assess the appropriateness of Telstra's proposed pricing schedule. This lack of information highlights one of the major issues with Telstra; a lack of transparency of costs and availability of information needed to identify suitable infrastructure investment opportunities within our state [Western Australia].[123]

The only substantive comment the DoIR is able to make therefore is:

> As it stands, there is a risk that the pricing arrangements proposed by Telstra may limit competition and market contestability.[124]

The CCC commissioned Marsden Jacob Associates (MJA) to provide an expert report on the issue of averaging versus de-averaging. MJA's main findings are as follows:

> Unconditioned local loop (ULL) prices should be de-averaged (or cost based) to ensure that distortions to the market are minimised. Averaging will bias the investment decision faced by entrants and discourage investment that would allow for more efficient supply of services in lower density areas and encourage inefficient infrastructure in high density areas;
>
> In terms of inconsistency between retail and wholesale prices, Telstra argues that the principle of competitive neutrality is violated by the current regime. We find their reasoning misguided. We also note that inconsistencies between retail and wholesale prices are not uncommon and exist in other markets;
>
> While the European experience is inconclusive, the experience from the US clearly illustrates that geographical de-averaging is regarded as important and necessary in the provision of unbundled elements and this can be implemented on a large scale; and
>
> The move to averaged prices is anti-competitive and contrary to the intentions of regulation. In particular, a significant rise in the price of ULL in urban areas is not in the long-term interests of end users and the impact on competition in markets for downstream services is detrimental.[125]

MJA also contends that averaged ULLS prices could leave competitors in metropolitan areas in what it describes as a 'blind spot':

> i.e. with an average price that is too high to make it commercially viable to use ULLS and too low to promote alternative infrastructure competition.[126]

---

122 *Ibid.*

123 Western Australia Department of Industry and Resources, *Telstra's Unconditioned Local Loop Service Monthly Charge Undertaking, Submission to the ACCC*, March 2006, p. 2.

124 *Ibid*.

125 Marsden Jacob Associates, *Averaging vs. De-averaging—A Report Prepared by Marsden Jacob Associates for the Competitive Carriers' Coalition*, 28 March 2006, p. 1.

126 *Ibid.*, p. 7.

As stated above, Telstra cites its recently added burden of retail price parity as a principle reason behind its move towards ULLS network cost averaging. In relation to this issue, Optus states:

> Optus believes there is very strong evidence to suggest that the retail pricing parity obligation will not impose any burden on Telstra.[127]

Optus believes there are very good reasons to support de-averaged ULLS prices. De-averaging ensures that prices are best aligned with cost, which in turn promotes efficient investment. In addition, Optus states:

> …such [de-averaged] pricing will inherently recognise that copper is not suitable for providing broadband service in many rural areas and that other technologies ought to be promoted.
>
> In contrast, Telstra's proposed imposition of averaged prices will serve only to protect Telstra from the likely impact of future competition in the local loop. Such an outcome would be inconsistent with the LTIE…

In summary, all of the submissions received from interested parties, other than Telstra, that have stated a definitive opinion on the issue have indicated a lack of support for averaged ULLS network cost charges. The common argument against averaging is that it is not cost-reflective, distorts competition, is not in the LTIE, and does not promote the efficient or sustainable investment in infrastructure, especially in rural areas.

C.4. Economic theory regarding access pricing, competition and retail obligations

In response to the draft determination, Telstra submitted an expert report prepared by David Sappington, addressing the issue of averaged ULLS charges. Sappington's main conclusions are:

> Uniform ULLS prices are consistent with and help to mitigate the deleterious effects of the uniform retail price mandate…Uniform ULLS prices help to limit the cream-skimming that undermines the uniform retail price mandate. Uniform ULLS prices also can enhance competitive activity in rural regions of Australia and help to limit the operation of inefficient suppliers in urban regions. Therefore, although uniform ULLS prices (like all other ULLS pricing structure) are not ideal in every respect, they constitute a reasonable policy as long as Telstra continues to face the uniform retail prices mandate.[128]

Sappington, acknowledges that uniform ULLS prices are not perfect and will lead to some distortions. However, he argues that it is impossible to avoid any distortions at the wholesale level, given the Government's move away from the first optimal solution of de-averaged prices at the retail level.

Underlying Sappington's conclusions are a number of assumptions, which neither Telstra nor Sappington have satisfactorily demonstrated hold true. The discussion in the following sections demonstrates that the relaxation of any and/or all of these

---

[127] Optus, *Optus Submission to Australian Competition and Consumer Commission on Telstra's ULLS Undertakings – Public Version*, March 2006, p. 5.

[128] Sappington, D. E. M. July 28 2006. "Expert Report of David E. M. Sappington on The Merits of Uniform ULLS Prices", ¶ 11, p3.

assumptions fundamentally alters the conclusions Sappington and Telstra draw in relation to the appropriateness of averaging.

Averaged ULLS charges can encourage inefficient network bypass in urban areas, relative to the efficient costs of utilising the ULLS. Sappington assumes that any bypass, including inefficient bypass, of Telstra's network is impossible. If bypass is possible, competitors in urban areas could therefore avoid paying the averaged ULLS charge (which is effectively a wholesale tax on urban areas) by deploying their own CAN infrastructure. Under this scenario, bypass will take place, even if this is economically inefficient and socially undesirable, and the incumbent network owner will not earn sufficient revenue to cover the rural shortfall that its averaged charges were seeking to recover.

To address these inefficiency and cost recovery concerns, the economic literature[129] and the OECD[130] support the use of two instruments, rather than solely relying on access charges. The following discussion demonstrates that when inefficient bypass is possible, economic efficiency is achieved by setting access prices at efficient costs and using retail taxes to ensure the incumbent can meet retail obligations, such as the universal service obligation or uniform pricing. Sappington also took this position in a paper jointly authored with Mark Armstrong and published in June 2006[131]. However, in his report prepared for Telstra in relation to this undertaking and dated July 2006 he does not explain why his earlier conclusions are not applicable to the Australian market.

Armstrong's work

Mark Armstrong's earlier paper, published in 2001 in the *American Economic Review*, discusses the appropriate form of access prices and other instruments that are necessary to achieve cost recovery in circumstances where the incumbent is required to provide universal service and offer geographically uniform prices. Armstrong argues that:

> Except in the extreme case where entrants have no alternative but to use the incumbent's network to provide their own services, I argue that (i) retail instruments should be used to combat retail-level distortions such as universal service obligations, and (ii) network access charges should be equal to the incumbent's cost of access (excluding "opportunity costs") in order to achieve productive efficiency. [132]
>
> When network bypass is a *possibility (emphasis added)* it is undesirable to make network access charges deviate from the incumbent's network costs.[133]

---

[129] Armstrong, M.,*Access Pricing, Bypass and Universal Service*, American Economic Review, Papers and Proceedings 91(2), 2001, pp.297-301.

Cave, M. E., Majumdar, S. K. and Vogelsang, I., *Handbook of Telecommunications Economics*. Volume 1: Structure, Regulation and Competition, 2002, Chapters 8 and 10.

[130] Organisation for Economic Co-operation and Development,*Access Pricing in Telecommunications*, , 2004, pp. 134-135.

[131] Armstrong, M. and Sappington, D. E. M.,*Regulation, Competition, and Liberalization*, Journal of Economic Literature, Vol. XLIV, June 2006, p. 357.

[132] Armstrong, M., 2001, op cit, p.297.

[133] Armstrong, M. 2001, op cit, p.301.

That is, Armstrong argues that if network bypass, both efficient and inefficient, is *possible*, it is optimal to use two instruments – access prices and a retail instrument (such as a universal service fund) – to achieve the joint goals of ensuring only efficient entry and ensuring the incumbent can meet its retail market obligations. In this situation, Armstrong argues that wholesale prices should be set equal to the incumbent's costs, and retail market taxes should be used to address retail market price distortions.

Armstrong also makes the point that where inefficient bypass is commercially viable, a sole reliance on wholesale access prices to correct retail market distortions will result in productive inefficiencies.

Armstrong argues that it is only appropriate to use a single instrument, such as averaged access charges, in the "extreme" case where bypass of the incumbent's network is not possible. In those circumstances, Armstrong argues that since the access seeker cannot avoid the wholesale tax, it is appropriate to levy it on the access charge, which is what averaged ULLS charges is seeking to achieve. That is, if bypass is either uneconomic or proscribed, Armstrong argues it may be appropriate to average wholesale prices.

Armstrong and Sappington's work

Sappington reaches the same conclusion as Armstrong in a joint article written by Armstrong and Sappington, published in the *Journal of Economic Literature* a month before his report for Telstra. In the article, Armstrong and Sappington state that:

> The design of access prices becomes more complicated if an entrant can supply the input itself, by investing in its own infrastructure, for instance. In such a setting, care must be taken to ensure that access charges provide the entrant with appropriate ("make-or-buy") incentives to supply inputs itself rather than purchase them from the incumbent VIP [Vertically Integrated Provider]. Two distinct regulatory instruments would be ideal in such a setting. To deliver appropriate make-or-buy incentives to entrants, the VIP's access charge should be set equal to the VIP's cost (c_2) of providing the input. This policy ensures an efficient pattern of production given that entry takes place. Such cost-based access pricing may not ensure industry cost minimization, though, because inefficient retail competitors may find entry profitable or efficient competitors may find entry unprofitable when retail prices diverge from the VIP's production costs ($p \neq c_1$). To ensure efficient entry decisions, cost-based access charges should be accompanied by a tax on the outputs of entrants that reflects the deviation of the VIP's retail price from its cost ($p - c_1$). When the regulator is unable to implement output taxes, the access charge is forced to perform the dual task of providing efficient make-or-buy decisions and efficient entry decisions. Typically, a single instrument cannot achieve two goals, making some compromise inevitable.[134]

The conclusions of Armstrong and Sappington are clear; averaged access pricing alone cannot achieve two goals and will inevitably lead to compromises in some or all of the matters set out in s. 152AH.

OECD Competition Committee report on Telecommunications Access Pricing

In support of its proposal to average ULLS prices, Telstra and Sappington have selectively quoted from a report prepared by the OECD's Competition Committee, and hence have taken comments out of context.

---

[134] Armstrong, M. and Sappington, D. E. M., June 2006, op cit, p. 357.

A more fulsome reading of the report (quoted below) shows that the OECD's support for averaged ULLS charges, as a mechanism to combat the distortions from uniform retail prices, is limited to situations where network bypass in natural monopoly areas is banned by the regulator. The OECD acknowledges that the regulator never has perfect information on future trends in demand and technological development, and therefore that this approach is both undesirable and unworkable in any practical sense. The OECD instead advocates the use of the two instrument approach, discussed above – cost based access pricing and broadly based retail taxes to cover any deficit in meeting retail obligations.

The following is a more complete extract from relevant OECD reports[135] discussing theoretical pricing approaches to the ULLS:

> In regard to geographic differentiation of prices, as before, if the scope for competition is to be maximised and if end-user charges are to be preserved, the structure of access charges should reflect the structure of the end-user charges. If end-user prices are geographically averaged, and ULL charges are based on actual costs, the entrants will have a strong incentive to only request unbundled local loops in low-cost areas, intensifying competition in those regions and driving down retail prices in those areas, raising prices in other areas. If geographic de-averaging of end-user prices is the objective (and this cannot be achieved directly by controlling end-user prices), it may in fact make sense to geographically de-average ULL charges. On the other hand, if the regulator wishes to preserve the geographically averaged structure of end-user prices, it is essential to geographically average ULL prices.
>
> Geographic averaging of ULL charges has the disadvantage that it may induce inefficient network duplication in low-cost areas. Entrants will have strong incentives to duplicate existing networks in regions where the incumbent's charges are above cost and little incentive to build duplicate networks (even when it is efficient to do so) in regions where the incumbent's charges are below cost. If it were known for sure what parts of the local loop network are a genuine natural monopoly (for which any duplication would be inefficient) these problems could be resolved through a simple ban on new local loop investment in the natural monopoly areas. But, in practice, it is not possible to determine in advance which parts of the network are a natural monopoly – this depends on demand patterns and technology that are continuously changing. For this reason, regulation of entry is considered undesirable.
>
> **A preferable approach (explained further in the previous chapter) is to set the price for unbundled local loop equal to the "cost" of those loops, and to use taxes on the retail products of the incumbent and its rivals to recover any fixed costs or access deficit. In practice, this would likely imply the establishment of some form of universal service funding mechanism, which "taxed" the revenues of local loop providers in low-cost areas and used those funds to subsidise the activities of local loop providers in high-cost areas. [emphasis added]**

The OECD has identified that in order to sustain uniform pricing and retail competition in metropolitan areas it is preferable to tax retail services, through a USF or similar arrangement. Only a broadly-based tax, levied on the incumbent and all of its rivals – whether they utilise the incumbent's network or their own competing network – can be sustainable, in the threat of network bypass.

---

[135] OECD Competition Committee, *Access Pricing in Telecommunications*, Paris, 2004, pp. 134-135.

This document replicates an earlier analysis found in:

OECD Competition Committee, *The Regulation of Access Services (with a focus on telecommunications)*, Paris, November 2003, p. 101.

As shown above, economic theory supports the view that averaging is only appropriate if ULLS bypass in metropolitan areas is either banned or is not technically or commercially feasible (ie Telstra has a persistent monopoly in both the short and long term). Again, this includes inefficient bypass, which would not be commercially feasible but for the distorted averaged wholesale prices. Telstra has not provided consistent evidentiary material or submissions to demonstrate that bypass is not feasible, and hence ULLS charges are appropriate.

David Sappington assumes that bypass, including inefficient bypass, is not commercially feasible in urban areas because of the economies of scale that Telstra's copper CAN exhibits. As a result, Sappington also assumes that competitors must rely upon the ULLS to serve the *entire* retail telecommunications market in Australia.[136]

Neither Sappington nor Telstra has presented evidence to demonstrate that bypass is not feasible in urban areas.[137] In fact, in its submission Telstra argued counter to this, stating that above cost access prices in urban areas will encourage some access seekers to deploy their own CAN infrastructure rather than use the ULLS. In its submission to the ACCC's fixed services review, Telstra argued:

> Simply assuming the whole country is a bottleneck is clearly no longer plausible or defensible. It denies the existence of competition provided by substantial alternative infrastructure in many parts of Australia. Where bottlenecks have been eliminated, regulation clearly needs to be wound back… [138]

Further, David Sappington, when arguing in favour of Telstra's preferred treatment of ULLS-specific costs, emphasises the availability of wireless and cable networks as substitutes for Telstra's services. Sappington makes no references at all to these substitution possibilities in his statement in support of averaging.

The ACCC notes the inconsistency in Telstra's evidentiary material and submissions on the feasibility or otherwise of bypass in urban areas.

In the fixed services review, the ACCC acknowledged the existence of other urban networks, such as Optus' hybrid fibre-coaxial (HFC) cable. However, in deciding whether to roll back ULLS regulation in metropolitan areas, the ACCC needs to be satisfied not only that alternative networks exist, but that they effectively constrain the prices and behaviour of the incumbent network operator. In the fixed services review, the ACCC concluded that:

> The ACCC needs to analyse the competitive pressure these networks place on Telstra before rolling back regulation in these areas. To date, the Commission has not received sufficient information to support Telstra's claim that there is sufficient competition in particular areas where some form of competitor infrastructure exists.

---

[136] Sappington, July 2006,¶ 35, pp. 11-12.

[137] The ACCC's infrastructure survey demonstrates that in 2004 there were alternatives to Telstra's infrastructure that had been deployed: ACCC, *Telecommunications Infrastructure in Australia 2004*, June 2005.

[138] Telstra, *Submission to the ACCC, Response to the ACCC Proposal – A strategic review of the regulation of fixed network services*, February 2006, p.1.

The ACCC concluded that it did not have sufficient evidence to show that alternative networks acted as effective competitive constraints on Telstra at this point in time, such that ULLS regulation should be wound back in these areas at this stage.

In the context of the averaged charges proposed in Telstra's undertakings, however, the issue is not whether there is effective competition in urban areas, but whether bypass is feasible. For the reasons set out above, the ACCC considers it reasonable to assume that bypass is *possible*. The implication of this is that averaged pricing can be expected to have adverse consequences for competition and economic efficiency, and will not facilitate Telstra's ability to recover an potential shortfall that arises from compliance with its retail parity obligations.

C.5. ACCC's assessment of averaged ULLS charges

On the basis of information submitted, the ACCC is not satisfied that averaged ULLS charges are reasonable, having regard to the matters listed in s. 152AH of the TPA. This section gives a discussion of the reasons for this decision, while section C.6 contains a summary of the ACCC's overall view on the reasonableness of Telstra's averaged ULLS charge proposal.

C.5.1. Long term interest of end-users

- ***Promotion of competition in markets for carriage services and services supplied by means of carriage services***

In considering the potential effect of averaged ULLS charges on competition, it is appropriate to consider two broad areas: urban areas, where averaged ULLS charges would be above efficient costs; and rural areas, where averaged ULLS charges would be below efficient costs. The ACCC has considered the competitive effects of averaged ULLS charges in both of these distinct areas.

Urban areas

Telstra argues that averaged ULLS charges will not substantially affect access seekers' margins or plans to invest in ULLS based infrastructure in metropolitan areas. Telstra claims that, even with averaged ULLS charges, competitors will still benefit from improved margins by moving from resale to ULLS-based competition.

However, Telstra's expert witness, David Sappington, acknowledges that averaged ULLS charges will reduce competition in urban areas. Sappington argues that this lessening of competition is actually appropriate as it is a removal of the 'cream skimming' that undermines the retail price mandate.

Optus also argues that competition in urban areas will be reduced under averaged pricing, stating that

> It would not be financially viable for Optus and its competitors to roll-out ULLS-based networks to the same extent as it possibly could under de-averaged pricing.

In response to the Draft Determination, Optus submitted a report it commissioned from Frontier Economics, which assesses whether averaged ULLS charges promote of competition. Frontier Economics draws on economic literature in relation to

strategic interactions among enterprises; and models of Bertrand competition with differentiated products.[139] It argues that:

- Averaged ULLS charges will increase competitors' marginal costs in urban areas and reduce their incentive to compete in these markets.
- This will result in a "softening" of competition in urban areas, and could lead to an increase in retail prices. Frontier notes that the extent to which competitors are able to pass the increased ULLS charge through to retail prices will depend, amongst other things, on the shape of the supply and demand functions and the level of competition.
- Telstra will be better off under averaged ULLS charges since it will benefit from the increased retail prices, without incurring increased marginal costs as its competitors do.

The ACCC considers that averaged ULLS charges in urban areas, above efficient costs, would increase the marginal cost of, and negatively impact on the viability for, ULLS-based investments.

In contrast with the previous statement that ULLS competition will not be substantially affected, Telstra argues that above cost access prices in urban areas will encourage some access seekers to deploy their own CAN infrastructure rather than use ULLS. It argues that this promotion of facilities based competition is the ACCC's long-term goal.

Sappington, however, makes the assumption that it is "prohibitively expensive for customers to install their own loops" Sappington argues that, given the substantial economies of scale in Telstra's copper CAN in urban areas, the ULLS may represent the least cost option, even when ULLS prices are averaged. In contradiction of his own arguments, Sappington also argues that efficient producers may be able to operate profitably in urban areas using facilities-based competition.

The ACCC notes the inconsistency in Telstra's evidentiary material and submissions on the impact of averaged pricing on investment in ULLS-based or alternative CAN infrastructure.

The ACCC notes the existence of economies of scale in Telstra's urban local networks, but does not agree with Sappington's assumption that bypass onto competitors' own CAN will always be prohibitively expensive. The ACCC considers that as new technology becomes increasingly cheaper, it may be economically viable in some urban areas. To this extent, the ACCC notes that proposals for fibre, wireless, satellite and mobile networks in various locations are currently in preparation. The development of bypass opportunities, in circumstances where Telstra imposes the full burden of recover for any cost shortfall in high cost regions (where they could be found to exist) on its own network, will inevitably undermine Telstra's ability to compete for end-users as it will deliver a relative, and increasing, cost advantage to

---

[139] Basic Bertrand models of competition find that firms price at marginal cost, and do not make any profit. Tirole (1988) refers to this polar case as the 'Bertrand Paradox', as it is difficult to believe that firms in industries with few firms never succeed in manipulating market prices to make profits. Extensions to the Bertrand model, such as differentiated products, alter these findings. A fuller discussion can be found in Tirole, Chapter 7.

those competitors which bypass Telstra's network regardless of whether such bypass is efficient or not.

Where the ACCC would have concerns is where bypass in urban areas only became economically viable as a result of artificially higher averaged ULLS prices. As discussed in the following section, the ACCC is not satisfied that averaged ULLS charges would promote efficient facilities based competition.

In addition, the ACCC considers that by deterring ULLS based competition, averaged ULLS charges, could lead competitors to rely on the resale of Telstra's products, which results in less favourable competitive outcomes for end-users and entrenches Telstra's dominance in providing fixed line services.

Rural areas

Telstra and David Sappington claim that averaged ULLS charges, which are below costs, would promote ULLS-based competition in rural areas.

In contrast, Frontier Economics argues that averaged ULLS charges are not likely to promote competition in rural areas because entry into this market is too costly relative to the benefits obtainable.

The ACCC agrees with Frontier Economics and Optus, that lower, averaged ULLS charges are unlikely to promote wide spread ULLS based competition in rural areas. Instead, the high capital costs that result from long line distances and low density exchanges are likely to be deterrents to ULLS based competition, regardless of the level of ULLS charges.

In addition, ULLS based competition in rural areas is limited due to the inability of DSL technology to deliver broadband beyond approximately 5 km of an exchange. Given the limited ability to utilise ULLS to offer bundles of services in rural areas that include broadband it is likely that ULLS-based competition will remain limited even with averaged ULLS prices.

Despite Frontier Economics' claims, the ACCC acknowledges that there could be a relatively small number of discrete rural areas in which ULLS based investment is viable both from a technical and economic perspective. While there may be these limited exceptions, the ACCC is not satisfied that averaging will promote ULLS based competition in rural areas. If competitors are to invest in rural areas, it is likely that it would be via technologies other than ULLS and with assistance from Government subsidy programs.

It is important to note that even if lower ULLS prices promote some limited ULLS-based competition in rural areas, such investment may be inefficient relative to investment in alternative technology. Average charges distort access seekers' build-buy decision by understating the true costs of investing in ULLS-based infrastructure. Sappington acknowledges that averaging will discourage investment in more efficient alternative technologies in rural areas. However, Sappington notes that if full-facilities based competition is prohibitively expensive, then competitor's build-buy decisions will not be affected, regardless of ULLS charges. The ACCC notes that there are several proposals for wireless and other alternatives that are being considered in rural areas, albeit supported by Government subsidies. Averaged ULLS prices, were they to be accepted, would undermine the viability of competing alternatives to Telstra's network in these regions, as Telstra's network would be the recipient of ongoing internal subsidies to which these alternatives will be denied

access, despite receiving upfront support from the Government for their initial deployment, The ACCC does therefore consider that there is the potential for averaged ULLS prices to discourage investment in alternatives to the ULLS in these regions.

The ACCC is not satisfied that it is reasonable to average ULLS charges, in part to promote rural ULLS competition, given the ULLS is not technically viable for delivering broadband in large parts of rural areas. To the extent that any limited competition benefits arise, they would be outweighed by the distortions to investment in alternative rural infrastructure and the distortions to competitors' build-buy decisions in urban areas.

In summary, the ACCC is not satisfied that Telstra's proposed averaged ULLS charges will promote competition in markets for carriage services and services supplied by means of carriage services.

- ***The objective of achieving any-to-any connectivity in relation to carriage services that involve communication between end users***

The structure of ULLS charges is not likely to have any particular relevance to any to any connectivity.

- ***The objective of encouraging the economically efficient use of, and economically efficient investment in:***
  - ***the infrastructure by which carriage services and services provided by means of carriage services are supplied; and***
  - ***any other infrastructure by which listed services are, or are likely to become, capable of being supplied***

The OECD's report acknowledges the distortions that averaged ULLS prices can have on build-buy decisions. The OECD suggests that the only way to avoid inefficient entry with averaged wholesale charges is to impose a ban on new entry, where the Government or regulatory agency were certain that such entry was inefficient. This highlights the point that averaged wholesale pricing can easily distort both competition and investment outcomes.

Telstra argues that above cost (averaged) ULLS prices in urban areas will encourage some access seekers to bypass Telstra's entire network, instead opting to compete by deploying their own network. This argument is inconsistent with Telstra's central argument that averaging is necessary to ensure its viability, given its retail parity obligation and increased ULLS competition in urban areas.

As discussed in the previous section, the ACCC only seeks to promote facilities-based competition where it represents an efficient use of, and investment in, infrastructure. The ACCC considers that such bypass would be inefficient if it was only economically viable as a result of artificially inflated averaged ULLS prices. If an access seeker decides to completely bypass Telstra's network as a result of averaged ULLS charges, this would represent an inefficient outcome if it was previously uneconomic to bypass under de-averaged (cost reflective) charges. In this situation, the access seeker is facing distorted build-buy price signals, which leads to an inefficient outcome that is not in the long term interest of end users.

The expert report submitted by the Competitive Carriers' Coalition similarly considers that above-cost metropolitan charges could lead to inefficient bypass of Telstra's network.

> From an efficiency point of view averaged prices bear a risk of distorting investment decisions, causing inefficient bypass in low-cost areas and under-investment in high cost areas.[140]

Telstra has indicated that in response to such bypass threats, it would reduce wholesale access charges. In a report prepared by Henry Ergas and presented by Telstra with its previous ULLS undertaking in relation to the Access Deficit Contribution (ADC),[141] Ergas stated:

> …to the extent to which by-pass would strand Telstra's assets, Telstra itself has an incentive to deter it … Telstra could and likely would do so by reducing [wholesale access prices] where the alternative was the stranding of assets.[142]

In a subsequent submission, Ergas stated:

> …if Telstra did not lower wholesale prices, then inefficient bypass would occur leading to competition forcing lower retail prices and Telstra would lose both wholesale and retail revenues. If more realistically, Telstra lowered wholesale prices to the level where inefficient bypass was no longer attractive, competition would still force down retail prices, but at least Telstra would lose only the difference between the original and the subsequent wholesale prices, rather than the entire wholesale price.[143]

This strategy to reduce wholesale prices in the face of an inefficient bypass threat demonstrates the fundamental incompatibility of averaged prices with efficient investment signals.

Even if Telstra did allow bypass to occur, the expert report submitted by the Competitive Carriers' Coalition states that in the long run it is not sustainable to encourage inefficient investment in low-cost areas by charging above-cost prices.

> In particular, there is a risk that the incumbent over time can leverage on its true lower costs, reducing prices and ultimately forcing competitors whose infrastructure investment is less efficient (but who have been encouraged to enter because of false higher price signal) out of the market.[144]

If competitors did not have a credible bypass threat, then a higher ULLS price might still deter efficient investment in DSLAM infrastructure and efficient usage of the ULLS. Instead, competitors may be forced to instead increase their reliance on

---

[140] Marsden Jacob Associates, *Averaging vs. De-averaging—A Report Prepared by Marsden Jacob Associates for the Competitive Carriers' Coalition*, 28 March 2006, p. 4.

[141] The effect of the Access Contribution Deficit (ADC) in metropolitan areas would have been similar to the effect of Telstra's currently proposed averaged ULLS pricing construct. In both cases the effect in metropolitan areas is that ULLS charges are above cost. Hence some of the concerns surrounding the effect of the ADC on encouraging access seekers to make inefficient investment decisions are also relevant in relation to averaged ULLS charges.

[142] Ergas, H., *Expert Report on Access Deficit*, CRA International, May 2005, p. 11.

[143] Ergas, H., *Response to inaccurate citations by the ACCC of previous expert reports by Henry Ergas – public report*, CRA International, September 2005, p. 6.

[144] Marsden Jacob Associates, *Averaging vs. De-averaging—A Report Prepared by Marsden Jacob Associates for the Competitive Carriers' Coalition*, 28 March 2006, p. 5.

Telstra's resale service. In this scenario, society would lose not only from the fact that worthwhile ULLS investments may not proceed, but also the fact that resale based competition will not give access seekers the same degree of flexibility to differentiate their products and prices.

Telstra argues that averaged ULLS prices will encourage ULLS-based investment in rural areas. However, as discussed in the previous section, ULLS-based investment will have limited technical and economic viability in rural areas. If there are discrete rural areas where ULLS based competition is viable under averaged ULLS charges, then this could be an inefficient outcome to the detriment of higher levels of allocative and productive efficiency that could otherwise be achieved through bypass onto alternative networks.

In summary, the ACCC is not satisfied that Telstra's proposed averaged ULLS charges would promote economically efficient use of and investment in infrastructure. This is because averaged charges do not reflect the underlying costs of the ULLS, thereby distorting allocative efficiency. Access seekers' build – buy decisions would be affected, distorting dynamic efficiency; lower usage of ULLS in urban areas than is otherwise efficient; inefficient bypass in urban areas; and possibly underinvestment in efficient alternatives in regional and rural areas.

C.5.2. The legitimate business interests of the carrier

In a footnote to his report, Sappington acknowledges that a USF could, in theory, be used to fund low priced rural telecommunications services. However, Sappington states that his understanding of the Australian USF is that it "fails to compensate Telstra fully for the losses it incurs in servicing unprofitable rural customers".[145] Sappington advances no evidence to support any findings in this regard, and characterises Telstra's position and that of others as 'beliefs', stating later that "Optus' apparent belief that the Universal Service Regime compensates Telstra fully for the losses it suffers in serving rural customers… as noted above, this belief is not held universally".[146]

It therefore appears that Telstra's proposal for averaged ULLS charges does not specifically arise out of concerns with the current de-averaged structure of ULLS charges per se. Rather it seems to arise as a result of the retail parity obligation and what Telstra considers is inadequate compensation for providing high cost rural telephony services.

Implicit in the USF calculation is the fact that Telstra has historically provided uniform line rental services across Australia, despite the absence of Government regulations requiring it to do so. The Government's formal retail parity obligation only places a financial strain on Telstra to the extent that it results in reduced revenue, and hence leaves a shortfall in funding for uneconomic rural telephony services (over and above the USO).

It would be in Telstra's legitimate business interests to seek to recover any potential shortfall in funding if it exists. However, Telstra has not provided evidence to satisfy

---

[145] Sappington, July 2006, op cit, footnote 12.

[146] ibid, footnote 50.

the ACCC that, in the future, the USF will be inadequate for maintaining the retail parity obligation imposed by Government. This is for three main reasons:

1. The Government's retail parity obligation is not intended to limit Telstra's ability to compete in urban areas or to require it to make the same offers available to all areas.

The Government's retail parity obligation applies to Telstra's basic line rental products – Homeline Part and BusinessLine Part – not all of Telstra's line rental and call services or broadband services.

The explanatory statement accompanying the changes to retail price controls to introduce parity on these basic line rental products specifically stated that:

> This requirement is drafted so that Telstra's ability to respond to competition or to introduce new pricing packages is only limited in relation to its basic line rental services.[147]

Where 'basic line rental services' is defined only as:

> The definition of a 'basic line rental service' is amended by deleting the previous definition and substituting a new definition. The effect of the amendment is to make it clear that a 'basic line rental service' does not include a line rental service in respect of which the customer contractually agrees not to exercise the right to pre-select in favour of a carriage service provider other than Telstra.
>
> At the date on which the Determination is registered on the Federal Register of Legislative Instruments, Telstra's basic line rental services are those supplied under Telstra's Homeline Part and Businessline Part products.

The implication of this is that Telstra will not necessarily incur any additional loss in rural areas as a result of its retail parity obligations.

2. To the extent that competition leads to reduced urban revenues, this should be addressed through the USF.

The USF is a self-correcting mechanism, so increased competition in urban areas would not alter the total amount of the USF that is available to fund uneconomic rural services. The USF is subject to ongoing reviews, and Telstra and other interested parties are regularly able to submit their views on the adequacy or otherwise of the USF in funding the USO, and have those views taken into account by ACMA in the determination of the size of the USF going forward.[148] The ACCC considers that Telstra has not provided sufficient evidence for it to be satisfied that the USF is incapable of meeting any cost shortfalls it may experience, either now or on a forward looking basis given the regular opportunities for review.

If Telstra loses customers in urban areas, then it would contribute less to the USF and competitors would contribute more. Telstra has argued that the loss of revenue from customer churn or from price competition would compromise its ability to maintain

---

[147] Minister for Communications, Information Technology and the Arts, *Explanatory statement—Telecommunications (Consumer protection and service standards) Act 1999—Telstra Carrier Charges – Price Control Arrangements, Notification and Disallowance Determination No. 1 of 2005*, (*Amendment No. 1 of 2006)*, 27 Feb 2006.

[148] See for example: Australian Communications Authority, *Universal service subsidies for 2005-06 to 2007-08 Proposal Paper*, November 2004.

retail parity. However, just as competitors are not compensated for the effects of competition on their ability to contribute to the USF, likewise Telstra should not be compensated if it loses revenue as result of competition. All market participants would still need to contribute to the USF, even if competition reduced their earnings.

3. Despite this, if a shortfall were to exist, the ACCC has strong concerns with the use of Telstra's PIE II model for calculating rural network costs and hence the size of the potential shortfall. The ACCC is not satisfied that that this model can be relied on for determining whether Telstra incurs a shortfall in funding uneconomic rural areas (net of the USF).

Even if Telstra were to under-recover under de-averaged ULLS charges, increased urban competition and the retail parity obligation, the ACCC is not satisfied that the averaging mechanism will rectify this. If Telstra sought to increase urban prices above cost then competitors could avoid paying the averaged ULLS charge by investing in their own networks that bypassed Telstra's CAN. If this were to occur, then Telstra would not earn the extra revenue that it was seeking to cover any potential USF shortfall. Taken to the extreme, if customers bypassed Telstra's network, presumably Telstra would need to increase the ULLS charges to the remaining customers, which would encourage further bypass.

Given the inconsistency in Telstra's evidentiary material and submissions on the feasibility or otherwise of bypass in urban areas, the ACCC is of the view that there is sufficient possibility for bypass to occur, such that it is not satisfied that it is in Telstra's legitimate business interests to average ULLS charge. Given the possibility of bypass, averaged ULLS charges are not sustainable for cost recovery in the long run.

Even if Telstra's legitimate business interests were served by averaged ULLS pricing (and the ACCC does not accept this), it would not follow that averaged pricing is reasonable, having regard to the s152AH matters. Rather, in these circumstances, the ACCC would be required to balance competing s152AH considerations in deciding whether it was satisfied of the reasonableness of averaged pricing. Having regard to the other s152AH considerations, in particular the competition and efficiency effects of averaged pricing, the ACCC would nonetheless conclude that it could not be satisfied that Telstra's proposed average pricing structure is reasonable.

While not of relevance to the ACCC's assessment of the reasonableness of Telstra's proposed pricing structure, the ACCC is of the view that, if Telstra incurs a revenue shortfall as a result of the parity obligation, this is best funded through a broadly based retail tax and targeted subsidy program (such as the USF), rather than averaged ULLS charges. The ACCC considers that the availability or otherwise of a correctly determined retail tax scheme, alternative subsidy schemes, etc. to account for retail market distortions where they are found to exist, is not determinative of the ACCC's decision that it cannot be satisfied that averaging is reasonable. That is, taking account of all of the matters to which regard must be had, even where averaging ULLS prices was found to be in Telstra's legitimate business commercial interests, this is not enough to overcome its detrimental impact on all the other matters to which regard must be had.

C.5.3. Interests of persons who have rights to use the ULLS

In most cases, access seekers' interests are best served by cost reflective prices, which provide efficient signals for their decisions whether to compete via reselling Telstra's

wholesale products; using their own DSLAM technology and Telstra's network (ULLS); or investing in their own alternative networks (such as wireless, cable or fibre).

Telstra claims averaged network costs are in the interests of access seekers as:

> …a ULLS price of $30 per month substantially improves the viability of providing services in Band 3 areas compared with de-averaged prices.[149]

Whilst it is true that any lower access charge in regional areas (Band 3) may improve the viability of ULLS investments in these areas, this will only be in the interests of access seekers if ULLS is the best platform for delivering services in these areas. It also depends on whether there is sufficient demand for such a service as to make it worthwhile.

It is actually in the mass market metropolitan areas (Band 2), rather than regional areas (Band 3) where access seekers are interested in rolling out ULLS based infrastructure. It is therefore likely that any benefits that access seekers gain from any lower access charges in band 3 may be outweighed by the detriment they face as a result of access charges that are above efficient costs in metropolitan areas.

In any case, under a de-averaged approach, Band 3 prices may not be significantly different from the proposed averaged price of $30.150 This means the claimed benefits noted by Telstra for Band 3 areas under a $30 charge are likely to exist without the need to average across all bands and impact detrimentally on access seekers' ability to compete in metropolitan areas.

On balance, the ACCC is not satisfied that averaged ULLS charges are in the interests of persons who have rights to use the declared service.

C.5.4. The direct costs of providing access to the ULLS.

The ACCC is of the view that there are several pricing structures that could be implemented that would enable Telstra to recover its direct costs. The ACCC therefore is not satisfied that this matter materially affects the ACCC's overall assessment of whether Telstra's proposed average charges are reasonable.

C.5.5. The operational and technical requirements necessary for the safe and reliable operation of the ULLS or Telstra's network;

Telstra has stated that the averaging of network costs has relevance to the operational requirements necessary for the safe and reliable operation of the ULLS. Specifically, Telstra states that under averaged ULLS charges, it:

> …will be able to fully recover network costs which will ensure ongoing investment in infrastructure and allow safe and reliable operation of the ULLS. A deaveraged ULLS price would undermine Telstra's ability to recover its costs.[151]

---

149 Telstra's Submission to the 2006 Discussion Paper, p. 8.

150 Because of the impact of higher rural costs as estimated by the PIE II cost model, Telstra's derived average network cost figure is relatively close to the likely de-averaged Band 3 network cost.

151 Telstra's Submission to the 2006 Discussion Paper, p. 7.

The ACCC agrees with Telstra that averaged ULLS charges, which are based on efficient network costs, would provide sufficient revenue to fund the operational and investment requirements necessary for the safe and reliable operation of the ULLS.

However, the ACCC is not satisfied as to the accuracy of Telstra's claim that de-averaged ULLS charges would undermine its ability to recover its costs. So long as ULLS charges, whether averaged or de-averaged, are based on a recovery of efficient network costs, then this would ensure that Telstra can invest in infrastructure that ensures the safe and reliable operation of the network. Therefore, the ACCC is not satisfied that averaged ULLS charges would have a material effect on the operational and technical requirements necessary for the safe and reliable operation of telecommunications services and the telecommunications network.

C.5.6. The economically efficient operation of the ULLS or Telstra's network.

There is considerable overlap between this matter and the analysis outlined above under the long-term interest of end-users. The ACCC is not satisfied that the proposed average charge is likely to lead to the economically efficient operation of the ULLS or Telstra's network.

C.6. ACCC's final view on averaged ULLS charges

On the basis of information submitted, and after having regard to the matters listed in s. 152AH, the ACCC is not satisfied that Telstra's proposed averaged ULLS charges are reasonable. In particular, the ACCC is of the view that averaged pricing would:

- adversely affect competition in the markets for basic telephony and broadband services; and
- distort usage and investment decisions, resulting in the inefficient use of, and investment in, telecommunications infrastructure.

The ACCC acknowledges that Telstra has a legitimate business interest in recovering its costs of complying with its retail parity obligation. However, it does not follow that Telstra's legitimate business interests would be served by an average pricing structure. The ACCC is not satisfied that Telstra would not be adequately compensated for those costs in the absence of averaged pricing for two main reasons:

1. Telstra's retail parity obligation applies to its basic line rental products only.
2. Telstra receives the USF to compensate it for complying with its USO, implicit in which was a form of retail parity. It is not possible for the ACCC to be satisfied that the USF will be insufficient, in future, to compensate Telstra for the cost of complying with its retail parity obligation.

Even where Telstra would under-recover in the absence of averaged pricing, distortions to wholesale pricing will only assist in compensating Telstra for the costs of complying with its retail parity obligation where bypass of the CAN is not technically or commercially feasible. The available evidence suggests that (while it may be inefficient) bypass of the CAN may be technically and commercially feasible under an average wholesale pricing structure. In any event, Telstra has not demonstrated to the ACCC's satisfaction that bypass of the CAN would not be technically and commercially feasible under an averaged pricing structure, and has submitted evidence in conflict with this during the course of this assessment.

Even if the ACCC were able to be satisfied that Telstra's legitimate business interests were served by distortions to wholesale pricing, it does not necessarily follow that wholesale prices must be completely averaged. An appropriate response would include a more detailed examination of the objectives of the retail pricing policy constraints, its breadth and its take-up by end users. It therefore does not follow that fully averaged pricing is reasonable, having regard to the s152AH matters. Rather, in these circumstances, the ACCC would be required to balance competing s152AH considerations in deciding whether it was satisfied of the reasonableness of the extent of averaging in proposed prices. Having regard to the other s152AH considerations, in particular the competition and efficiency effects of averaged pricing, the ACCC is not satisfied that Telstra's proposed averaged price is reasonable.

Appendix D. Weighted Average Cost of Capital (WACC)

D.1. Introduction

The ACCC uses a post-tax vanilla WACC in its assessment of Telstra's proposed ULLS undertakings. The WACC is employed primarily as an input into Telstra's PIE II model to estimate the annualised network costs of providing a range of services, including the ULLS.

For the purposes of these undertakings, Telstra has relied upon a series of WACC estimates recommended by Professor Robert Bowman. Bowman recommends two potential values for the WACC, which he refers to as the 'Low' and 'High' WACC. Similar to other aspects of Telstra's undertakings, it is not clear to what extent Telstra relies upon either of these WACCs when determining prices to apply under the undertakings.

The ACCC's analysis of Telstra's preferred WACCs is set out in sections D.6 and D.7 below, which deal with Telstra's preferred input parameters and the arguments presented regarding asymmetric social outcomes respectively.

D.2. ACCC's draft view

The ACCC's draft view was to reject Telstra's proposed WACCs. The ACCC was not satisfied that the proposed WACCs were reasonable when assessed against the statutory matters set out in s. 152AH.

D.3. Telstra's initial supporting submission

Telstra commissioned Professor Bowman to estimate a series of WACCs for ULLS network costs, including WACCs adjusted upward by one standard deviation to take account of claimed asymmetry in social outcomes.

Bowman (and therefore Telstra) argue that WACC components are estimated with error, and therefore WACC is estimated with error. Further, Telstra argues that the consequences of estimation error in the WACC are asymmetric and that long-term social costs of under estimating the cost of capital are higher than the long-term social costs of over estimation.

In choosing a WACC that balances these claimed asymmetric costs, Bowman proposes that a WACC should be calculated by increasing the WACC parameter point estimates by one standard deviation. To do so, Bowman has determined what he believes to be appropriate WACC parameter point estimates and estimated on a preliminary basis what he considers to be the standard deviations in relation to specific WACC parameters. He then adds the two to arrive at WACC parameters one standard deviation higher than his own point estimate. These are combined to determine the appropriate post-tax nominal (vanilla) WACCs for 2005-06, 2006-07 and 2007-08.

In its 2005 Supporting Submission, Telstra argues that it is appropriate that separate WACCs be estimated for ULLS network and ULLS-specific costs. Telstra argues

that the network assets and ULLS-specific assets entail different risks and therefore demand different costs of capital.[152]

D.4. Subsequent submissions

In response to the discussion paper, AAPT submitted a report by Associate Professor Neville Hathaway that reviews the WACCs estimated by Bowman on behalf of Telstra.[153]

Optus also provided a report by Jason Ockerby that reviewed Bowman's theory and method. This report was not received by the ACCC in time to assess it for the purposes of the draft decision.

After the draft decision, Telstra provided the ACCC with three reports by Bowman. The three submissions provided Bowman's response to the Hathaway paper, the Ockerby paper and the ACCC's draft decision respectively.

D.5. Telstra's use of separate WACCs

As discussed above, Telstra submits that it is appropriate for a separate WACC to be estimated for ULLS specific costs.[154] Telstra argues that network assets and ULLS specific assets entail different risks and therefore demand different costs of capital.

The ACCC has previously expressed its view that recovery of network costs and ULLS specific costs should not be differentiated – they should both be recovered through the same cash flows.[155]

The ACCC continues to consider that this is an appropriate position. The ULLS-specific assets used to enable the provision of the ULLS over the PSTN are largely computer systems. The ACCC considers that the appropriate WACC is one which measures the risk associated with the way Telstra gets cash flow from the ULLS. The same cash flows will recover both the network costs of the underlying PSTN network and the ULLS-specific costs. The overall efficiency of the decision to operate the PSTN is based on aggregate cash flows generated by that asset, whether or not the cash flows are derived from the supply of the ULLS or other services.

The ACCC accordingly believes that a generally applicable WACC should be calculated and applied to both network and ULLS specific costs. Except where mentioned below, the ACCC has assessed Telstra's PSTN WACC in detail in the below assessment.

D.6. Inputs

In this appendix WACC input parameters which are in contention in these undertakings are examined in further detail. Input parameters which are not the subject of contention are noted, but not examined in detail.

---

[152] Telstra's 2005 Supporting Submission, p. 20.

[153] Hathaway, N., *Telstra's WACCs for Network ULLS and the ULLS and SSS Businesses—Review of Reports by Prof. Bowman*, Capital Research, 15 March 2006.

[154] Telstra's 2005 Supporting Submission, p. 20.

[155] See the ACCC's 2005 Final Decision, p. 77.

D.6.1. Gearing Ratio

$$\frac{D}{V} \ \& \ \frac{E}{V}$$

Gearing ratios measure the proportion of an entity's finance that is raised through either debt or equity. There are several variations as to how the debt and equity values can be measured.

Telstra's position

Bowman supports using the optimal gearing ratio for a company but considers that determining this optimal ratio is problematic.[156] He therefore considers that it is most appropriate to use Telstra's target debt-equity ratio of the company rather than any regulator-determined value:

> Although regulators may have views about capital structure for a firm, they do not have to face the economic consequences of their views. It seems presumptuous for a regulator to set policy based on an assumption that the management of a company does not know how to make capital structure decisions that are in the best interests of the company.[157]

Consequently, Bowman proposes a financial leverage of 20 per cent for the CAN on the basis of Telstra's market-measured target debt ratio of **[c-i-c]** per cent.

Bowman also states that he considers that book values are not acceptable measures of gearing.[158]

Submissions of other interested parties

Hathaway accepts Bowman's argument for the network gearing. He states that he believes Bowman's gearing ratios are reasonable but that Bowman does not present reasonable justification for his proposed values. However, he also considers Bowman's claimed gearing of 16 per cent for Telstra is probably too low.[159]

The ACCC's View

Since the ACCC's 2000 assessment of Telstra's second PSTN undertakings, the ACCC has held the view that a debt ratio (D/V) of 40 per cent and an equity ratio (E/V) of 60 per cent are reasonable.[160] In determining this ratio, comparisons were drawn against observed gearing estimates of competitors and other regulatory decisions. The ACCC concluded that a gearing ratio should be estimated by reference

---

[156] Bowman, *Response to ACCC's draft decision on Telstra's ULLS network undertaking*, August 2006, p. 8.

[157] Bowman, December 2005, Appendix C, pp. 2-3.

[158] Bowman, *Response to ACCC's draft decision on Telstra's ULLS network undertaking*, August 2006, p. 8.

[159] Hathaway, op. cit., p. 19.

[160] ACCC, *A Report on the Assessment of Telstra's Undertaking for the Domestic PSTN Originating and Terminating Access Services,* July 2000, p. 74-77

to the Telstra-wide historic book value gearing ratio (43.1%) at the time of Telstra's privatisation is appropriate because:[161]

- at privatisation, Telstra most closely resembled a pure PSTN provider
- a gearing ratio that was outside the range of 25 per cent and 60 per cent could not be an appropriate benchmark for a regulated company.

The ACCC holds the view that the WACC is not highly sensitive to the debt and equity ratios. Bowman holds a similar view:

> …the WACC becomes flat over a wide range of leverage. Where the WACC curve is flat, there is little advantage to changes in the level of debt.[162]

Comparisons against several overseas regulatory decisions indicate that Bowman's proposed debt ratio is on the lower end of the range. A recent Ovum report demonstrates that the preferred debt ratios of European regulatory bodies are in the range of 25 to 50 per cent:

Figure 1. – European fixed line regulators' appropriate debt ratios[163]

Source	Estimate
Denmark	35-50%
France	40%
Italy	25-40%
UK	30-35%
Germany	39.7%
Average of fixed line regulators	37.4%

Bowman says the optimal leverage ratio is the correct measure to use in the WACC calculation but due to asserted difficulties in obtaining this number chooses to use the target debt ratio as a proxy. Bowman also says:

> I also see no basis for predicting that the target debt ratio will change going forward.[164]

The ACCC considers that Telstra's target debt ratio may change with any future change in the level of government ownership. It also considers that this target debt ratio is generally low compared with other Australian infrastructure companies and international fixed line telecommunication companies. It may not be reasonable to assume that the optimal leverage ratio for Telstra will continue to be this low. Bowman has provided no submissions in response to this consideration.

The ACCC does not consider that it should depart from its previous position on the gearing ratio. The ACCC continues to consider that 40% is the appropriate gearing

---

[161] ACCC, *A Report on the Assessment of Telstra's Undertaking for the Domestic PSTN Originating and Terminating Access Services*, July 2000, p. 77.

[162] Bowman, December 2005, Appendix C, p. 2.

[163] Bieler, D. and Nicoletti, S., *Regulation of Cost of Capital in the European Fixed-line Telecoms Sector*, Ovum, 22 February 2006.

[164] Bowman, December 2005, p. 15.

ratio when calculating a WACC for services based on the PSTN network, based on both its past reasoning and the Ovum information. However, the ACCC in any case notes that the WACC is not highly sensitive to this assumption.

D.6.2. Return on Debt

The cost of debt is calculated as the risk-free rate-of-return plus a debt premium. The debt premium is added to cover investors for the specific debt risk of the firm in question. As with the risk-free rate-of-return, the cost of debt should reflect the current cost of debt rather than a historical rate.

Telstra's position

Bowman proposes the inclusion of debt issuance costs to the return on debt, such that:

$$R_d = R_f + DP + DIC$$

Where: R_d is the cost of debt

R_f is the risk-free rate

DP is the debt risk premium and

DIC is the issuance cost of debt.

The specific inputs, risk free rate, debt risk premium and debt issuance costs, are each separately detailed in their respective subsections.

D.6.3. Risk-free rate

Telstra's position

Bowman recommends using a 10-year government bond rate without averaging when estimating the cost of equity capital for the ULLS-network.

Submissions of other interested parties

Hathaway considers the risk free rate of 5.11 per cent for the CAN proposed by Bowman to be acceptable.

The ACCC's view

The ACCC agrees with Telstra's proposal to use a 10 year duration in calculating the risk-free rate in the WACC for the purposes of the assessment of Telstra's Undertakings.

Since Telstra's 1999 second PSTN undertaking, the ACCC has used rates for the 10 days leading up to the start of the regulatory periods. This is to address any potential concerns regarding day-to-day market volatility. Bowman states that, in his opinion, there is sufficient liquidity in the market to obviate the need for any such averaging.[165] However, Bowman advances no evidence to support this statement in his initial report. In his response to the ACCC's draft decision, Bowman again declines to provide any evidence, arguing that his position is standard. The ACCC considers that in the absence of supporting evidence Bowman's position should not be accepted.

---

[165] Bowman, December 2005, p. 10.

Further, the ACCC has concerns regarding the choice of dates by Bowman for calculating the risk-free rate. It is not appropriate to seek to apply TSLRIC notional modelling assumptions in the manner Bowman has with regards to the 'overnight' rebuild assumption. Issues regarding Bowman's partial application of bottom-up TSLRIC modelling assumptions to the CAPM are discussed in further detail in section D.6.9 below.

The ACCC's draft decision sought further explanation from Bowman about why, given that the undertakings commence on 1 January 2006, he had used a rate for 30 June 2005 to estimate a risk free rate for the period from 1 January 2006 to 30 June 2006. Bowman replied that he used the rate at 30 June 2005 because a WACC was needed for the entire 2005-06 financial year.[166] The ACCC considers that Bowman's need to use a 30 June 2005 figure may therefore reflect limitations in Telstra's PIE II model. The ACCC considers that it would be more typical to use the most up-to-date information that was available at the date the undertaking was submitted (in this case 23 December 2005). This would mean that the appropriate rate would be the 10-day average leading up to 22 December 2005. Using RBA data on the interest rates and yields on money market and Commonwealth government securities, the ACCC found the appropriate rate to be 5.35%.[167] [168]

Furthermore, Bowman has calculated the 'current' rate to be applied to future periods from the rate applicable on 31 October 2005. Bowman's submission was not finalised until December 2005, and the undertakings themselves were not submitted to the ACCC until 23 December 2005. Given the availability of far more 'current' information to Bowman and Telstra prior to the submission of the undertakings, it is not clear why they have sought to rely upon these rates in the WACC for these undertakings given that Bowman has clearly stated that:

> In my opinion, the current interest rate conditions support the view that the best estimate of future interest rates for the fiscal years 2006/07 and 2007/08 is the current interest rate.[169]

The ACCC notes that the rate at 31 October 2005 was 5.48%, compared to, for example, the 5.31% on 22 December 2005, the date that the undertakings were submitted, and that the period around late October and early November represents the peak of the yield on 10 year government bonds for the second half of 2005. Bowman, in responding to the first of the ACCC's concerns above, did not provide a response to the ACCC's concerns on the use of the 31 October 2005 rate. Again, the ACCC would have expected that Telstra would use the most up-to-date information available when it submitted the undertakings.

---

166 Bowman, *Response to ACCC's draft decision on Telstra's ULLS network undertaking*, August 2006, p. 9.

167 Reserve Bank of Australia, *Interest rates and yields: Money market and Commonwealth government securities*, viewed on 10 August 2006.

168 The rate for the ten days leading up to the start of the potential period of the undertakings, 1 January 2006, was 5.27%. However the ACCC considers that it is relevant to use the information available to Telstra at the time they submitted the undertakings. It notes that this time is in any case close to the start of the period of the undertakings.

169 *Ibid.*, p. 17.

The ACCC considers that it is not satisfied that it is appropriate to accept Telstra's proposed estimates of the risk-free rate as inputs into the WACC for the purposes of these undertakings, and retains particular concerns about the risk-free rates calculated for 2006-07 and 2007-08. The ACCC would have expected that the up-to-date rates applicable at the time that Telstra submitted the undertaking would have been more relevantly used by Telstra to calculate the risk-free rate for the purposes of assessing the reasonableness of the undertaking as submitted. The rate derived by the ACCC for the ten days leading up to 22 December 2005 is 5.35%.[170] It is unclear why Telstra would not have used this data.

D.6.4. Debt Premium

This value typically represents the value added to the risk free rate to account for debt specific risk in estimating the return on debt.

Telstra's position

Bowman calculates two separate debt premiums – one for the underlying network assets associated with Telstra's CAN and one for the ULLS specific assets such as IT costs.

Bowman uses the difference between Telstra's 10 year debt and the government's 10 year debt as at 30 June 2005 to calculate the debt risk premium to arrive at a value of 1.06 per cent. He then proposes an increase to 1.15 per cent for the second and third periods. Using the same methodology but with 5 year debt instruments, Bowman calculates debt risk premiums of 0.81 per cent and 0.93 per cent for ULLS specific costs.

Submissions of other interested parties

Hathaway finds that the debt risk premiums of 0.81 per cent and 0.93 per cent proposed for the ULLS specific assets (as proxies for the ULLS 'business') appears to be reasonable. However, Hathaway suggests that the debt risk premiums of 1.06 per cent and 1.15 per cent proposed for the network are inconsistent with one of Professor Bowman's previous comments in the target gearing analysis that the network is less risky than Telstra as a whole. Hathaway argues that this is inconsistent with the network's proposed debt risk premium being higher than the ULLS specific assets' proposed debt risk premium. He therefore argues that the debt risk premium is too high and that the sensitivity premium added to the network debt premium exacerbates the problem.

The ACCC's view

A firm's debt premium will vary with its credit rating and its level of gearing. Generally, given Telstra has had both an excellent credit rating and a very low gearing ratio, a small debt premium has been appropriate. Theoretically, the debt risk premium is estimated for asset-specific costs rather than Telstra as a whole. In practice, the ACCC has believed that the debt premium observed in the market for Telstra bonds gave the best measure of the premium required by investors, as it would be based on their assessment of Telstra's credit rating. In recent years, a debt risk premium of 0.8 per cent has been preferred.

---

[170] Reserve Bank of Australia, ibid.

Data sourced from Bloomberg would indicate that the current debt premium for Telstra as a whole, as at 23 December 2005, the date that Telstra submitted its undertaking, was 1.01 per cent. A benchmark debt premium for an A-rated benchmark bond at the same time was 1.02 per cent. As with the risk-free rate, the ACCC would have expected that Telstra would use the most up-to-date information available to it. The ACCC considers that the 1.06 per cent debt premium suggested by Bowman appears appropriate for Telstra as a whole at 30 June 2005, but considers that more up-to-date information should have been used.

Bowman's projected debt premiums are unverifiable future values. The ACCC notes that his predicted increases in the debt premium are in broad agreement with trends observed in Bloomberg market data, where Telstra's debt premiums subsequently did increase. However the debt premiums on a benchmark A-rated bond did not. The ACCC also notes that Bowman's value of 1.15 per cent debt premium for Telstra at 31 October 2005, on which he bases his projected debt premium, does not appear to accord with the figure obtained from Bloomberg data by the ACCC.

At a more theoretical level, the inconsistency noted by Hathaway appears relevant. It is unlikely that Telstra's positions on both the relative levels of gearing and on the relative levels of debt risk premium for the network versus Telstra as a whole can be held to be consistent. Although the debt premiums for Telstra as a whole seem to be valid, there is disagreement between Hathaway and Bowman on the debt premiums attributable to the network. The ACCC considers that it might be expected that the Telstra network would be less risky than Telstra as a whole, given that Telstra as a whole could be expected to be subject to more competitive pressure than would the network assets.

The ACCC considers that Bowman's debt premiums for Telstra as a whole would appear to be appropriate at the time used by him in his calculations. However it considers that Telstra should have used more up-to-date information available at the time that the undertaking was submitted. The ACCC also considers that benchmark information is generally appropriate in that it gives regulated companies appropriate incentives to seek out more efficient financing arrangements over time. As such the ACCC considers that the 1.02 per cent debt premium noted above would be an appropriate figure.

The ACCC also retains concerns that Telstra's forecast debt risk premiums cannot be considered appropriate for the underlying network assets associated with Telstra's CAN over which the ULLS is provided. However it notes again the practical difficulties with obtaining an appropriate measure of asset-specific debt premiums.

D.6.5. Debt Issuance Cost

The debt issuance costs are costs to the firm for raising debt, such as underwriting, management fees, accounting fees and legal fees.

Telstra's position

The basis for the inclusion of debt issuance costs to the cost of debt is that the ACCC has accepted, in some instances, the inclusion of such a cost in the context of gas transmission. Bowman has estimated the issuance cost of debt to be 0.2 per cent for

the regulatory period. This is based on his assumption that debt offerings would be in the $1 billion range. An approximation is calculated through a weighted average of publicly issued debt costs and private placements costs. The sources for these percentage costs are Lee, Lochhead, Ritter and Zhao (1996)[171], Brealey and Myers (2003) [172] and Hays, Joehnk and Melicher (1979)[173]. Bowman proposes a conversion of the total issuance cost to an annualised cost of capital rate for a ten-year maturity:

> The ACCC recently allowed debt issuance costs of the order of 10.5 to 12.5 basis points to be recovered in electricity and gas decisions. Furthermore, the Australian Competition Tribunal allowed 25 basis points in its determination on the GasNet Access Arrangement, increasing the allowance in the earlier ACCC decision. As the principle has now been accepted, the issue is to estimate the appropriate amount for the costs in this particular context.[174]

Submissions of other interested parties

Hathaway asserts that, because debt issuance costs are typically episodic at best, they should be included, if at all, in the appropriate cash flow. Further, he contends that the only forward looking costs to be recognised are rollover or re-issuance costs of debt. In particular, he concludes that:

> The appropriate cost of capital is an opportunity cost (as described above in section E) so it does not have to include all the historical or sunk costs of raising a new tranche of debt. It would be quite inappropriate for the ACCC to recompense a regulated business like Telstra for costs it would no longer have to incur.[175]

Hathaway's additional comments are that if the debt issuance cost is included, the value of the proposed 0.2 per cent rate is acceptable. However, he believes that the range is too high (0.15 per cent) and he personally estimates the cost at 0.1 per cent with a 0.05 per cent range.

The ACCC's view

The ACCC has also previously accepted the inclusion of debt issuance costs in the return on debt in a situation where these costs were not able to be placed in the cash flows:

> Debt-issuance costs have previously been accounted by the Commission within its n/e/r/a model in terms of its TSLRIC estimates. There was no need, therefore, to account for these in the WACC. However, Telstra has stated that the PIE II model does not account for these costs, which means that for the purposes of setting indicative prices, the Commission will allow debt-issuance costs to be recovered through the WACC.[176]

---

[171] Lee, I., Lochhead, S., Ritter, J. and Zhao, O., *The Costs of Raising Capital*, Journal of Financial Research, Spring 1996., pp. 59-74, table 2.

[172] Brealey, R. and Myers, S., *Principles of Corporate Finance* (7th ed), McGraw-Hill/Irwin, Boston, 2003, p. 714.

[173] Hays, P., Johnk, M. and Melincher, M., *Determinants of Risk Premiums in the Public and Private Bond Market*, Journal of Financial Research, Fall 1979, pp. 143-152.

[174] Bowman, December 2005, p. 18.

[175] Hathaway, op. cit., p. 21.

[176] ACCC, *Final Determinations for Model Price Terms and Conditions for the PSTN, ULLS and LCS Services*, October 2003, p. 39.

Given that Telstra's PIE II model cannot account for debt costs in the model's cash flows, the ACCC considers that it would be appropriate debt issuance costs to be recovered in the WACC. However it considers that a future model might better recover those costs within cash flows.

The Allen Consulting Group (ACG) has recommended the inclusion of debt issuance costs in a consultancy report prepared on behalf of the ACCC in the context of decisions made regarding gas and electricity companies:

> Given that transaction costs associated with debt would continue to be incurred for the whole value of the investment, we consider that the most appropriate means of making this allowance is through either an addition to the estimated weighted average cost of capital, or as a direct allowance to operating expenses. [177]

The ACCC considers that the use of ACG's benchmark costs is appropriate in the context of recovering costs of refinancing Telstra's debt relating to a regulated asset, the CAN or PSTN. Using data from Telstra's 2005 annual report and a recent accounting separation report[178], it can be assumed that because the CAN is approximately 40 per cent of all Telstra's assets and Telstra's total book value of debt is $12,011, the debt refinancing costs would be for an amount of debt greater than $1,200 million. Accordingly, based on the benchmark debt issuance costs in ACG's report as updated by the ACCC, the benchmark debt issuance cost is 8.3 basis points per annum.[179]

Bowman has referenced a past ACT decision on GasNet which allowed 25 basis points for the debt issuance costs. Bowman has also referenced recent electricity and gas decisions which allowed debt issuance costs of 10.5 to 12.5 basis points. The ACCC considers that the appropriate debt issuance costs depend on the particular facts of each case and that the benchmark costs based on the updated ACG results provide a better measure of appropriate costs than simple comparisons of raw numbers.

In summary, Telstra's proposed 20 basis points is much higher than even ACG's highest benchmarked rate of 10.4 basis points. The ACCC noted in its draft decision that this might be because Bowman estimated debt issuance rather than refinancing costs. Bowman stated in response that he considered all of Telstra's debt issuing would be high cost.[180] The ACCC considers that it is better to use appropriate verifiable benchmark data than rely on subjective impressions such as Bowman's.

---

[177] The Allen Consulting Group, *Debt and Equity Raising Transaction Costs – Report to the Australian Competition and Consumer Commission*, December 2004, p. xiii.

[178] ACCC, *Current Cost Accounting Report relating to accounting separation of Telstra for the half year June 2005*, ACCC website, p.18.

[179] In its draft decision, the ACCC stated, based on the ACG report from December 2004, that the debt issuance costs should be 8 basis points per annum for debt refinancing of greater than $1 050 million. The ACCC has subsequently updated the values in the ACG report, using data from Bloomberg, to reflect an increased median debt issue size and increase in overall transaction costs over that time.

[180] Bowman, *Response to ACCC's draft decision on Telstra's ULLS network undertaking*, August 2006, p. 11.

The ACCC's position is to reject Telstra's proposed debt issuance costs as being inappropriate.

D.6.6. Return on Equity

A widely accepted method of determining an appropriate return on equity is the use of the capital asset pricing model (CAPM). The CAPM states that:

$$R_e = R_f + \beta e\left(R_m - R_f\right)$$

Telstra has proposed that the return on equity also include equity issuance costs. Under this proposal the return on equity can be expressed as:

$$R_e = R_f + \beta e\left(R_m - R_f\right) + EIC$$

Where: r_f is the risk-free rate of return

β is the firm's Beta coefficient

r_m is the required equity market return

(r_m - r_f) represents the market risk premium (the premium required by equity investors to compensate them for bearing systematic risk)

EIC is the equity issuance costs.

D.6.7. Equity beta (βe) and Asset beta (βa)

$$\beta_e = \beta_a + \left(\beta_a - \beta_d\right)\{1 - \left[\frac{R_d}{1+R_d}\right]\left(1-\gamma\right)T_e\} \cdot D/E$$

Where: βe is the equity beta

βa is the asset beta

βd is the debt beta (defined and valued below at zero)

γ is the imputation factor

Te is the effective tax rate

r_d is the return on debt and

D/E is the debt to equity ratio.

The method favoured by the ACCC in determining the WACC is de-levering and levering using the Monkhouse formula relating asset beta and equity beta. In the past, the ACCC has considered that direct estimation of the equity beta through Telstra's economic returns could not be done. This was because Telstra had only been listed for a short period of time[181]. The ACCC considers that circumstances have now changed, enabling direct estimation and allowing for viable comparisons between estimates of beta.

---

[181] ACCC, *A report on the assessment of Telstra's undertaking for the Domestic PSTN Originating and Terminating Access services,* July 2000, p. 89.

Telstra's position

Bowman takes three approaches in determining the equity and asset beta for Telstra's ULLS network. First, Bowman performs a direct estimation using one of many possible measurement intervals of Telstra's historical data and derives a value of 0.8 for Telstra's equity beta. Second, Bowman applies first principles analysis to a selection of overseas studies on income elasticities and results in a range of 0.4 to 0.9 for the asset beta. Third, Bowman obtains estimates of the equity betas of four US RBOCs and five comparable international companies, converts these to asset betas and then derives a weighted average of the asset betas of 0.8.

In summary, Bowman proposes an asset beta value of at least 0.7, with a standard deviation of at least 0.3. After conversion to an equity beta, Bowman's final recommendation for a forward-looking equity beta is 0.873.[182]

Figure 2. –Bowman's estimates for Equity and Asset Beta

Bowman's estimates of Betas under alternative approaches	**Range/ std dev**	**Estimate**
Direct Estimation approach		0.74 asset
(for Telstra as a whole)		0.8 equity
First Principles approach	0.4-0.9 asset	
Benchmark approach		0.8 asset
Bowman's final recommendation for Betas		
Asset Beta	Standard deviation of 0.3	0.7
Equity Beta		0.8 (2005-06) 0.873 (2006-08)

Submissions of other interested parties

Hathaway estimates an equity beta of 0.53 through the direct estimation approach.[183] In contrast, Bowman estimates 0.8. Hathaway finds Bowman's use of a Scholes-Williams estimate less than compelling and believes that the choice of 0.8 for equity beta is at the upper end of a range. Hathaway also considers that another problem with Bowman's analysis is that, since Telstra has recently adopted a large dividend payment strategy, the share price provides a misleading view of the relative performance of the stock to the market.

Hathaway estimates an asset beta for the network, using an infrastructure index risk against the all ordinaries market risk, to be 0.47, compared to Telstra's proposed asset beta of 0.7.[184]

---

[182] Bowman, December 2005, p. 22.

[183] Hathaway, op. cit., p. 37.

[184] *Ibid.*

The ACCC's view

The overall WACC is highly sensitive to equity and asset beta values. The use of three different methods for estimating beta by Bowman has the tendency of exaggerating the size of the range of reasonable point estimates for beta.

Direct estimation method

There are some potential difficulties with using a direct estimation method to calculate equity betas. These might include:

- Low free float of share capital affecting the volatility of returns.
- Lack of a suitable reference market.
- The selection of inappropriate or unrepresentative timeframes or data frequency for analysis.

However as noted above, the ACCC considers that there is some scope to conduct a direct estimation of the equity beta in order to assess the validity of Bowman's submission on this method.

Accordingly, the ACCC has conducted its own direct estimation of the equity beta from unadjusted data obtained from Bloomberg. Bloomberg provides an independent, internationally recognised data source. The ACCC has used Bloomberg's data to provide a comparison to the numbers produced by Bowman. The results obtained by the ACCC exhibited large variation with the size of the measurement interval and the frequency of data contributing to a wide range of plausible estimates for beta:

Figure 3. – Direct Estimation of Telstra's Equity Beta[185]

Telstra equity beta at 30 June 2005		**Telstra equity beta at 23 December 2005**		**Telstra equity beta (at 7 August 2006)**	
Time interval & frequency	**Beta**	**Time interval & frequency**	**Beta**	**Time interval & frequency**	**Beta**
24 month	0.50	24 month	-0.27	24 month	0.06
60 week	0.77	60 week	0.48	60 week	-0.08
104 week	0.50	104 week	0.38	104 week	0.21
4 year weekly	0.43	4 year weekly	0.45	4 year weekly	0.24
5 year weekly	0.46	5 year weekly	0.46	5 year weekly	0.25
5 year monthly	0.23	5 year monthly	0.11	5 year monthly	0.08
18 months–daily	0.64	18 months–daily	0.68	18 months–daily	0.48

Source: Bloomberg.

[185] *Source*: Bloomberg, viewed on 7 August 2006

Figure 3 demonstrates that the beta estimate is very sensitive to the date of the estimation, the choice of time interval and frequency of data points. This uncertainty was also noted by Bowman in his initial report.[186] However, all results obtained by the ACCC are less than Bowman's direct estimate of 0.80 for the equity beta. The ACCC also notes that there is some suggestion that Telstra's equity beta is declining with estimates in August 2006 significantly lower than those of 30 June 2005 and at 23 December 2005. The ACCC considers that the 18 month daily estimate is likely to be the most appropriate indicator of Telstra's equity beta. This figure suggests a value of 0.68 for the equity beta, based on data available to Telstra at the time of submitting the undertaking.

Given the results from the ACCC's own direct estimation analysis sourced from Bloomberg and the concerns identified by Hathaway on Bowman's direct estimation technique, the ACCC considers that it is not satisfied that Bowman's estimate is appropriate.

First principles analysis

Given the availability of alternative methods to estimate the asset beta, it is not clear why Bowman has proposed a first principles analysis. A first principles approach is not commonly used by regulators or finance practitioners. It is clear from Bowman's statement that this analysis is qualitative, and as such, lacks adequate quantifiable evidence in the matters examined and the outcomes reached relative to available alternatives. The ACCC does not consider that this technique is useful or relevant. The ACCC considers that the technique should therefore be excluded from the overall estimation procedure for the beta.

The ACCC notes that Bowman appears to have stepped away from the use of this approach in his response to the ACCC's draft decision. In that report, he does not advocate the use of first principle analysis to calculate a particular estimate. Instead, Bowman now seems to only advocate its use as an input into the benchmark approach, stating that:[187]

> …I use the first principles analysis to inform our choices of comparable companies.

Benchmark Approach/Comparable Companies

The use of benchmark betas is prevalent among regulators and finance practitioners. It is unlikely that an assessment of equity beta would be considered complete if it did not include some comparison with comparable companies.

The use of benchmark companies to provide the primary starting point for beta estimation depends on the availability of suitable benchmark companies or assets. The closer the comparators are to the base asset the better the beta estimate. Most benchmark comparators will differ in some element such as asset nature, time period

---

[186] Bowman, December 2005, p. 21.

[187] Bowman, *Response to ACCC's draft decision on Telstra's ULLS network undertaking*, August 2006, p. 12.

or relevant geographic market. The significance of the nature of the difference needs to be assessed.

The ACCC remains of the view that benchmarking is a useful approach for beta estimation. The ACCC consider that it remains appropriate to use the benchmarking approach it has adopted in previous proceedings to provide a tool in comparing betas proposed by different participants and to compare betas evaluated by different methods.

The Regional Bell Operating Companies (RBOCs) were identified as being close to having CAN/PSTN only services in the 1997-1998 PSTN undertaking. Today, the RBOCs are more integrated with services in long distance, mobile and data, etc. Previous RBOC beta estimates can still provide an appropriate comparator for the riskiness of the CAN/PSTN. However the ACCC considers that current estimates, as would appear to have been used by Bowman, are likely to represent a different asset mix and therefore are less likely to be appropriate to estimate the beta for the PSTN.

In the past, the ACCC has used international comparisons from UK and Canadian regulators as well as values taken from the US RBOCs presented to the ACCC by Telstra.[188] Since the 1997-98 PSTN undertaking, a range of 0.6 to 0.8 has been the ACCC's default value for the equity beta. Further, based on estimates from Telstra, OFTEL, IPART, PBSA and Ibbotson Associates, the ACCC considered a range of 0.4 to 0.8 to be appropriate for the asset beta.[189] Adjusting for a lower systematic risk relative to Telstra as a whole, the ACCC's position has since been an asset beta of 0.5.

To supplement the use of historical international benchmarks, the ACCC has obtained 2006 US unlevered adjusted asset beta values from Ibbotson for the transportation, communications, electric, gas and sanitary services sector. These values are 0.49 (median) and 0.70 (SIC composite).[190] The ACCC continues to consider that an adjustment for the lower systematic risk of the PSTN would be necessary and notes that the most recent data similarly suggests that an asset beta value of 0.5 would not be inappropriate.

ACCC's overall view

Bowman has used three estimation techniques to estimate Telstra's equity beta. The ACCC does not accept that a first principles analysis should be undertaken for beta estimation and notes that Bowman himself now only considers this as an input into a benchmarking approach. Direct estimation undertaken by the ACCC has yielded significantly contrasting results to those of Bowman, and thus it is not satisfied that Bowman's estimates are appropriate. The ACCC's own benchmarking analysis

---

[188] Telstra Corporation Limited, *Submission in support of the Undertaking for Domestic PSTN Originating and Terminating Access – Part A: Economic Submission*, 6 May 1998, p. 30.

[189] ACCC, *A report on the assessment of Telstra's undertaking for the Domestic PSTN Originating and Terminating Access services,* July 2000, p. 90.

[190] Ibbotson, Transportation, Communications, Electric, Gas and Sanitary Services, Cost of Capital 2006 Yearbook, Data Through June 2006.

http://www.ibbotson.com/download/valuation/sample/SIC_4.pdf

further confirms that the ACCC should not be satisfied that Bowman's benchmarking method results are appropriate.

Accordingly, the ACCC considers, given the results of its own empirical direct estimation and benchmarking assessment, that it is not satisfied that Bowman's estimated asset and equity betas are appropriate. The ACCC considers that an asset beta of 0.5 would be an appropriate reflection of the systematic risk of the PSTN.

D.6.8. Market Risk Premium

Under the CAPM models, the return on equity required by investors must take account of the risk of investing in the market. That is, in order to encourage investors to invest in assets that carry risk (such as the CAN), they must receive a return over and above that offered on risk-free assets. The extent of the difference between the rate investors could earn by investing generally in the market and that on a risk-free government bond is referred to as the market risk premium (MRP) or equity risk premium (ERP).

While the concept of the WACC and its application to determine regulated revenue streams is unambiguously forward looking, estimates of the future cost of equity are not readily available. In practice, therefore, applications of the CAPM rely on analysis of historical measures of the returns to equity to estimate the MRP. Whilst a historical measure may not always give the most appropriate forward-looking estimate, the past is often the best available indicator of the future. This is especially the case where MRPs are based on expectations of the future and historical measures can influence future expectations.

Telstra's position

Bowman takes two approaches in estimating the MRP; a historical approach and a benchmark approach. A selection of historical estimates of the Australian MRP is provided and then a mid-point of 7.0 per cent is chosen. Bowman asserts that the 6.0 per cent rate the ACCC prefers is inconsistent with historical data and that the ACCC has not presented a credible defence of such a view. This is accompanied with a caveat:

> This is not necessarily a deficiency as the MRP is to be a forward-looking estimate.[191]

However Bowman does not believe the historical approach is a valid basis for estimation of the MRP. After referencing his own previous work he makes an assumption that there is an absence of relevant historical data for the purposes of deriving the market risk premium for Australia[192]. The primary reason is that the Australian market was segmented from the world market prior to de-regulation from 1984 to 1992, unlike the current Australian market where "investment funds now move freely into and out of the country, the securities market and the currency".[193]

Bowman instead bases his final 7.0 per cent rate on the benchmark approach, where the results from a benchmark country are taken and then adjusted for country-specific

---

[191] Bowman, December 2005, p. 11.

[192] Bowman, R.G., *Estimating the Market Risk Premium*, JASSA, issue 3, Spring 2001, pp 10-13.

[193] Bowman, December 2005, p. 12.

factors. Bowman provides a number of sources, including academic literature and an online poll, to establish that his estimate of the long-horizon US MRP is 5.5 per cent. Then, to estimate the appropriate MRP in Australia, he considers differences between Australia and the USA in taxation, equity markets and indices. Bowman argues that there are no clear adjustments to be made from taxation or country risk differences between the United States and Australia, but that an adjustment is appropriate for differences in markets. In Bowman's opinion, the average beta of Australian firms listed on the S&P500 would have a range of 1.2-1.5:

> An incomplete list of factors that would support a higher MRP in Australia include being a smaller market, with less liquidity, smaller companies, less diversity and fewer risk management opportunities.[194]

The foundation for this methodology is cited as "one of the best-known books on valuation"[195]. Bowman considers that there should be an addition of 1.1% to 2.75% to the US MRP to account for market differences, giving rise to an Australian MRP range of 6.6 per cent to 8.25 per cent with a mid-point value of 7.43 per cent. However, ultimately Bowman advocates a 7.0 per cent rate.

Finally, Bowman graphs the ten year equity premium in Australia in an attempt to examine the reasonableness of the ACCC's position. Bowman suggests that there is increased volatility and uncertainty which he argues means that the MRP could not have recently fallen below the historical average.

Submissions of other interested parties

Hathaway disagrees with Bowman's calculation of the MRP. In particular, he believes the 1.8 per cent premium that is added to the US MRP is not justified. Hathaway argues that the evidence contradicts Bowman's analysis: [196]

> (1) The empirical Australian MRP has been declining in recent years towards a value of 5 per cent.
>
> (2) The long run real return on the Australian market is 7.6 per cent post World War 2 which implies an MRP of about 5 per cent.
>
> (3) The Australian market is systematically *less* risky than the world markets (beta = 0.7) and as it is only systematic risk that is captured in the CAPM then we could not assert that the Australian equities collectively would have higher betas but that they also have less portfolio risk. It is not consistent.

Hathaway further argues that: [197]

- Telstra's proposition that Australia has a higher risk than the US market because it is a higher risk resource based economy is incorrect. Hathaway provides an example depicting a decrease in representation of resource based companies from 1973 to 2005.

---

[194] Bowman, December 2005, Appendix B, p. 4.

[195] McKinsey and Company, Ltd, *Valuation: Measuring and Managing the Value of Companies*, 2000 (John Wiley & Sons: New York) University 3rd edition.

[196] Hathaway, op. cit., p. 13.

[197] Hathaway, op. cit., p. 18.

- Bowman states he uses the same approach applied to estimate the Market Risk Premium as UBS. Hathaway notes that, contrary to Bowman's positive adjustment, UBS makes a negative adjustment of 0.2 per cent to arrive at a MRP for Australia of 4.8 per cent, compared to the global risk premium of 5 per cent.
- There is a difference between institutional international and personal international investors when determining the marginal investor. Hathaway draws links to practitioners advising institutional investors as they are preferred as the marginal investor. A table of practitioner's valuation reports, including estimates of MRP, is provided and indicating Australian MRP values are in the range of 4.5 per cent to 6 per cent.
- Bowman has confused the difference between statistical uncertainty in historical estimates and uncertainty in the ex ante MRP. Hathaway demonstrates the problem from an implication of Bowman's assertion and proposes that the expectation of the MRP could not be as high as that implied by a standard deviation of 2.5 per cent. He notes:

  > We have no established theory on how the expected MRP is formed in the market place.
  >
  > Instead of using the volatility of the historical market data as the source of inherent uncertainty in the MRP we can examine the uncertainty in the ex ante estimates reported by practitioners.

- In relation to a ULLS specific WACC, Hathaway argues that since cost of capital valuations are in perpetuity, the same MRP should be used due to consistency.

Ockerby also raises some issues with Bowman's contentions. Ockerby's response covers the two approaches adopted by Bowman—the historic approach and the benchmark approach.

With respect to the historical approach, Ockerby questions the validity of Bowman's assertion that the MRP should be given as 7%. Ockerby raises the fact that there is substantial variation in measuring the MRP from historical data. Also, historical data fails to take into account permanent changes in domestic and international markets that would support the ACCC's choice of a lower bound estimate of the historic MRP. Ockerby argues that there is evidence that the forward-looking MRP for the USA is at 5.5%, below the reported historic average MRP of 7.6%. Ockerby suggests that this substantiates that permanent changes in markets have reduced the MRP over time.

The ACCC's view

In its decisions since the assessment of Telstra's 1997-8 PSTN undertaking,[198] including decisions in other processes and industries, the ACCC has determined that the appropriate MRP for determination of the regulatory WACC is 6 per cent. This

[198] ACCC, *Assessment of Telstra's Undertaking for PSTN Originating and Terminating Access, Cost of Capital (Revised)*, June 1999, p. 18

view has been upheld through numerous processes where various submissions have been made to the ACCC arguing for either an increased or decreased MRP.[199]

Bowman has argued in favour of an MRP of 7 per cent. In contrast, Hathaway and Ockerby have critically evaluated the basis on which Bowman has formed this view, and identified numerous difficulties with his assumptions and methodologies. Hathaway presents a contrary set of analyses which would support an MRP of 5 per cent, and also points to a survey of broker MRP estimates in the range of 4.5 per cent-6.0 per cent.[200]

On the basis of the evidence presented to the ACCC in this undertaking assessment, it considers that it is not satisfied that an MRP of 7 per cent is an appropriate input for the purposes of estimating the WACC.

The ACCC also considers that Professor Bowman's views that the market is international, but that there should be an Australia-specific MRP, are not reconcilable. This is because investors in a international market should be able to diversify away any Australia-specific risk. The ACCC considers that:

- If it is appropriate to use an Australia-specific WACC, then the WACC should be estimated using historical estimates of the MRP, adjusted for trends in the historic Australian data. Estimation of the MRP using this approach results in an estimated MRP of 6%.
- If there is an international market, and the MRP is to be estimated based on more readily available USA data, then the USA MRP should not be adjusted for Australia-specific factors, as investors will diversify away any Australia-specific risk. Based on Bowman's figures, the resulting MRP should be 5.5%.

The ACCC regards this adjusted benchmarking approach adds another uncertain variable to the MRP calculation, and demonstrates that the USA data is not directly applicable to Australia, which both increase the scope for regulatory error.

The ACCC considers that it is not satisfied that an MRP of 7% is an appropriate input into the WACC. The ACCC considers that the MRP for Australia is 6%.

D.6.9. Tax Rate

The ACCC has chosen to adopt a post-tax nominal WACC ('vanilla WACC') for the purposes of this undertaking assessment. Under this approach, tax payments will be treated as an on-going cost of business and will be passed through to Telstra on a cash flows basis.

As a result of this, the WACC does not need to be as high to cover for taxation payments, as investors will receive enough revenue to cover taxation payments in their cash flows. The WACC will, however, still need to be adjusted for taxation as the rate-of-return on debt is usually expressed in a pre-tax form, and the rate-of-return

---

[199] The ACCC examined the MRP in depth and concluded that the appropriate Australian MRP was 6% in its Statement of Regulatory Principles: ACCC, *Statement of principles for the regulation of electricity transmission revenues—background paper*, December 2004, pp. 98-101.

[200] *Ibid.*, p. 17.

of equity is usually expressed in a form which does not account for the impact of imputation credits.

In this form of the WACC, the tax rate will only appear in the levering of the asset beta or the de-levering of the equity beta. However, the major consideration between an effective or statutory tax rate is dependent upon the ability of access provider to utilise accelerated depreciation. This allows a firm to claim higher tax deductions in the early years of an asset's life. Allowing for the time value of money, this can mean that the effective rate of taxation is lower than the statutory rate.

Telstra's position

In weighing up the two general approaches to the tax rate—the corporate statutory rate or the effective tax rate—Bowman opts for the statutory rate partially due to changes in tax law and also because under TSLRIC assumptions, all assets are put in place at the beginning of the fiscal year being estimated. This implies that no accelerated depreciation is possible. In his opinion, it is reasonable to assume that the effective tax rate would approximately equal the statutory tax rate for the ULLS-network and ULLS specific assets.

Submissions of other interested parties

Hathaway believes the statutory corporate tax rate of 30 per cent to be appropriate but does not provide any analysis on the issue.

The ACCC's view

The explanation for the ACCC's historical application of an effective tax rate can be found in the 2000 PSTN undertaking report, specifically in appendices 3, 4 and 6.[201] An effective tax rate of 20 per cent has been preferred by the ACCC since the 2000 final decision.

Most of Telstra's assets were in place before the Ralph reforms and were able to take advantage of accelerated depreciation:

> Depending on the asset life and tilt factor for an asset, the estimated effective tax rate can range from anywhere between 9.7 and 26.5 per cent. For the vast majority of estimates, however, the effective tax rate lies between 13 and 26 per cent.[202]

It was noted at the time that modifications to the model may be required in the future:

> In subsequent assessments, an increasing proportion of the assets will indeed be ineligible for accelerated depreciation provisions, and these will have to be treated appropriately when making revenue assessments. This may require a modification to the cost model.[203]

Bowman has not made an attempt to measure the effective tax rate and states that it is in his opinion reasonable to assume that the effective tax rate approaches the statutory rate. The ACCC considers that Bowman's reliance upon Telstra's preferred

---

[201] ACCC, *Assessment of Telstra's Undertaking for the Domestic PSTN Originating and Terminating Access Services – Final Decision*, July 2000

[202] ibid., p. 84.

[203] ibid., p. 84.

modelling approach to determine forward-looking economic costs is not a suitable defence for his position. The determination of TSLRIC can be accomplished in many different ways, primarily through either a bottom-up engineering/economic cost model or top-down model by adjusting current cost accounts. The fact that Telstra has chosen a bottom-up method does not automatically imply that the modelling assumptions used, in an abstraction from reality, can be exported to calculations such as these. The difficulty with Bowman's statements can be demonstrated by assuming that Telstra had instead taken a top-down modelling approach to TSLRIC. If this optimisation method had been chosen, it is far less clear that Bowman could claim that the statutory rate is appropriate.

Setting aside Bowman's argument on those grounds, the relevant question for the ACCC is whether it is appropriate to continue to apply a rate which differs from the statutory rate. Both Bowman and Hathaway agree that it is likely to be appropriate to apply the statutory rate. Earlier decisions on this matter by the ACCC noted that, over time, the rate would tend towards the statutory rate in the absence of further taxation reforms. However, it is noted that changes to depreciation allowances were made in the most recent Commonwealth Budget.[204] These changes potentially have implications for the ACCC's previous statements with respect to a likely convergence between the statutory and effective tax rates over time. The ACCC also notes that under a TSLRIC construct that the effective tax rate and statutory tax rate may diverge for reasons other than the presence or absence of appreciated depreciation. The ACCC therefore remains of the opinion that the effective rate of taxation should be used in estimating the WACC.

The ACCC is not satisfied that Bowman's proposal to adopt the statutory tax rate is appropriate. However it notes that a reliable estimate of the effective tax rate requires the financial modelling of Telstra's expected cash flows throughout the life of the undertaking. However the ACCC does not have access to such a model that would enable it to derive an effective tax rate. Accordingly, the ACCC has used the statutory tax rate in its calculations as a pragmatic solution for the purposes of assessing this undertaking. It considers that in future assessments it may be better placed to assess Telstra's effective tax rate.

Sensitivity analysis conducted by the ACCC indicates that the tax rate used in the calculation does not have a significant bearing on the result for the vanilla WACC.

D.6.10. Imputation Factor

The value of the imputation factor depends on:

- the extent to which the firm pays franked dividends (the amount of imputation credits distributed)
- the value of franked dividends in the hands of equity investors.

---

[204] P Costello (Treasurer) and N Minchin (Minister for Finance and Administration), *2006-07 Budget Paper No 1 - Budget Strategy and Outlook 2006-07*, Commonwealth of Australia, Canberra, 9 May 2006, p. 1-11.

Telstra's position

Whilst Bowman believes recent empirical evidence supports an imputation factor of zero he has agreed that, given the considerable uncertainty associated with this component of the WACC calculation, a factor of 0.50 is an acceptable position.

Submissions of other interested parties

Hathaway considers that Telstra's imputation factor of 0.5 is too high, and recommends the use of an imputation factor of 0.35. Detailed theoretical analysis is supported by his and R. Officer's recent and previous empirical results.[205] Discussion relating to practical issues, practitioners' application of the imputation factor, and empirical evidence in company buy-backs is presented in Hathaway's report.

The ACCC's view

The ACCC agrees that further examination of the imputation factor may be required to update the research of the past preferred position, with both Bowman and Hathaway perceiving the value to be lower than 0.5. Despite this, Bowman deems the ACCC's past preferred value as acceptable due to the uncertainty surrounding the imputation factor.

> However, there is considerable uncertainty associated with the value of gamma [imputation factor].[206]

The ACCC notes that Hathaway's range for the imputation factor is from 0.25 to 0.45. The ACCC also notes that Hathaway's practitioner survey reflects imputation factor values closer to and higher than 0.5.

The ACCC has similarly concluded that there is no consensus on the appropriate value for the imputation factor and that a value of 0.5 is in accordance with the available empirical evidence.[207] The ACCC remains of the view that an imputation factor of 0.5 remains appropriate.

D.6.11. Debt Beta

In some regulatory models, a debt beta term is included in order to calculate the return on debt component of the WACC. Just as the equity beta term tries to capture the risk faced by equity holders, the debt beta term tries to capture risk faced by debt holders.

Telstra's position

Bowman follows the convention amongst Australian regulators and past ACCC decisions and assumes a value of zero for the Debt Beta.

Submissions of other interested parties

Hathaway does not agree with a debt beta value of zero as it attributes all equity risk into the asset risk, hence implying the debt premium to be zero.

---

[205] Hathaway, N. and Officer, R., *The Value of Imputation Tax Credits*, manuscript, University of Melbourne, 1992, also Hathaway, N. and Officer, R., *The Value of Imputation Tax Credits—Update 2004*, Capital Research, November 2004.

[206] Bowman, December 2005, Appendix E, p. 5.

[207] ACCC, *Statement of principles for the regulation of electricity transmission revenues—background paper*, December 2004, pp. 116-118.

ACCC's view

Since the final decision of Telstra's 1999 2nd PSTN undertaking, a value of debt beta value of zero was preferred from a range of 0.0 per cent to 0.6 per cent. Other ACCC decisions for the debt beta have also varied[208]. The ACCC considers that a value of zero remains appropriate.

A report prepared by the Allen Consulting Group for the ACCC considered this information and suggested that an appropriate range for the debt beta would be between 0 and 0.15 per cent.[209].

Bowman and Telstra's proposed debt beta is within the ACCC's preferred range, and is therefore considered to be appropriate.

D.6.12. Equity Issuance Cost

Telstra's submission

By referencing an ACCC decision that includes an equity issuance cost, Telstra and Bowman propose to include a similar cost in Telstra's undertaking:

> In its Final Decision on GasNet[210], the ACCC decided GasNet's access arrangement should (page 151) "include an allowance for equity raising costs of 0.224 per cent of regulated equity, to be recovered as an annual non-capital cost cash flow.[211]

Bowman estimates an equity issuance cost of 0.15 per cent for all three years in the regulatory period. He makes this assessment based on predominantly the same sources as the debt issuance cost estimation; Lee, Lochhead, Ritter, Zhao (1996), Brealey and Myers (2003), Vernimmen, Quiry, Dallocchio, Fur and Salvi (2005) and Dechow, Sloan and Soliman (2004)[212]. A conversion is also made on the percentage of offering size to an annualised cost of capital rate.

Submissions of other interested parties

Hathaway considers that these costs are not appropriate:

> The appropriate cost of capital is an opportunity cost (as described above) so it does not have to include all the potential costs of running a minor IPO nor should it include historical costs. It would be quite inappropriate for the ACCC to recompense a regulated business for costs that it most unlikely would never incur. The only cost to include would be any forward looking new equity placement which would be nothing like the costs implicit in these Reports.[213]

---

208 ACCC, decision for *Statement of principles for the regulation of electricity transmission revenues-background paper*, 2004, p.107

209 The Allen Consulting Group, *Empirical evidence on proxy beta values for regulated gas transmission activities, final report for the ACCC*, July 2002, pp. 28-29.

210 ACCC, *Final Decision for NSW and ACT Transmission Network Revenue Cap TransGrid 2004-05 to 2008-09*, 27 April 2005

211 Bowman, December 2005, p. 23.

212 Bowman, December 2005.

213 Hathaway, op. cit., p. 38.

The ACCC's view

Equity issuance costs are costs incurred by an entity when it issues capital, and the ACCC considers it appropriate that they be recovered in some form by regulated entities.[214] However, the ACCC considers that equity issuance costs should not be recovered in the WACC. Rather, it considers that equity issuance costs should ideally be recovered through a specific allowance when they arise. This approach is different from that for debt issuance costs, reflecting the fact that companies will typically be refinancing debt on a continual basis but that equity raising tends to be lumpy.

The ACCC notes that Telstra has not actually raised equity. However the ACCC considers that it should abstract from Telstra's particular scenario and more appropriately use some form of benchmark equity raising costs.

The ACCC considers that an appropriate treatment of equity issuance costs may be to capitalise those costs when equity issuing occurs and then have those costs included as part of the asset base of the regulated firm. The costs would not be a recurring cost recovered in the WACC but would only be recovered as they arise.[215]

Accordingly, the ACCC considers Telstra's proposed method for recovering equity issuance costs is inappropriate. However it notes that it would be inappropriate not to allow recovery for equity issuance costs. It does not appear that the equity issuance can be appropriately recovered in the PIE II model. The ACCC considers that the treatment of equity issuance costs will require further consideration by the ACCC but for the present purposes of this undertaking is prepared to allow Telstra's claimed 0.15 per cent uplift. However the ACCC will have to reconsider the appropriate treatment of any such costs in future assessments.

In any case, the ACCC does not consider that the overall WACC is sensitive to this temporary position of the ACCC.

D.7. Social Consequences of over or under estimating WACC

D.7.1. Telstra's submission

Bowman contends that there is an asymmetry in social consequences from over or under estimating the WACC. On the basis of this contention, Bowman proposes to adopt a WACC value which is greater than his best estimate. Overall, Bowman contends that 'the consequences of estimation error in the WACC are very asymmetric.'[216].

To adjust for the effects of his contention, Bowman proposes increasing his best point estimate, by one standard deviation. He proceeds to comment on each of the input parameters and provides ranges when he concludes they are necessary. Telstra's proposed WACC values for the years 2005-06, 2006-07, 2007-08 are 13.05 per cent, 14.06 per cent and 14.26 per cent respectively.

---

[214] ACCC, *Statement of principles for the regulation of electricity transmission revenues—background paper*, December 2004, pp. 119.

[215] Allen Consulting Group, *Debt and Equity Raising Transaction Costs – Report to the Australian Competition and Consumer Commission*, December 2004.

[216] Bowman, December 2005, p. 27.

D.7.2. Submissions of other interested parties

Hathaway does not comment on this matter other than to state that:

> He has justified using estimates of the WACC parameters that make an allowance for regulatory risk by adding on this estimate of the 'upper' estimate of the parameters. In some important cases, he has added ranges that are far too wide to be justified in any rational manner.[217]

Ockerby criticises Bowman's approach of advocating a WACC one standard deviation above the point estimate. Bowman makes a strong assertion that all regulatory WACCs should reflect his claimed asymmetry in social welfare as a matter of principle.

Ockerby claims that for the approach taken by Bowman to be justified, the error in the WACC must have a direct effect on investment and that the loss of surplus from too little investment is greater than the lost surplus from too much investment.

Ockerby's arguments are:

- A large proportion of capital invested in the ULLS network is sunk. Therefore the decision of whether or not to invest is not affected by the regulated WACC.
- There is a lack of convincing evidence that Telstra would fail to invest in a significant revenue-raising project due to a small error in the WACC. A case in question may be the failure to maintain the PSTN could jeopardise $7.7 billion of Telstra's revenue218. By contrast, even a 10% error in the WACC only costs Telstra $88.7 million per annum (being 10% of annual new investment in the PSTN)219
- Telstra's cost of not investing to maintain the PSTN is materially positive. By considering these costs, the case for asymmetric costs of regulatory error reverses. Setting the WACC too high will likely impose greater social costs in the form of higher consumer prices and over-investment, than setting the WACC too low.
- Overstating the WACC has significant consequences for consumers. The setting of prices above marginal cost entails a significant detriment to consumer surplus, refuting Bowman's claim that overstating the WACC would not have a detectable affect on individual consumers.

In summary, according to Ockerby, there is no evidence that capital expenditures associated with the varying of the WACC is asymmetric and nor is there evidence that consumers valuation of different levels of capital expenditure is necessarily asymmetric.

Bowman has provided a response to the Ockerby paper. Bowman responds that:

---

[217] Hathaway, op. cit., p. 39.

[218] Telstra Annual Report, 2005, p. 76, revenue from PSTN products.

[219] Telstra Annual Report, 2005, p. 118, being 10% of the net cash invested in customer access.

- Setting the WACC too low necessarily results in a reduction of investment and with it all social surplus associated with that investment.
- The idea that most ULLS network assets are sunk and are unaffected by the WACC is a narrow view of investment and is not true as Telsta continuously maintains and/or replaces network assets.
- Although it is unlikely that Telstra would fail to maintain the PSTN, that does not mean that Telstra would not adjust its PSTN maintenance program in response to an inadequate regulated revenue stream.
- Ockerby's claim that the cost of not investing is materially positive and that, in reality, the costs of not investing almost certainly exceed the costs of investing is not substantiated by any evidence.

D.7.3. The ACCC's view

The ACCC is not satisfied that Bowman's claims regarding the potential existence of an asymmetry in the social consequences of over or under estimating the WACC are valid.

The claims made by Bowman and Ockerby are based around qualitative statements and counter-statements. The ACCC view is that substantive and quantifiable evidence be presented to legitimise a claim; a feature lacking in the overall discussion of this idea of asymmetric social costs.

Bowman states that:

> It is widely agreed that in a regulatory environment, the long-term social costs of under estimating the cost of capital are higher than are the long-term social costs of over estimation.[220]

However, Bowman provides no references to economic or financial literature to support this contention. Further, and more importantly, Bowman makes no attempt to relate this general statement to the matters specifically under consideration in these undertakings, nor does he advance any quantitative evidence to support his claim of asymmetry in consequences.

Bowman qualitatively claims that, if the WACC is set too high:

> … there will be a cost imposed on the ultimate consumers, but this is unlikely to have a detectable welfare effect on individual consumers. The provider of the services will have sufficient incentives to engage in maintenance of the service and its quality and to invest in innovation and improvements in the service assets.[221]

The basis for Bowman's contention that there is no detectable welfare effect is unclear. In particular, he does not present and qualitative or quantitative support for the contention that the cost on individual consumers is not detectable. Bowman also seems to be suggesting that the only concern for consumers is the maintenance of the services and he concludes that firms will retain incentives to engage in such maintenance and invest in innovation. The ACCC considers that this completely ignores the negative welfare effects from excessive pricing.

---

[220] Bowman, December 2005, p. 26.

[221] *Ibid*.

Furthermore, the ACCC notes that the cost of excessive pricing will not be offset by quality improvements. Firms, regardless of whether they are subject to regulation, are likely to behave in a profit-maximising manner. Bowman has stated that, in his view, these services are regulated because they are offered in a market with few or no alternative suppliers and which is characterised by high barriers to entry.[222] In these circumstances, a profit-maximising firm would not be relatively more likely to invest in higher service quality, or innovate where it was being offered an excessive rate of return compared to a situation in which it was offered a non-excessive rate of return. The firm is likely to undertake profit-maximising investments and service improvements in either case.

Accordingly, where the WACC is set too high, there would only be the negative welfare effects flowing from the requirement to pay prices in excess of efficient costs with no offsetting quality benefits; resulting in an unambiguous welfare loss as against his claimed absence of a 'detectable welfare effect'.

Bowman claims that, if the WACC is set too low:

> … there will be short-run benefits to the ultimate consumers of the service, but there will also be disincentives for the provider of the service to invest or to properly continue maintenance or service quality.[223]

Again, the basis for Bowman's contention is not clearly specified. It is conceivable that a firm, subject to the identified market conditions, may engage in this form of behaviour. However, the firm may also seek to improve its efficiency in service delivery rather than quality degradation. The ACCC also notes that undertaking periods are generally short, and it would be open to Telstra to demonstrate that service degradation is taking place and show any link between this and under-compensation through the WACC, if it could be found to exist.

The ACCC also notes that Telstra, as TelstraClear, has argued against its argument to this undertaking assessment on the asymmetry of outcomes, arguing that there is the asymmetry of risk in favour of setting a low price:

> A lower TSLRIC price will reduce incentives for inefficient/duplicative investment in alternative networks. In this regard, there is an asymmetry of risk associated with setting the interconnection price too high versus too low. In particular, if it set too low, investment by Access Seekers may be discouraged because they prefer to rely on Telecom. But this can be reversed subsequently by a correction in price. If the interconnection price is set too high inefficient investment in duplicative network may be encouraged, which cannot be reversed even if the interconnection is subsequently corrected.[224]

Telstra, as TelstraClear, also argued that:

> the [New Zealand Commerce] Commission should not repeat its approach of taking a "conservative" approach that it took with the initial price by favouring a higher TSLRIC

---

222 *Ibid*.

223 *Ibid*.

224 TelstraClear, *Submission on the Draft Determination on the Application for Pricing Review for Designated Interconnection Services*, 26 May 2005, p. 12.

> price but should favour a lower final price, which emphasises promotion of competition.[225]

Overall, the ACCC notes that there is potential for undesirable outcomes under the s. 152AH statutory matters of *both* over and under estimating the WACC. Neither under-pricing nor over-pricing will be efficient. However, it is not clear that there is any asymmetry in outcomes and therefore that one or the other is relatively more likely to promote the LTIE, or that deviations from the best estimate of the WACC could or should be made to account for any asymmetry.

Setting aside the theoretical basis upon which Bowman has recommended an adjustment for asymmetry, he has subsequently stated that:

> It is more sensible and defensible to address the asymmetry using statistical methods. In my opinion, this asymmetry should be dealt with using confidence intervals. That is, the ACCC should choose a confidence level that reflects the relative long-term costs of under or over estimating the WACC.[226]

However, Bowman goes on to acknowledge that:

> The difficult issue is to determine the appropriate confidence level that reflects the relative costs to society of over and under estimating the WACC.[227]

Bowman's submission has not sought to quantify the relative costs of incorrectly estimating the WACC, and therefore has not addressed this 'difficult issue'. Despite this, Bowman proceeds to give estimates to take account of this unquantified relativity:

> … although I do not fully develop and defend ranges for each of the parameters in this report, I discuss all of the parameters, provide some further information on the critical parameters and give my preliminary estimates of appropriate ranges to reflect one standard deviation.[228]

Thus Bowman's position in favour of an adjustment for asymmetric social consequences can be characterised as one where:

- he has not sufficiently demonstrated the theoretical and empirical basis for an asymmetry in social outcomes
- he has acknowledged that determining the appropriate confidence interval to take account of asymmetry is difficult, and he has not attempted to undertake such an exercise
- despite this, he has proposed mark-ups to many parameters which he acknowledges are not fully developed or justified.

In the context of any undertakings assessment, the onus remains with Telstra to demonstrate to the ACCC that its proposed prices are reasonable within the meaning of s. 152AH. It is the ACCC's view that Bowman (and therefore Telstra) has not provided sufficient proof to demonstrate that asymmetry of outcomes exists, that the

---

[225] TelstraClear, *Submission on the Draft Determination on the Application for Pricing Review for Designated Interconnection Services*, 26 May 2005, p. 10.

[226] Bowman, December 2005, p. 28.

[227] *Ibid*.

[228] *Ibid.*, p. 29.

matters to which regard must be had under section 152AH are better served by adjusting the WACC to take account of it, and that his proposed adjustment appropriately performs this adjustment function. Accordingly, the ACCC is not satisfied that this aspect of Telstra's proposed WACC is appropriate

D.8. Calculation of overall WACC

Based on the assessment above, the ACCC and Bowman agree on certain inputs into the WACC but disagree on a number of others:

Input	**Bowman / Telstra**	**ACCC**
Market debt ratio	20%	40%
Risk free rate	5.11% (1 Jan 06-30 Jun 06) 5.48% (1 Jul 06-30 Jun 08)	5.35%
Debt premium	1.06% and 1.15% (network) 0.81% and 0.93% (ULLS-specific)	1.02%
Debt issuance costs	0.2	0.083
Asset beta	0.7	0.5
Equity beta[229]	0.8 (1 Jan 06-30 Jun 06) 0.873 (1 Jul 06-30 Jun 08)	0.827
Market risk premium	7%	6%
Tax rate	Statutory rate	Effective rate
Imputation factor	50%	50%
Debt Beta	0	0
Equity issuance costs	0.15	0

As discussed above, the ACCC considers that it is inappropriate to use the statutory tax rate and inappropriate to recover equity issuance costs through the WACC. However, for the practical purposes of assessing this undertaking, the ACCC considers that it will employ the statutory tax rate and Telstra's claimed equity issuance cost allowance for the purposes of calculating the ACCC's WACC. The differences in the final WACCs proposed are:

	Bowman / Telstra	**ACCC**

[229] These equity betas are those derived using the Monkhouse formula, not the values obtained by the direct estimation method.

WACC	Point estimates 9.95% (1 Jan 06 to 30 Jun 06) 10.76% (1 Jul 06 to 30 Jun 07) 10.76% (1 Jul 07 to 30 Jun 08)	8.86% (all years)
	Incl 1 standard deviation uplift 13.05% (1 Jan 06 to 30 Jun 06) 14.06% (1 Jul 06 to 30 Jun 07) 14.26% (1 Jul 07 to 30 Jun 08)	

As discussed in section D.7, the ACCC does not consider that it can be satisfied that Telstra's proposed adjustment for claimed asymmetry in social outcomes is appropriate. The ACCC also notes that the standard deviations estimated by Telstra, and the resulting uplift added to the point estimates, appear extremely large and imply that there can be very little certainty about the point estimate of the WACC.

It can be seen that there is significant disagreement between Telstra and the ACCC on the appropriate WACC that should be applied. The ACCC considers that Telstra's proposed WACCs are so high that they cannot be considered appropriate for pricing the ULLS service.

The ACCC considers that to the extent the price terms and conditions in the undertakings are based on Telstra's WACCs, the prices will be in excess of the efficient costs of production. The ACCC considers that such prices:

- are unlikely to promote the LTIE, as they will not promote competition and will not encourage the economically efficient use of, or investment in infrastructure
- would result in Telstra recovering more than is necessary to promote Telstra's legitimate business interests
- would harm the interest of access seekers, and the persons who have rights to use the service would be limited in their ability to compete
- would exceed the direct costs of providing access
- do not have a material effect on the operational and technical requirements necessary for the safe and reliable operation of the service.

D.9. ACCC's final view

The ACCC's final view is to reject Telstra's proposed WACCs. Taking into account the matters in s. 152AH, the ACCC is not satisfied that the proposed WACCs are reasonable.

The ACCC is not satisfied that the techniques used by Bowman lead to an accurate conclusion on the WACC. The ACCC notes that expert advice commissioned by third parties to this proceeding was critical of Bowman's methods for determining the values of certain specific parameters as well as the parameter estimates adopted from the application of these methods. The ACCC's own assessment of Bowman's methods and estimates also raised significant concerns with his approach.

The ACCC is particularly concerned with Bowman's advocacy of the appropriateness of accounting for a claimed 'asymmetry in social outcomes' from over- or under-estimating the WACC. As discussed above, Bowman is implicitly arguing that the ACCC should weight different matters under s. 152AH differently when determining access prices, arguing that, by doing so, the LTIE is likely to be better served. However, Bowman has not provided sufficient theoretical or empirical evidence to support his claims regarding asymmetric outcomes from erring on the low side of the 'correct' WACC relative to the high side. Accordingly, the ACCC is not satisfied Bowman's approach is appropriate.

Following his qualitative statements on asymmetric outcomes, Bowman makes no attempt to demonstrate that his proposed adjustments (increasing the point estimates by one 'standard deviation') deal appropriately with the claimed asymmetry.

Overall, Bowman's position in favour of an adjustment for asymmetric social consequences can be characterised as follows:

- he has not sufficiently demonstrated the theoretical and empirical basis for an asymmetry in social outcomes
- he has acknowledged that determining the appropriate confidence interval to take account of asymmetry is difficult, and he has not attempted to undertake such an exercise
- despite this, he has proposed mark-ups to many parameters which he acknowledges are not fully developed or justified.

In an undertaking assessment, the onus is on Telstra to demonstrate to the ACCC that its proposed prices are reasonable within the meaning of s. 152AH. It is the ACCC's view that Bowman (and therefore Telstra) has not provided sufficient proof to demonstrate that asymmetry of outcomes exists, that the matters to which regard must be had under section 152AH are better served by adjusting the WACC to take account of it, and that his proposed adjustment appropriately performs this adjustment function. The ACCC is not satisfied that this aspect of Telstra's proposed WACC claims is appropriate.

Further, the ACCC notes that it has never accepted separate WACCs for ULLS and LSS specific assets as appropriate. The recent ACT decision to reject Telstra's LSS undertaking, and more specifically its preferred cost allocation methodology, reaffirms the reasoning behind the ACCC's position. The ACCC therefore considers that a separate WACC for ULLS and LSS specific assets, as proposed by Telstra for the purposes of these undertakings, is not appropriate.

The ACCC noted in section D.1 that it was unclear to what extent Telstra had used the Bowman WACCs in its calculations of prices to apply in the undertaking periods. In particular, Telstra's use of the WACC does not appear to be consistent and it is not clear when Telstra is using WACCs proposed by Bowman and when it is using alternatively formulated WACCs. In the **[c-i-c]** supplementary statement, it appears to the ACCC that Telstra may be using differing WACCs for ULLS, LSS and retail and wholesale DSL services and the ACCC is not satisfied that its numbers are

reasonable.[230] This uncertainty about the extent to which Telstra is using the Bowman methodology makes it more difficult to accept Telstra's WACCs and hence proposed prices.

Overall, the ACCC is not satisfied that Telstra's preferred WACC estimates used for the purposes of estimating network costs, and particularly Telstra's 'High' WACCs, are appropriate. Therefore, to the extent that the price terms and conditions of the undertakings seek to impose a charge based on Telstra's preferred WACCs, the ACCC considers that it is not satisfied that they are reasonable.

[230] **[c-i-c]** *Supplementary statement of* ***[c-i-c]***, 11 Aug 06.

Appendix E. ULLS specific costs

E.1. Introduction

The 'specific' costs of the ULLS are those costs incurred by Telstra to allow for supply of the declared service. It has previously been asserted that these costs consist of:

- IT system development and operational costs
- ULLS connection group costs
- Wholesale management costs
- Indirect costs

At the time the ULLS was initially declared and pricing principles first developed, the ACCC agreed to Telstra recovering specific costs directly from those access seekers making use of the ULLS. However, as early as its 2003 Model Price Terms & Conditions Determination, the ACCC determined that a continuation of specific cost recovery in this way was not reasonable. Rather, the ACCC concluded that cost recovery across a broader range of services was more appropriate:

> … for future regulatory periods the Commission believes that Telstra should recover these efficient costs through the capital, operational and maintenance, as well as associated indirect costs components of the TSLRIC+ charge…[231]

The specific cost component of the ULLS monthly charge is significantly impacted by the choice of cost recovery base. For example, choosing to recover specific costs for 2005-06 over active ULLS services only would result in dividing the pool of specific costs over less than **[c-i-c]** SIOs.[232] On the other hand, choosing to recover specific costs for the same period over all CAN lines would result in dividing the pool by as many as 10 million SIOs.

As the choice of cost recovery base is so significant in determining the specific cost component attributed to each ULLS service, the focus of this section will be on analysis of the arguments for and against the various options, which include:

- *all* active CAN lines[233]
- *all* active ADSL lines
- all lines which have ever been ULL services
- only those lines which are current active ULL services being used by access seekers.

---

[231] ACCC, *Final Determinations for Model Price Terms and Conditions of the PSTN, ULLS and LCS Services*, October 2003, p.80.

[232] Based on demand forecasts in Telstra's 2005 Supporting Submission. The ACCC uses these forecasts for illustrative purposes only, and does not necessarily accept their correctness.

[233] This could be either all CAN lines or only those where the ULLS is a broadly viable service.

E.1.1. The ACCC's previous position

In its 2005 Final Decision, the ACCC concluded the following in relation to recovery of ULLS specific costs:

- regardless of the method of cost recovery chosen, Telstra's costs were below the proposed price;
- if the recovery of specific costs was from the largest customer base possible – including Telstra's customer base – prices proposed by Telstra would have allowed for a recovery of costs more than 200 times greater than the efficient level of ULLS specific costs;
- even if it were not appropriate to recover the costs from the largest possible customer base and the costs were recovered from all ADSL services, Telstra's prices would still have recovered an amount over 10 times the efficient level of ULLS specific costs; and
- while it would be desirable to recover specific costs from a larger customer base than that proposed by Telstra (see below) even if it were not appropriate to recover costs from all services, and they were recovered only from all ULLS related lines (lines that that have been taken as a ULLS or LSS service) Telstra's prices would have over-recovered ULLS specific costs.

The ACCC did not come to a definitive view on the cost-recovery base at the time of the 2005 Final Decision, as having regard to the relevant statutory matters, under any method chosen, the proposed charges as set out in the undertaking were not reasonable.

E.1.2. 2006 LSS pricing Determination of the Australian Competition Tribunal

On 21 December 2005, the ACCC rejected an access undertaking submitted by Telstra concerning the LSS and on 11 January 2006, Telstra appealed to the ACT.

On 2 June 2006, the ACT upheld the ACCC's decision to reject the LSS undertaking. Whilst the ACT Determination related specifically to the LSS undertaking, the ACT pronounced its support for the ACCC's position on a number of issues, including the issue of specific costs, which can be used to inform the analysis of the current ULLS undertaking.

On the issue of LSS specific costs, the ACT was presented with contrasting views by ACCC and Telstra in relation to cost allocation and cost attribution.

Telstra promoted a narrow approach to cost allocation, seeking to attribute costs to LSS at the granular level and to unitise those LSS specific costs over LSS demand. Whilst the cost allocation approach led to a relatively trivial cost base, the immature level of LSS demand meant that unit costs under the Telstra approach were very high.

The ACCC advocated a more broad approach to cost attribution and cost allocation. The ACCC's proposal consisted of pooling all of LSS specific costs, ULLS specific costs and Telstra's internal equivalent costs (when it provisions a wholesale or retail DSL service) and unitising those costs over at least the total demand for all of these services.

The ACT determined that Telstra's narrow approach would dampen competition and lead to inefficiently high prices in the downstream market (which, at its narrowest,

would be the retail market for DSL services). Accordingly, the ACT ruled that Telstra's narrow approach was unreasonable.[234]

The ACCC largely agrees with the ACT's reasoning in the Determination. The ACCC's view is that, due to the similar nature of LSS and ULLS specific costs, this ruling by the ACT extends beyond the LSS undertaking and is directly relevant to the ACCC's analysis of ULLS specific costs in the current undertaking.

In fact, given that the ULLS is less xDSL specific than LSS and that its usage extends to voice services, the ACCC is of the view that the ACT's view is even more relevant to ULLS specific costs than LSS specific costs.

E.1.3. Submissions from interested parties

(a) Cost Causation

Optus

In its submission to the ACCC's Discussion paper, Optus stated:

> Optus considers that the real cost of the ULLS specific costs, or at least the majority of those costs (including the capital costs), is the need to address the market failure surrounding the natural monopoly status of the local loop. The service declaration was intended to facilitate competition in downstream markets and benefit all users.
>
> The ULLS specific costs should essentially be seen as "unavoidable costs of running the monopoly CAN, not optional costs from providing an incremental service", and should thus be considered common CAN costs.[235]

Telstra

In its submission to the ACCC's Draft Decision, Telstra asserted that the ACCC and the ACT have erred in their assessment of how ULLS specific costs should be unitised.[236] Telstra continues to maintain its position that ULLS specific costs are not caused by declaration, but by the access seeker's demand.

CoRE Research

In response to Telstra's submission, the CoRE Research report on the treatment of ULLS specific costs argued that because the ULLS service was not offered to access seekers by Telstra prior to the declaration, the ULLS specific costs that have arisen following the declaration are primarily fixed costs driven by the declaration itself rather than by the level of demand for the ULLS.[237]

---

[234] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4.

[235] Optus *Submission to ACCC on Telstra's ULLS Undertakings*, March 2006, p.8.

[236] *Telstra's Confidential Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*, p.38

[237] *The Treatment of ULLS Specific Costs: A Report on Behalf of the Australian Competition and Consumer Commission*, CoRE Research Report by Joshua Gans, 29 May 2006

(b) Cost Recovery

Optus and CCC

Optus and CCC support the ACCC's broad approach for the recovery of Telstra's ULLS specific costs over the approach proposed by Telstra.

Telstra

As part of its submission to the ACCC's Draft Decision, Telstra advanced the expert report of Professor David Sappington.[238] In his report, Professor Sappington examined a number of issues concerning the policy proposed by the ACCC in relation to the cost recovery base. Professor Sappington contended that the policy proposed by the ACCC would be equivalent to imposing a non-user tax, would be likely to limit incentives for innovation and cost reduction, would distort competitive neutrality and would constitute entry assistance to competitors. Professor Sappington concluded that:

> The policy is contrary to basic economic principles, to Telstra's legitimate business interests, and to the long-term interests of end-users of telecommunications services in Australia.[239]

Professor Sappington also presented a critique of the CoRE Research report[240] on the treatment of ULLS specific costs.

CoRE Research

CoRE Research considered the issues raised by Professor Sappington and concluded that Professor Sappington's report:

> provides no substantive critique of the ACCC approach on this matter and can be disregarded[241]

E.2. ACCC's final assessment of ULLS specific costs

E.2.1. The long-term interest of end users

Promotion of competition

The ACCC recognises that competition is a process of rivalry and that the degree to which it is promoted by a particular pricing principle is difficult to observe. Consequently, in assessing the impact on competition, the ACCC tends to have regard to the *outcome* of competition from the consumer's perspective.[242] That is, the ACCC will assess the prices and qualities likely to prevail in the market under different pricing principles. The pricing system likely to lead to an outcome most closely

---

238 *Expert Report of David E.M.Sappington on The Appropriate Incidence of ULLS-Specific Costs*, Report by David Sappington submitted to the ACCC in the Matter of Assessment of Telstra's ULLS Monthly Charge Undertakings, 28 July 2006.

239 Ibid., p.3

240 *The Treatment of ULLS Specific Costs: A Report on Behalf of the Australian Competition and Consumer Commission*, CoRE Research Report by Joshua Gans, 29 May 2006.

241 *Response to Professor Sappington: A Report on Behalf of the Australian Competition and Consumer Commission*, CoRE Research Report by Joshua Gans, 6 August 2006, p.8.

242 See for example, ACCC, *Declaration of Local Telecommunications Services*, July 1999, p. 74.

approximating a contestable market will be deemed to promote competition to the greatest extent.[243]

To see this, consider the case where the ULLS specific costs are $\$x$ and line costs are $\$y$. Suppose further that there are 10 ULL lines and 100 CAN/DSL lines. If ULLS specific costs are spread over the 10 ULL lines, then the cost per line for Telstra will be $\$y$ while the costs per line of access seekers will be $\$y + x/10$. Competition will, at best, push prices down to $\$y + x/10$ and Telstra will earn a profit of $\$ x/10$ per line.

However, if ULLS specific costs are spread across all CAN/DSL lines, then access seeker average costs and Telstra average costs will be the same and equal to $\$y + x/100$. Thus the limiting competitive price will be $\$y + x/100$ and Telstra will earn a relatively lower profit of $\$ x/100$ per line.

It is relevant to consider whether Telstra's average costs of ordering and qualifying a line for its retail arm or wholesale resale customers are equivalent to the ULLS-specific costs. As discussed in more detail in section E.3.2, the ACCC considers that it is not satisfied that Telstra's costs are equivalent and that Telstra's average per line costs are likely to be lower than ULLS-specific costs when those costs are distributed over ULLS lines only. Accordingly, the ACCC considers that Telstra will earn excess profits where it distributes ULLS-specific costs across ULLS lines only rather than all lines or all DSL lines.

The ACCC notes the following conclusion of the ACT in its LSS Determination:[244]

> access seekers will be likely to face a higher average cost than Telstra retail would face when providing similar services in downstream markets. This is because any internal costs incurred by Telstra when providing retail access to its DSL lines can be spread over a significantly larger number of customers than LSS specific costs can be spread over when allocated only to LSS lines. If we assume that it would be unsustainable for any business to price below average costs in the long term, access seekers will not be able to price as low as Telstra potentially can in downstream markets (assuming access seekers are equally efficient as Telstra at retailing DSL products and performing whatever other tasks need to be performed to turn access to the LSS into a retail product).

In the present case, the ACT's logic is that Telstra's equivalent unit costs would be less than the ULLS specific costs, calculated on a ULLS lines basis, because the number of lines over which costs are distributed for Telstra would be so much larger than the number of ULLS lines.

The all/DSL lines approach therefore leads to an outcome which more closely approaches a competitive outcome and it is possible to conclude that spreading ULLS specific costs over all lines or all DSL lines will have a greater impact on price competition than spreading it only over ULLS lines. Therefore, it is the ACCC's view that if the undertaking were accepted then access seekers' costs would be higher relative to Telstra's than if it were rejected. That is, competitive neutrality would be lessened with the acceptance of the undertaking.

The ACCC notes the view expressed in the ACT LSS decision on this issue:

---

[243] This discussion uses a test more closely related to perfect contestability. That is prices should be as close to average cost as possible, but no less than average cost.

[244] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 136.

> We consider that Telstra's method of cost allocation is not likely to achieve the objective in s. 152AB(2)(c) of promoting competition in markets for listed services. Rather, the opposite is likely to be achieved. Telstra's cost allocation method has the effect of raising rivals' costs and puts its rivals and competitors who are in the market for the supply of retail DSL services at a competitive disadvantage.[245]

It remains to show that spreading ULLS specific costs across all DSL lines or all CAN lines will result in a greater or equal improvement in the quality of services being provided than would be the case if specific costs were recovered only over the ULLS. In assessing the likely effect on service quality, it is necessary to examine the impact of the chosen approach on the level of innovation undertaken by competitors.

There appears to be no compelling evidence to conclude that the ULLS lines approach will lead to a higher level of innovation. There are two conflicting incentives at work.[246]

Under the all/DSL lines approach, average costs for Telstra and access seekers are equal or closer together than with the ULLS lines approach. Consequently, an innovation by one group threatens the ongoing profitability of the other. This market structure is likely to lead to innovation as all market participants wish to avoid the costs of being left behind.

Under the ULLS lines approach, comparatively, Telstra has lower average costs. This implies that it is able to 'wait and see'— avoid innovating and wait instead to observe the actions of others, using its profits as a buffer. These facts tend to indicate that the all/DSL lines approach is superior in encouraging innovation. However it is also true that, under the ULLS lines approach, Telstra will be insulated from the potential losses associated with innovation. Consequently it may find it easier or less risky to engage in innovation. This would suggest that the ULLS lines approach better encourages innovation. Weighing these two effects is likely to be complicated and speculative.

Access seekers might be expected to undertake less innovation under a ULLS lines approach, as parties would have less profits to use. However there may be greater incentives to innovate in order to close the cost difference between the access seeker and Telstra. Again, incentives for innovation are difficult to readily assess.

It is, therefore, impractical to weigh the two approaches based on consideration of innovation and quality issues. It is worth noting, however, that either approach is unlikely to have a negative effect on innovation and quality.

Finally, competition will be promoted by the ULLS if end user prices are lower than they would be in the absence of the ULLS so long as they do not fall below cost. The example above shows that either the all/DSL lines or ULLS lines approach will lead

---

[245] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 148.

[246] For the purposes of this discussion it is assumed that quality increases when a firm 'innovates' - that is, takes an existing idea and spends the money to implement it. This is to be differentiated from a process of invention, where a firm may spend large amounts on developing new technologies. It seems unlikely that Telstra or other providers are spending substantial amounts on developing their own technology.

to prices which are at or above cost. So long as $y + x/10 is below the monopoly price, competition will be promoted by either approach.

Any to any connectivity

The ACCC does not consider that this criterion is directly relevant to the consideration of ULLS specific cost recovery approaches.

Use of and investment in infrastructure

Efficient investment will occur so long as efficient projects earn a reasonable market return, the investor has the appropriate incentives to invest efficiently and the market is characterised by the requisite degree of certainty.

Telstra claims that the ULLS lines approach will provide equivalent long run investment incentives for both it and its competitors. The ACCC notes that either of the ULLS lines or all/DSL lines pricing approaches will lead to a market or greater return on Telstra's investment in ULLS specific systems.

In addition, the all/DSL lines construct will give Telstra stronger incentives to invest in efficient technology. Suppose Telstra has *z%* of customers, then, for every one hundred dollars saved in ULLS specific costs, Telstra will make a saving of $*z*. Given that Telstra is likely to have a high proportion of customers, this is a high powered incentive scheme for Telstra to become more efficient. If, however, the ULLS lines construct is used, then there is an incentive for Telstra to increase its specific costs to be recovered by access seekers. As demonstrated above, Telstra will make a *minimum* per line profit which is equal to the average per line ULLS-specific cost which the ACCC accepted (*x*/10 in the example used in assessing the promotion of competition) and consequently, the higher the overall ULLS specific costs, the higher is Telstra's profit.

The ACCC notes that the proportion of IT O&M costs attributed to ULLS specifically by Telstra has increased markedly compared to previous undertakings. Telstra has explained that this reflects the greater proportion of ULLS related IT O&M work which flows from increasing demand for the service. While this may be a fair and accurate reflection, the ACCC has no way of auditing such attributions and notes that under the ULLS lines approach Telstra has an incentive to inflate such costs. In contrast, the all/DSL lines approach provides an incentive for Telstra to reduce such costs as it will not benefit from an increased cost pool.

Further, the all/DSL lines method creates a greater degree of pricing certainty. The total number of CAN lines is both relatively stable and large in comparison to the ULLS specific costs. Even the use of all DSL-capable lines provides greater certainty in this regard. Thus, the access price will remain relatively stable using the all/DSL lines method. The number of ULL lines by contrast is small and unstable and a small percentage change in the number of lines will lead to a large change in the price. As certainty is important for investment, the all/DSL lines method is likely to promote access seeker investment in alternative infrastructure. This incentive will extend to nearly all investment in infrastructure based competition, and to Telstra. This is because greater certainty in ULLS pricing will mean that it is easier for all investors to assess the relative strength of different investment proposals.

Consequently the all/DSL lines methodology will lead to more efficient investment by Telstra in the ULLS specific project and to more efficient investment by access seekers in DSLAM roll-outs and alternative technologies. In addition, Telstra's build

decisions and incentives to invest in alternative technology and infrastructure, such as deeper fibre deployment or wireless, will not be prevented or inhibited by the all/DSL lines approach. In contrast, to the extent that Telstra earns a higher (or monopoly) profit from the ULLS lines construct, it may have fewer incentives to invest in alternative platforms.

The ACCC notes that recent amendments to s. 152AB of the TPA require that:

> …in determining incentives for investment, regard must be had to the risks involved in making the investment.[247]

The ACCC does not consider that the risks involved in any investment in ULLS related infrastructure are likely to be significantly impacted by the approach taken to recovery of ULLS specific costs. As noted above, both the all/DSL lines and the ULLS lines approaches will result in full recovery of Telstra's costs, including a reasonable return on investment.

Conclusion

In the ACCC's view, Telstra's approach to recovery of ULLS specific costs will not promote the long-term interests of end-users, as it:

- will not promote competition, as access seekers' costs of service provision will be higher than Telstra's
- will not provide appropriate investment incentives, as it will give Telstra an incentive to increase specific costs.

The ACCC's preferred all/DSL lines approach will better promote competition and appropriate investment, while having similar outcomes to the ULLS lines approach in terms of quality of service, innovation and any-to-any connectivity.

E.2.2. Telstra's legitimate business interests

The ACCC has determined that legitimate interests extend to earning a normal, risk-adjusted return on investment but do not extend to continuation of monopoly profits. A normal commercial return will be guaranteed by the all/DSL lines construct. The ULLS lines construct on the other hand will essentially push a wedge between Telstra's costs and other operators' costs and will cause or maintain the ability of Telstra to earn a return greater than a normal commercial return. In such a case, the increased return will not necessarily be related to any greater efficiency.

Further, in the ACT LSS decision, it was noted that Telstra's legitimate business interests do not extend to imposing all specific costs on access seekers while bearing none of those costs itself.[248]

Accordingly, Telstra's legitimate business interests will be met under either cost allocation methodology, but acceptance of the undertaking will extend the benefit to Telstra beyond a legitimate interest. Consequently Telstra's approach goes beyond what is necessary to ensure that Telstra's legitimate business interests are protected.

---

[247] Subsection 152AB(7A), inserted by Act 119, 2005 s. 3 and Sch 9, item 6.

[248] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 134.

E.2.3. The interests of those who have the right to use the declared service

Access seekers have the right to use the ULLS service. Part of this right must extend to the reasonable belief that they can compete through the use of the service. As shown in the example above, under the ULLS-lines construct Telstra will face average service costs significantly below the access seeker. Consequently, Telstra could price at a point below the average costs of the access seeker while still making a profit. This would have the effect of forcing the access seeker out of business even if it is otherwise more efficient than Telstra in providing the service.

The all/DSL lines construct on the other hand would mean that Telstra could not pursue such a strategy without pricing below its own average costs and consequently making a short term loss. It seems, therefore, that the all/DSL lines construct will make it less likely that the access seeker's ability to use the service will be hampered in this way.

In this regard, the ACT LSS decision states:

> The interests of … access seekers are served by an access price that enables them to compete on their merits (that is, on the basis of their own efficiency) in downstream markets. The ability of an access seeker to compete on its merits is unlikely to be served by a cost allocation method that spreads relevant costs only over LSS lines.[249]

Further, it seems reasonable to argue that access seekers have a right to be free of unnecessary risk. In this context, the access price generated by the ULLS lines method is sensitive to demand estimates – the higher the demand the lower the price. This creates unnecessary risk for the access seeker. First, the profitability of any investment will depend, to a greater extent than is usual, on the actions of other competitors. For example, if no other access seekers were to take up ULL it would tend to inflate the price and reduce profitability. Second, it means that the access seeker is, more than usual, open to actions taken by Telstra. Were Telstra to take steps to reduce the demand for ULL through non-price behaviour, this would impact negatively on the access seeker.

The ACCC notes Telstra's claim that:

> … total TSLRIC estimates are not as sensitive to ULLS take-up as in previous periods, as ULLS-specific costs on a per unit basis comprise a relatively small proportion of the total ULLS unit cost estimate.[250]

While increased demand over the coming years may reduce the incremental impact of an additional ULLS SIO on the access price, the all/DSL lines methodology still leads to a price which is more stable over time and provides greater certainty for the access seeker.

Therefore, it appears that acceptance of Telstra's ULLS specific cost claim would not be in the interests of those who have the rights to use the declared service. In addition, Telstra's approach is not competitively neutral, and would expose access seekers to

---

[249] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 138.

[250] Telstra's 2005 Supporting Submission, p. 23.

unnecessary risk. Accordingly, the ACCC considers that Telstra's approach would have an undue negative effect on the interests of access seekers.

E.2.4. The direct costs of providing the service

Telstra has submitted that ULLS specific costs are solely attributable to ULLS and no other service. Telstra argues that, under the statutory criteria, the ACCC must have regard to the direct costs of providing the service, and that ULLS specific costs are the direct costs of providing the ULLS. In its submission in response to the ACCC's 2005 Discussion Paper, Telstra relied on a report prepared by Henry Ergas,[251] which stated:

> I understand the ULLS specific costs are caused by ULLS alone. As a result, economic efficiency and the statutory criteria require that they be recovered from ULLS lines alone.[252]

In its 2005 Final Decision, the ACCC rejected the above assertions of Telstra and of Ergas. The ACCC does not consider that its position should be revised in light of Telstra's recent submissions.

The ACCC continues to believe that it is far from clear that the ULLS specific costs claimed by Telstra are strictly caused by end users of ULLS services. When the ACCC declared the ULLS in 1999, it indicated that the declaration would lead to an increase in competition and consequently an increase in allocative efficiency. It was the ACCC's view that this would occur because of the tendency for competition to lead to lower prices. It is implicit in this argument that, in the absence of ULLS, Telstra's monopoly over the local access loop allows it to price above cost. In this regard, the ACCC sees some merit in Optus' argument that:

> Telstra's claimed ULLS specific costs are not costs caused by supplying ULLS but are costs caused by the monopolistic nature of the local loop and the need to regulate access to it to correct a market failure.[253]

It also sees some merit in the argument made by AAPT in response to the 2005 Discussion Paper:

> [Specific costs] are unavoidable costs of running the monopoly CAN, not optional costs from providing an incremental service.[254]

In the ACCC's view, the benefit of the ULLS is it provides the conditions under which a reduction in prices can occur, and the beneficiaries are *all* consumers whose prices are reduced because of the process.[255] Consequently, economic efficiency requires that all consumers (beneficiaries) bear the cost.

---

[251] Ergas, H., *Expert Report on Recovery of ULLS specific Costs*, CRA International, May 2005.

[252] *Ibid*, p.1.

[253] Optus, *Optus Submission to Australian Competition and Consumer Commission on Telstra's ULLS Undertakings*, March 2006, p.7.

[254] AAPT, *Submission by AAPT Limited to the Australian Competition and Consumer Commission in Response to Telstra's Unconditioned Local Loop Service and Telstra's Undertakings for the Line Sharing Service Discussion Papers, March 2005*, May 2005, p.5.

[255] To the extent that price caps were, at that time, restraining Telstra's pricing, the benefit of the ULLS, when used to its optimal extent, would be that competition would constrain pricing, allowing the removal of the price cap regime.

Ergas' response to the ACCC's views as expressed above stated:

> My paper makes reference to those who *cause* the ULLS specific costs to be incurred bearing the costs, as occurs in any effectively competitive market, not the (possible) *beneficiaries* of a service bearing the costs. The ACCC appears to have mixed the concepts of causation and benefit in drawing its conclusions from my report.[256]

The ACCC has not mixed up the concepts of cost causation and benefit. The ULLS specific costs have not been incurred by Telstra as a result of access seekers using the ULLS. These costs have been imposed as a result of the declaration of the ULLS. The ULLS has been declared in order to provide benefits to users of telecommunications services. Therefore, the concepts of cost causation and benefit are linked. Further, the majority of these costs, such as development of IT systems, and even the base number of staff, would still be incurred even if no ULLS services were actually supplied.

In a report provided to the ACCC on 29 May 2006 and assessing the ACCC's 2005 Final Decision, CoRE Research expressed support for the ACCC's position as explained above:

> …there is an important sense that it is the declaration decision itself that caused these costs as it was from that time on that Telstra would have to incur them … The demands of users subsequent to declaration cannot be said to be causing these costs.[257]

Consequently, having regard to the matters under section 152AH, the ACCC considers that Telstra should spread ULLS specific costs over all those lines which benefit from the declaration of this service. The ACCC concludes that it is not satisfied that spreading the costs over the range of lines proposed by Telstra would be reasonable. The ULLS may have competitive effects in two distinct areas. First, if ULLS is used to provide both voice and data, the beneficiaries will be the users of *all* telephone services. This characterisation suggests that the specific costs should be spread over all/DSL lines. Second, ULLS may only or primarily provide for competition in broadband services. If this is the case, then the beneficiaries are all broadband users and the specific costs should be spread across all xDSL enabled lines.

In its report, CoRE Research supported the broader cost recovery base, stating:

> …it is appropriate to view ULLS and LSS-specific (sic) costs as similar to the Universal Service Obligation on Telstra that comes from its ownership of the CAN. In that sense, for Telstra, it is "a cost of doing business." In that regard, it should be treated like all CAN costs and should be 'recovered' from all CAN users.[258]

Moreover, the ACT made the following statement in relation to Telstra's causer-pays argument in the LSS Determination:

> There is no principle of law, accounting or economics that dictates over what category of lines the LSS-specific costs should be allocated. As a matter of principle, one could look for and identify the driver of the fixed costs involved in providing the service, as some parties have

---

[256] Ergas, H., *Response to Inaccurate Citations by the ACCC of Previous Expert Reports by Henry Ergas,* September 2005, p.3.

[257] *The Treatment of ULLS Specific Costs: A Report on Behalf of the Australian Competition and Consumer Commission*, CoRE Research Report by Joshua Gans, 29 May 2006, p.8.

[258] *Ibid.*

> suggested we should do. We note that the "driver" of costs (fixed or otherwise) is not a specific matter to which we are required to have regard under ss152AH or 152AB.[259]

The ACT then formulated the relevant question for determination without the reference to causation of the ULLS-specific costs:

> [I]t is necessary to consider whether, having regard to the matters in ss 152AH and 152AB, it is reasonable for Telstra to restrict its allocation of what it claims to be its LSS-specific costs to lines used, or forecast to be used, to provide its LSS.[260]

The ACCC notes that it can be argued that, strictly speaking, a ULLS lines allocation is commensurate with direct costs, since the costs that arise out of the declaration of the ULLS are the costs which are recovered under that approach. The over-recovery under a ULLS lines approach arises from Telstra's resulting flexibility to price retail services above cost. The ACT noted this when it concluded that:

> Telstra's approach to estimating a per unit cost for the LSS does not explicitly involve it including costs other than the costs of providing access to the service. The costs allocated in Telstra's SC Model are only related to the provision of the LSS, and do not include any recognition of lost profits that may result from increased competition in downstream markets. Telstra's approach to estimating a per unit cost is likely to be consistent with ensuring recovery only of direct costs. However, while direct costs will be incurred by Telstra in order to provide the declared service, there are a number of cost allocation methods other than that adopted by Telstra (including those suggested by the Commission and other interveners in this matter) that would enable it to recover the direct costs of investment in infrastructure necessary to provide a LSS.

Accordingly, it could be argued that, if it were assumed that Telstra's claimed costs are efficient, the ULLS lines approach is, in a strict sense, commensurate with the recovery of direct costs. However the ACCC considers that the significant conclusion of the ACT is that the alternative cost allocation methods proposed by the ACCC, the all/DSL lines approach, also recover the direct costs in this strict sense. It also notes its assessment in section E.3 below that it is not satisfied that Telstra's claimed costs are efficient.

The ACCC's final conclusion is that an undertaking based on Telstra's approach of spreading ULLS specific costs over only existing ULLS customers may be technically commensurate with the direct costs of providing access to the ULLS. However a broader recovery base would be likewise consistent with this statutory consideration, and the ACCC considers that the fact that the costs are caused by declaration, rather than ULLS users alone, supports a wider cost recovery base.

E.2.5. Operational and technical requirements

The ACCC does not consider that there are any issues relating to operational and technical requirements that require consideration in this context.

---

[259] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 130.

[260] Ibid., para 132.

E.2.6. The economically efficient operation of a carriage service, a telecommunications network or a facility

Allocative efficiency

Allocative efficiency is achieved when consumer prices are set at marginal cost.[261] As this is not possible in the current context two principles can be applied. Firstly, prices should deviate as little as possible from marginal cost. Secondly, if possible, price deviations should ideally be concentrated on market segments where demand elasticity is low—the Ramsey-Boiteux pricing approach. The ACCC considers that the Ramsey-Boiteux pricing approach is a theoretically appropriate approach, but notes that it is difficult to apply in practice.

As shown above, the ULLS lines approach leads to a situation where *all* prices deviate from cost by a greater amount than the all/DSL lines approach. Equally, the ULLS lines approach is no more likely than the all/DSL lines approach to implement Ramsey-Boiteux efficient pricing.

It can further be argued that the smallest reduction in consumer surplus will be achieved where the costs of the ULLS specific investment are spread over the widest possible group of consumers – that is, all CAN lines should bear a share of the costs.

Telstra consistently suggests that allocative efficiency requires that the consumer taking a ULL pay the costs of the ULLS specific investment because they are the ones who 'caused' it and they are the ones who 'benefit' from it. As discussed above, the consumer using a ULL does not benefit to any greater or lesser extent than do all market participants. The 'cause' of the ULLS specific costs is a regulatory regime which provides for appropriately compensated access in instances of market failure.

The ACCC therefore concludes that the all/DSL lines approach is superior from the perspective of allocative efficiency to a ULLS lines approach.

Productive efficiency

Productive efficiency is achieved when the relevant service is produced at its lowest costs. As noted above, the all/DSL lines approach has a superior incentive structure and will likely lead to greater productive efficiency. In fact, the ULL lines construct is likely to be highly inefficient and to encourage not only over expenditure but also considerable rent seeking.[262]

In this regard, the ACT states that under Telstra's preferred allocation approach:

> Telstra will have a reduced incentive to find the least cost way of providing the LSS both now and in the future. This is because any reduction in the costs of providing the service will increase the extent to which access seekers are able to compete with Telstra in downstream markets (where access prices are based on costs). This would not be in Telstra's interests.[263]

---

[261] The ACCC interprets 'marginal cost' in terms of TSLRIC, rather than some short-run notion.

[262] In fact, this rent seeking can already be observed in the amount of time and effort Telstra has put in to arguing for a higher ULL specific cost.

[263] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 146.

Dynamic efficiency

As noted above, there is little difference between these approaches in terms of innovation and new services. If anything, however, the buffer provided by the ULLS lines approach may lead to delayed investment by Telstra.

Conclusion

Overall, the ACCC considers that acceptance of the undertaking would result in lower consumer surplus and allocative efficiency than would otherwise exist. In addition, acceptance of the undertaking would compromise productive efficiency.

For these reasons, the ACCC considers that Telstra's ULLS specific cost claim would have a detrimental effect on the economically efficient operation of the ULLS.

E.3. Other issues

E.3.1. Tax/subsidy argument

In it's submission to the 2006 Discussion Paper, Telstra claims that it:

> …acknowledges the attraction to the Commission of delivering short-term price reductions to consumers and transferring profits to access seekers by reducing Telstra's profitability.[264]

The ACCC's preferred method of ULLS specific cost recovery does not subsidise profits earned by access seekers. Pooling all costs relevant to delivery of lines, as suggested by the ACCC, provides a competitively neutral and equivalent input into producing downstream services. In Appendix F to its 2005 Final Decision, the ACCC provided detailed analysis of Telstra's arguments against the all/DSL lines approach. This analysis showed that the ACCC's preferred approach would allow for increased competition between providers of retail services, which would in turn reduce prices, reduce the potential for producers to earn supernormal margins, increase consumer surplus, and reduce society's deadweight loss. These benefits do not accrue to access seekers, but benefit all end users of telecommunications services.

CoRE Research addressed the entry subsidisation argument in its report as part of the response to Professor Sappington. CoRE Research concluded, based on Sappington's work,[265] that entry into the market will not occur, even if subsidised, unless it were efficient and that the entrants will make efficient build versus buy decisions, regardless of the level of the ULLS charge.[266]

E.3.2. Costs to be distributed

If the all/DSL lines approach to cost recovery was to be adopted, it would not be appropriate to recover only access seekers' ULLS specific costs over the entire pool of CAN lines. Telstra claims that it incurs costs as a result of provisioning network services for its retail services. These relate to Telstra's "STS interface" costs which

---

[264] Telstra's Submission to the 2006 Discussion Paper, p. 34.

[265] Sappington, "On the irrelevance of input prices for make-or-buy decisions" *American Economic Review,* December 2005, pp. 1631-1638.

[266] CoRE Research, *Response to Professor Sappington: A Report on Behalf of the Australian Competition and Consumer Commission*, 6 August 2006, p. 7.

are, according to Telstra, comparable but different from the ULLCIS interface, which is used when ULLS access seekers order and provision ULLS services.

The ACCC accepts that if Telstra faces corresponding costs that are not recovered elsewhere, these need to be added to the pool of costs to be distributed over all/DSL lines to ensure cost recovery. In this case, Telstra's own costs of provisioning network services to its retail services should be combined with the ULLS specific costs and distributed over all/DSL lines. However, Telstra has not attempted to justify or quantify these costs.

First, while Telstra asserts that these costs exist, it does not state whether they are or are not already recovered as part of network costs. If any addition to the cost pool of ULLS specific costs is to be made for similar costs faced by Telstra, Telstra should have demonstrated to the ACCC that these costs exist and are not recovered as part of network cost (and are not included in the PIE II model). If it is accepted that these costs exist, it is relevant to ask the question how Telstra has been recovering these costs to date. It is the ACCC's reasonable expectation that, given Telstra has stated that these costs are not 'retail' costs, they have been included by Telstra as part of its general O&M expenditure mark-ups in the PIE II model. As a result, Telstra is already recovering these costs through network costs – and in doing so, will be recovering a proportion of these internal costs from external ULLS access seekers through network cost charges.

Second, while Telstra asserts that these costs exist, it does not quantify them. If Telstra believes that the ACCC's preferred approach is deficient because it does not account for these costs, it should quantify the costs so that they can be combined with ULLS specific costs and distributed over all/DSL lines. If the resulting per line monthly charge, when combined with network charges, amounted to Telstra's proposed undertaking charges, the ACCC would be less likely to have concerns over competitive neutrality and efficiency of Telstra's proposed charges.

It is noted that the ACT considered this issue in its Determination, and stated that:

> [Telstra] submitted that it incurred the same type of costs as were incurred by other access seekers who sought access to the LSS. However, there was no evidence to support the submission and we are not satisfied that this is so.[267]

Telstra has not provided sufficient information to the ACCC to convince it that its characterisation of Telstra's and access seekers' costs is incorrect. Further, Telstra has not demonstrated that any "corrected" characterisation of costs would yield an outcome where Telstra's undertakings could be accepted as reasonable.

The ACCC again notes the following conclusion of the ACT:[268]

> access seekers will be likely to face a higher average cost than Telstra retail would face when providing similar services in downstream markets. This is because any internal costs incurred by Telstra when providing retail access to its DSL lines can be spread over

---

[267] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 137.

[268] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 136.

> a significantly larger number of customers than LSS specific costs can be spread over when allocated only to LSS lines.

The ACCC would similarly consider that access seekers for the ULLS would be more likely to face a higher average cost than Telstra retail in providing similar services to the access seeker in downstream markets.

In its submission to the ACCC's Draft Decision, Telstra did state that:

> Telstra estimates that the average cost of ordering and provisioning for ULLS, LSS and ADSL services is **[c-i-c]**.[269]

Telstra presented the witness statements of **[c-i-c]** in support of its cost claim. **[c-i-c]** provided a qualitative explanation of Telstra's internal system's architecture and provisioning processes[270] whereas **[c-i-c]** provided the revised SC Model for the ULLS[271]. However, the statement by **[c-i-c]** does not nominate or quantify the relevant costs in any respect and the statement by **[c-i-c]** does not make it clear how the costs underlying the SC Model correlate with the information in relation to Telstra's internal costs provided by **[c-i-c]**.

Moreover, **[c-i-c]** stated:

> In order to identify the relevant costs in respect of retail and wholesale xDSL, I have identified the relevant costs and volumes of xDSL services and costs from an xDSL profit and loss statement.
>
> The costs which I have used from the xDSL profit and loss statement are the specific, non-network costs of Telstra's xDSL services (including but not limited to IT operations and maintenance, front of house, wholesale product management, connection group, technical support, billing support and administration costs).[272]

This statement appears to be based on Telstra's argument that, in the LSS Determination, the ACT effectively ruled that the costs of competitors should be equalised. This interpretation by Telstra can be gleaned from Telstra's main submission to the ACCC's Draft Decision:

> If ULLS specific costs are to be allocated in such a way that all competitors face equal costs...[273]

However, as mentioned earlier, the intention of the ACT was not to equalise the costs of all the competitors, but to equalise the input prices faced by them, in order to allow all the parties to compete on merit at the retail level. This can be clearly seen from the ACT's decision:

> However, it is helpful in the present analysis to note that spreading the LSS-specific costs over a broader range of services would be more likely to promote competition between providers of those services, subject to those costs being pooled with other specific costs relevant to the provision of DSL services in downstream markets (e.g.: Telstra's own internal costs of a

---

[269] *Telstra's Confidential Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*, p.40

[270] Statement of **[c-i-c]**, 28 July 2006

[271] Supplementary Statement of **[c-i-c]**, 11 August 2006.

[272] Supplementary Statement of **[c-i-c]**, 11 August 2006, p.8.

[273] *Telstra's Confidential Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*, p.40

> nature similar to those of providing the LSS and ULLS-specific costs. This will ensure that all providers of DSL services using Telstra's CAN would face the same non-retailing costs of providing their services. In turn, this would enable them to compete on their merits (or relative efficiencies) in retailing services in downstream markets.[274]

It is not clear from the witness statement of **[c-i-c]** whether the ULLS SC Model represents Telstra's efficient internal costs consistent with the ACT's LSS Determination. Accordingly, the ACCC's view is that Telstra has not sufficiently justified its **[c-i-c]** cost claim.

Finally, with regard to ULLS specific costs, and its own provisioning costs, Telstra stated that:

> If access seekers are equally efficient at ordering and provisioning ULLS from Telstra Wholesale as Telstra Retail is at ordering and provisioning network services from TIS and TTIP then, all other cost elements being equal, there is no reason for the Commission to conclude that Telstra's average costs are below those of access seekers.
>
> However, even if Telstra's average cost of network service ordering and provisioning were below access seekers' average contribution to ULLS specific cost, it would be because Telstra's internal supply was more efficient than supply to access seekers.[275]

However, Telstra chose the method of ordering and provisioning services to itself, and chose the method of ordering and provisioning services to access seekers. Therefore, it is not access seeker's efficiency that is in question, but rather, the relativities of Telstra's own efficiency of supplying services to itself or access seekers.

Telstra further claims that:

> …the Commission's claim implies that entry through ULLS is inefficient in a productive sense. That is, ULLS entry requires more resources than direct supply. If this is the case, then it is in the interest of economic efficiency to dissuade access seekers from purchasing ULLS and to provide incentives for them to build their own competitive infrastructure.[276]

It is true that additional costs need to be incurred in order to provide ULLS. However, these costs are substantially outweighed by the benefits to end users, which stem from the reduction in the deadweight loss caused by Telstra pricing.[277] The costs associated with provision of the ULLS will be incurred regardless of whether Telstra's or ACCC's preferred method of cost recovery is used. The ACCC's mandate, therefore, is to ensure that the costs are recovered using the method which is most likely to reduce deadweight loss and produce benefits to end-users. As indicated above, Telstra's proposed ULLS lines method is inefficient. While ACCC's preferred method eliminates more deadweight loss than Telstra's, it does not result in any more cost than Telstra's.[278]

---

[274] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 150.

[275] Telstra, *Telstra's Response to the ACCC's Draft Decision on Telstra's ULLS and LSS Monthly Charge Undertakings*, 23 September 2005, Annexure B, p. 16.

[276] *Ibid.*, pp. 16-17.

[277] See the ACCC's 2005 Final Decision, pp. 116-118 for detailed analysis.

[278] *Ibid*., p.116.

In its submission to the ACCC's Draft Decision, Telstra made some claims on the basis of the premise that the ACCC intends for the:

> ULLS specific costs to be allocated in such a way that all competitors face equal costs[279]

However, the ACCC's emphasis is on the input prices faced by competitors rather than equalising the costs they face. As Telstra itself suggests in the same submission, ULLS prices are only a small component of the costs to access seekers of providing ADSL.[280]

E.3.3. Time period for cost recovery

The ACCC considers that, consistent with its previous approach, ULLS-specific costs should be annualised over a 5 year period commencing the year after the costs were incurred. As such, the ACCC would expect Telstra to annualise costs incurred in 2004-05 and claimed in this undertaking using forecast demand for 2005-06 to 2009-10. Costs claimed which are to be incurred in 2005-06 should be annualised over forecast demand for 2006-07 to 2010-11, and so on. Telstra's ULLS-specific cost model does not currently handle costs in this way, instead beginning to recover costs immediately they are incurred. Under Telstra's ULLS lines approach to recovery of costs, this results in an overestimation of specific costs because the annualisation is performed over lower demand figures than if the correct method was used.

The ACCC notes, however, that under its preferred all/DSL lines approach to cost recovery the choice of specific years over which costs are annualised is less significant, as demand across the entire CAN is not expected to vary substantially from year to year. In this regard, the ACCC notes that the ACT gave a strong endorsement of the ACCC's preferred cost recovery base (i.e. broader than ULLS lines only) in its recent LSS decision:

> …it follows from our analysis that a reasonable approach to cost allocation should go beyond allocating the costs of providing the LSS to LSS lines alone, and that any method should allocate costs at least over active DSL lines.[281]

Given the significantly similar nature of LSS and ULLS specific costs, the ACCC interprets the ACT's view as relevant to the current assessment. For this reason, Telstra's incorrect implementation of the 5 year cost recovery period does not have a significant impact on the outcome of the undertaking assessment.

E.3.4. Recovery of previously unrecovered costs

Telstra argues that ULLS-specific costs which it had not recovered prior to 1 January 2006 should be included in the calculation of new prices, stating that:

> It would be inconsistent with the statutory criteria to allow access seekers to escape contributing to the recovery of costs incurred on their behalf merely because those costs

---

[279] *Telstra's Confidential Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005*, p.40

[280] Ibid., p.38

[281] ACT Determination, p.54.

> were arbitrarily allocated to periods when demand was low, even though those costs yielded benefits which continued into periods when demand was high…[282]

In its submission to the 2006 Discussion Paper, Telstra argues that it was prevented from recovering ULLS-specific costs in previous periods because the ACCC used demand estimates which were overly optimistic. Telstra suggested that:

> In a competitive market, Telstra would have set prices in a manner consistent with its own demand forecasts and if these forecasts were incorrect then it would have borne the risk associated with that…[283]

In the 2005 Final Decision, the ACCC did not accept that the historic profits or losses associated with ULLS supply should be factored into the forward-looking access price.

In its report, the ACCC noted that considering historic profits or losses when determining the price for the ULLS was inconsistent with the *ex ante* approach adopted by both the ACCC and Telstra. Further, including historic profits or losses would shift all the risk of demand forecast errors onto access seekers, potentially creating a 'self-fulfilling prophecy' whereby high ULLS costs lead to low ULLS take-up, which in turn results in continued high ULLS costs and so on.

Telstra's submission to the 2006 Discussion Paper suggests that both the ACCC and the ACT have previously endorsed the principle of historic cost recovery. In support of this claim, Telstra cites the example of the ACCC's inclusion of costs associated with acquiring FOXTEL's installed base of analogue customers (known as IBAC costs) in the digital access price.

In its final decision on the Digital Pay TV Anticipatory Exemption application lodged by FOXTEL,[284] the ACCC explained the reasoning behind its decision to allow for the recovery of IBAC costs in the digital access price:

> The Commission accepts that an IBAC reflecting the efficient costs of developing the customer base over the analogue period, and from which the digital access provider, as well as digital access seekers, will benefit, is appropriate. In the absence of this expenditure, Foxtel (or a hypothetical digital STU provider) would need to incur significantly larger costs (in money and time) in order to generate a customer base of equivalent size and loyalty. Viewed from this perspective, the IBAC represents an element of an efficient forward-looking replacement cost approach to determining the asset base of a digital STU provider in the absence of a pre-existing analogue STU network.[285]

Telstra wishes to recover claimed historic losses which it argues resulted from prior regulatory decisions. Clearly this was not the basis for the ACCC's decision to allow the recovery of IBAC costs, and as such neither the ACCC nor the ACT can be said to have endorsed Telstra's line of argument.

---

[282] Telstra's 2005 Supporting Submission, p.20.

[283] Telstra's Submission to the 2006 Discussion Paper, March 2006, p.32.

[284] ACCC, *Section 152ATA Digital Pay TV Anticipatory Individual Exemption Application lodged by Foxtel Management Pty Limited*, December 2003.

[285] *Ibid.*, p.52.

Generally speaking, Telstra's 2005 Supporting Submissions and its submission to the 2006 Discussion Paper rely on the same arguments for the inclusion of historic losses as its submissions to the 2004 Undertaking process. For the reasons discussed above, and consistent with its previous views, the ACCC does not consider that historic profits or losses should be included in the *ex ante* calculation of an access price for ULLS.

In its submission to the ACCC's Draft Decision, Telstra suggested the idea of reconciliation through the expert report of Professor David Sappington. In the report, Professor Sappington discussed the drawbacks of the current arrangement and then proposed a solution:

> The arrangement introduces substantial risk of excessive or incomplete recovery of relevant ULLS-specific costs. This risk is borne by ULLS users and Telstra alike. Only if demand for ULLS is forecast perfectly will ULLS users pay Telstra exactly the relevant ULLS-specific costs. If the demand for ULLS is over-estimated, ULLS users pay less and Telstra receives less than the relevant ULLS-specific costs. This outcome is inconsistent with the long-term interests of Telstra's customers and with Telstra's legitimate business interests. If the demand for ULLS is under-estimated, ULLS users pay more and Telstra receives more than the relevant ULLS-specific costs. This outcome is inconsistent with the legitimate business interests of competitors that use ULLS and with the long-term interests of their customers.[286]
>
> Fortunately, there is a simple 'reconciliation' policy that can limit substantially the risk of excessive or incomplete recover of ULLS-specific costs. The policy simply records the actual, realised amount of under-recovery or over-recovery that occurs during the initial recovery period. Then the ULLS charge is adjusted in the subsequent recovery period to offset the realized excessive or incomplete recovery in the initial period.[287]

Professor Sappington's idea was advanced by Telstra in the past in the form of an 'adjustment mechanism'. In the assessment of Telstra's undertakings for PSTN, ULLS and LCS in October 2004, the ACCC made a Draft Decision to accept PSTN and LCS undertakings but to reject the ULLS undertakings on the basis that Telstra's proposed adjustment mechanism in relation to ULLS was unreasonable because it was not consistent with the relevant statutory criteria.[288] Telstra withdrew the ULLS undertaking as the result of the Draft Decision, choosing not to contest the adjustment mechanism issue.

In any case, the issue of under or over recovery of ULLS-specific costs arises because of the difficulties in forecasting demand. The view of the ACCC is that under the cost recovery base approach proposed by the ACCC and supported by the ACT, this would be less of an issue, as demand growth and projections would be more stable over time.

For the reasons discussed above, and consistent with its previous views, the ACCC does not consider that historic profits or losses should be included in the *ex ante* calculation of an access price for ULLS.

Time period for recovery

---

[286] Sappington, David *Expert Report of David E.M.Sappington on ULLS-Specific Cost and Payment Reconciliation*, 28 July 2006, p.5.

[287] Ibid., p.7.

[288] ACCC, *Assessment of Telstra's Undertakings for PSTN, ULLS and LCS, Draft Decision*, October 2004

In its ULLS Specific Costs Model, Telstra chose to levelise the unrecovered costs over the 2.5 year period of the undertaking. This resulted in Telstra proposing to include an additional ULLS charge of **[c-i-c]** per month per SIO to recover previously unrecovered costs.

As indicated in the previous section, the ACCC is of the view that previously unrecovered costs should not be included in the calculation of the ULLS access price. However, even if the ACCC were to accept the inclusion of those costs, the ACCC's view is that the period of levelisation chosen by Telstra is too short. According to the ACCC estimates, even with conservative demand forecasts, increasing the levelisation period from 2.5 to just 3.5 years would lead to a reduction in the additional ULLS charge from **[c-i-c]** to **[c-i-c]** per month per SIO, whereas increasing the levelisation period to 4.5 years would lead to a reduction to **[c-i-c]** per month per SIO. This is almost half the figure proposed by Telstra in its Specific Costs Model.

Telstra has not presented any evidence to indicate why the period of levelisation of 2.5 years is appropriate. It appears that this period was chosen primarily with the purpose of coinciding with the period of the undertaking. However, in a recent LSS Determination, the ACT made it clear that determining a levelisation period by reference to the period of the undertaking is arbitrary and, in itself, does not address the key statutory criteria, other than promoting Telstra's legitimate business interests.[289]

Accordingly, the ACCC is not sufficiently satisfied that the 2.5 year levelisation period chosen by Telstra is reasonable. Given that ACCC has rejected the concept of recovery of previously unrecovered cost altogether, the ACCC does not find it necessary to examine what the appropriate levelisation period should be.

E.3.5. Appropriateness of using CMPI/AAS costs model

Telstra argues that the ACCC should not rely on the CMPI/AAS assessment of ULLS specific costs (CMPI/AAS Report), primarily because it was conducted in 2001 and was not based on actual experience and cost information in relation to ULLS. In addition, Telstra rejects specific elements of the CMPI/AAS Report including the WACC estimate and the indirect O&M percentage.

Further, Telstra notes that it has not had access to the CMPI/AAS model, and suggests that if such access is not granted then the model should not carry the same weight as Telstra's PIE II model which is available for public scrutiny.

As explained in the 2005 Final Decision, the ACCC does not consider that the CMPI/AAS Report should be disregarded merely because it was prepared before actual ULLS costs were incurred. The ACCC notes that the CMPI/AAS Report sought to estimate the efficient costs of provision and also adjusted for initiatives which could not be reasonably allocated to the ULLS. The ACCC considers that Telstra has not presented evidence that it has incurred efficient costs, or adjusted for non-ULLS initiatives, in its ULLS specific cost calculations.

---

[289] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 107-120.

In the course of the 2004 Undertaking assessment process, Telstra criticised the CMPI/AAS Report approach to connection group costs.[290] Telstra rejected the suggestion that an efficient ULLS provider could handle up to 200,000 connections per year with only 10 or 20 staff. Telstra instead quotes its current connection processes where Telstra's connection group make **[c-i-c]** connections per staff member per day.[291] This is closer to the half an hour per connection estimated by CMPI/AAS when there is 'extensive manual processing'.[292] However the ACCC considers that Telstra's figures ignore the efficiencies of greater automation that CMPI/AAS submitted an efficient provider would incur.

Telstra also criticised the CMPI/AAS Report finding that wholesale product management costs would fall over the life of the ULLS project.[293] Telstra argued that:

> product management work activities for any product are typically influenced by the particular life cycle stage of the product. ULLS is currently on the cusp of the growth stage.[294]

However the ACCC notes firstly that this qualitative position about cyclicality is not supported by Telstra's quantitative modelling, which indicates a constant level of product management costs of **[c-i-c]** per annum for all years. Secondly the ACCC notes that Telstra has provided little updated information[295] to that provided to CMPI/AAS at the time of the CMPI/AAS Report.[296]

Overall, the ACCC does not consider that the issues raised by Telstra cause the ACCC to change its position in relation to the CMPI/AAS Report. The ACCC does not consider that Telstra has presented any submissions that cause the CMPI/AAS report recommendations to be invalid.

E.3.6. Demand estimates

Telstra has submitted updated demand estimates for the calculation of unitised ULLS specific costs. The demand estimates are based on actual SIOs from previous years, which have been extrapolated for the duration of the undertaking.

Optus argues that Telstra has a strong incentive to underestimate demand levels, as this will result in a higher ULLS specific cost per service, which will in turn suppress growth. Optus also notes that the choice of cost recovery base has a significant impact on the sensitivity of per service ULLS specific cost to demand, with Telstra's preferred ULLS lines approach resulting in the highest level of sensitivity. In

---

290 Telstra, *Public Version of Telstra's Submission in Response to the ACCC's Discussion Paper in Respect of ULLS Received March 2005*, May 2005, p. 10.

291 *Ibid*., also [**c-i-c**], *Statement of [**c-i-c**]*, 25 May 2005, p. 7.

292 CMPI and AAS, *Review of Telstra's ULLS-specific Costs – Draft Report*, 2001, p. 28.

293 Telstra, *Public Version of Telstra's Submission in Response to the ACCC's Discussion Paper in Respect of ULLS Received March 2005*, May 2005, p. 11.

294 *Ibid*.

295 While Telstra provided the [**c-i-c**] statement, that statement is largely descriptive in relation to wholesale product management costs.

296 CMPI and AAS, *Review of Telstra's ULLS-specific Costs – Final Report*, 12 October 2001, p.20.

contrast, if the all/DSL lines approach were used, per service ULLS specific costs would not be highly sensitive to demand.

The ACCC notes that under its preferred all/DSL lines approach to ULLS specific cost recovery, the forecast uptake of ULLS services is insignificant in determining the specific cost to be allocated to each service. As noted above, the ACT has provided a clear indication that it believes Telstra's preferred approach to recovery of specific costs is not reasonable. The affirmation by the ACT of the need for a broader cost recovery base means that it is unnecessary for the ACCC to examine Telstra's demand estimates in detail in assessing this undertaking.

The ACCC also notes that allowing the allocation of historical profits or losses associated with a failure to realise forecast demand for the ULLS, as advocated by Telstra and discussed in detail in section E.3.4, might also eliminate the incentive that would otherwise exist for Telstra to grow ULLS take-up.

E.3.7. ULLS specific WACC with 'asymmetry of risk' adjustment

Telstra submits that it is appropriate for a separate WACC to be estimated in relation to ULLS specific costs. Telstra argues that network assets and ULLS specific assets entail different risks and therefore demand different costs of capital.

The ACCC has previously expressed its view that recovery of network costs and ULLS specific costs should not be differentiated – they should both be recovered through the same cash flows.[297] The ACCC maintains that this is appropriate, and accordingly believes that a general ULLS WACC should be calculated and applied to both network and ULLS specific costs.

Telstra has argued that there is an asymmetry of risk when it comes to setting the WACC, such that the detriment to society is greater if the WACC is underestimated than if it is overestimated.[298]

The ACCC continues to believe that its previous position on the WACC parameters is appropriate, and is not satisfied that a WACC estimate higher than that based on input parameters is reasonable. At any rate, the ACCC does not accept that there is an asymmetry of risk.

The ACCC sets a WACC which defines a rate of return which will be earned by Telstra if the demand and cost estimates are accurate. To the extent that these estimates are *ex post* inaccurate then Telstra will earn either a higher or lower rate of return (ROR). This variation in the rate of return will, assuming accurate demand and cost estimates, be symmetric about the expected rate of return. In fact, Telstra's demand estimates consistently turn out to be too low, giving Telstra a ROR above that which the ACCC 'allows'. If anything then the distribution is skewed toward the upside.

---

[297] See the ACCC's 2005 Final Decision, p.77.

[298] Bowman, R. G., *Report on the Appropriate Weighted Average Cost of Capital for ULLS and SSS, Prepared for Telstra*, December 2005, pp.30-41.

E.3.8. Capital and operating costs claimed by Telstra

Capital costs

Telstra has sought to claim capital costs incurred in 1999-00 through 2002-03 as well as capital costs incurred in 2004-05 and 2005-06. As discussed earlier, the ACCC does not accept that historic ULLS related profits or losses from a given undertaking period should be accounted for in the next undertaking period.

Telstra is claiming capital costs for 2004-05 and 2005-06 in relation to the following projects:

- New ULLS deployment classes and PCMS codes
- ULLS enhancements
- SSS to ULLS connection process
- Enabling the provision of SSS on ULLS upper spectrum

Optus argues that the costs associated with these projects are excessive, and that Telstra has not at any rate provided sufficient detail regarding the nature of the costs it has had to incur. Optus suggests that this lack of detail may result in Telstra over-recovering some of its costs, as it currently charges additional fees to access seekers for eventualities which should be covered by the projects listed above (e.g., when there is a change of deployment class).[299]

The ACCC agrees with Optus' sentiment that it is very difficult to determine whether the capital costs claimed by Telstra are reasonable and necessary or not, given the absence of detailed information in relation to the projects above. However, the ACCC makes several observations at this point.

First, the extent of work that Telstra has been required to undertake to comply with the ACIF code[300] is unclear to the ACCC based on information provided to date. In its submission to the 2005 Discussion Paper, Telstra explained:

> In order for Telstra to meet its obligations, the project described above will facilitate integration of the new deployment classes into various Telstra systems, including the ULL Carrier Interface System[301]

The ACCC does not have sufficient information on which to determine whether Telstra's claimed costs in this respect are reasonable. The ACCC requires further information from Telstra as to the nature of the work undertaken to comply with the ACIF code before it can properly assess the cost claim.

Second, Telstra should not be double-recovering the costs associated with ULLS enhancements. If Telstra charges an additional fee for certain enhancements as Optus has claimed, Telstra should not seek to recover the costs associated with these enhancements in the access price.

---

[299] Optus, *Optus Submission to Australian Competition and Consumer Commission on Telstra's ULLS Undertakings*, March 2006, p.18.

[300] ACIF C559:2005 Unconditioned Local Loop Service (ULLS) Network Deployment Rules

[301] Telstra, *Submission in Response to the Australian Competition and Consumer Commission's Discussion Paper in Respect of ULLS Received March 2005*, 27 May 2005, p.8.

Third, it does appear reasonable for Telstra to claim capital costs for the development of SSS to ULLS connection processes and to enable the provision of SSS on upper ULLS spectrum, provided that access seekers have requested this functionality.

Operating costs

Telstra has claimed **[c-i-c]** in operating costs associated with the 2004-05 and 2005-06 capex projects. Optus argues that there should not be any incremental O&M costs associated with these projects, and that only capex should be required.

In its response to the 2005 Discussion Paper, Telstra explained:

> The 2005/06 O&M costs sought by Telstra are the costs of maintaining the system changes associated with the additional capital expenditure in 2005/06.[302]

The ACCC accepts that the 2004-05 and 2005-06 operational costs associated with the capex projects are likely to be reasonably incurred by Telstra. It must be noted, however, that Telstra has provided the ACCC with insufficient basis on which to assess whether the quantum of costs claimed are reasonable.

IT O&M costs

IT operating and maintenance (O&M) costs make up the majority of ULLS specific costs claimed by Telstra. Telstra's IT O&M costs are claimed to include:

- Mainframe and mid-range production processing
- Maintenance labour
- Maintenance processing
- ULLCIS maintenance costs.

Optus has claimed that Telstra's costs are excessive. In particular, Optus argues that mainframe and mid-range processing costs are completely avoidable because the volume of ULLS transactions does not require such processing power. Optus asserts that the efficient provision of ULLS should only require personal computers and an NT server.[303]

The ACCC requested further information from Telstra in relation to the substantial increase in IT O&M costs from 2004-05 to 2005-06 by means of s.152BT request on 23 March 2006.[304] Telstra responded that the substantial increase was due to the greater proportion of ULLS transactions expected from 2005-06 onwards in comparison to other transactions performed on the relevant systems. Under Telstra's cost model, this increased volume of ULLS transactions leads to more costs being allocated to ULLS specifically.

---

302 *Ibid*., p.9.

303 Optus, *Optus submission to Australian Competition and Consumer Commission on Telstra's ULLS undertakings*, March 2006, p.20.

304 Section 152BT(2) provides that, when a carrier or carriage service provider has given the ACCC an ordinary access undertaking, the ACCC may request further information in relation to the undertaking.

The ACCC has several concerns in relation to Telstra's IT O&M cost claim. First, it is not clear to the ACCC that the provision of ULLS requires the use of mainframe and mid-range systems as claimed by Telstra. Without further information from Telstra, and given the concerns raised by Optus, the ACCC is not satisfied that this is the case.

Second, the ACCC is concerned that Telstra may over-recover its costs by increasing the amount allocated to ULLS in accordance with increased demand. This is because Telstra should already be recovering the IT O&M costs associated with the relevant systems through its broader cost model (i.e., the costs should be factored into PIE II). As such, increasing the costs allocated to ULLS specifically would only be reasonable if there was a corresponding decrease in the amount allocated to other related O&M costs in PIE II. The ACCC does not have sufficient information to determine whether these O&M costs are already being sufficiently recovered through the PIE II model, and requires such information in order to determine whether Telstra's approach is reasonable or not.

This raises a broader cost allocation issue. Given the difficulties associated with identifying how certain costs are accounted for in the PIE II model, the ACCC is unlikely to be able to fully audit Telstra's claims. The ACCC's all/DSL lines approach to cost recovery would mitigate this problem, as pooling ULLS specific costs with Telstra's internal costs and recovering them over the entire CAN subscriber base would lessen the impact of any misallocation of costs.

Front of house connection group and wholesale product management costs

The ACCC has rejected Telstra's claims in relation to front of house connection group and wholesale product management costs on several occasions, on the basis that the Draft CMPI/AAS Report indicated that Telstra's claimed costs were significantly higher than efficient costs in this area.[305]

CMPI/AAS suggested that Telstra connection group staff should be able to perform a significantly larger number of ULLS connections per day than what was (and continues to be) claimed by Telstra, and that greater automation should further increase this efficiency, to the extent that:

> Above 25,000 connections, increased automation should lead to further efficiencies so that it would be reasonable to assume a gradual increase in total staff numbers to 10 as connections grow to 100,000 per annum.[306]

In addition, CMPI/AAS did not accept Telstra's claim that the equivalent of two full-time project managers (at **[c-i-c]** plus indirect costs per manager per annum) would be required on an ongoing basis. Rather, CMPI/AAS suggested that project management activities should be scaled down significantly after the early phases of ULLS implementation. In this regard, the ACCC notes that Telstra's current Undertaking does not claim costs for project management, but claims identical costs for "two full-time product managers."[307] It is not clear whether 'project manager' and a 'product manager' refer to the same role.

---

[305] CMPI and AAS, *Review of Telstra's ULLS-specific Costs – Draft Report*, 2001, pp.27-29.

[306] CMPI and AAS, *Review of Telstra's ULLS-specific Costs – Draft Report*, 2001, p.29.

[307] Telstra's 2005 Supporting Submission, p.18.

Telstra has not made any arguments which would cause the ACCC to reconsider its position in relation to connection group and wholesale product management costs – that Telstra's claimed costs are excessive compared to a reasonable estimate of efficient costs.

E.3.9. Efficient costs

Telstra contends that its access price terms and conditions are reasonable as long as the price does not exceed the efficient cost of supply of the ULLS.

Telstra asserts that its ULLS-specific costs should be estimated by reference to a specific costs model (the 'SC Model) and that its SC Model provides reasonable estimates of the efficient cost of supplying the ULLS.[308]

Telstra has presented the ACCC with a number of written witness statements to support its cost claims. These witness statements broadly covered the following areas in relation to the ULLS:

- SSS to ULLS connection process
- Enabling the provision of SSS on ULLS upper spectrum
- Role of business operation and sales managers
- Ordering, provisioning and billing processes
- Enhancements project
- Product management
- Deployment class project

The witness statements presented a qualitative overview of the above-mentioned processes, projects and roles, providing descriptions of how they were performed and the purpose behind them. The witness statements presented the total cost figures for these functions, suggesting that these costs were incurred by Telstra, were directly attributable to the ULLS and were not shared with any other Telstra services.

However, the witness statements did not provide sufficient evidence to demonstrate that the costs incurred by Telstra were efficient forward-looking costs in accordance with the TSLRIC methodology, nor did they proffer any basis upon which it could be inferred that such costs were efficient costs.

For instance, in his witness statement in regard to the ULLS enhancement project, **[c-i-c]** describes each enhancement of ULLS undertaken as part of the project and states:

> To my knowledge, this project enhancement was the simplest and cheapest means to changing these systems.[309]

The ACCC does not consider such statements to be adequate for the purpose of demonstrating that the costs incurred by Telstra are efficient nor are such witness

---

[308] Statement of **[c-i-c]** in the matter of undertakings dated 23 December 2005 lodged by Telstra Corporation Limited with the ACCC in respect of ULLS, 3 August 2006.

[309] Statement of **[c-i-c]** in the matter of undertakings dated 23 December 2005 lodged by Telstra Corporation Limited with the ACCC in respect of ULLS, 27 July 2006, p.5

statements sufficient to demonstrate that Telstra is performing as an efficient service provider would.

In a recent Determination, the ACT expressed a clear view on the issues of efficient costs:

> Having regard to the conclusions which we have reached it is not necessary to determine whether Telstra's costs were established as efficient costs. However, we would point out that whenever an access provider seeks approval of an access undertaking from the Commission which involves a consideration of a price term by comparing it with costs, it would be necessary, in order to satisfy the statutory framework, that the access provider establish that its costs are efficient costs.[310]

Whilst Telstra has extensively criticised the CMPI/AAS cost model, as discussed in the earlier section, Telstra has not presented any independent cost studies or international benchmarking studies in support of its cost claims.

Accordingly, the ACCC's final view is that Telstra has not established that its costs are efficient costs.

Conclusion

The ACCC has a number of concerns in relation to the reasonableness of Telstra's claimed capital and operating costs. In particular, the ACCC has regard to the advice of CMPI/AAS as provided in its 2001 report, which questions the efficiency of a number of Telstra's claimed costs.

The ACCC's final view is that, even if Telstra's costs were shown to be efficient, Telstra has not satisfied the ACCC that the proposed undertaking is reasonable. Accordingly, the ACCC does not find it necessary to conduct an audit to consider whether ULLS-specific costs proposed by Telstra are appropriate for the purposes of this decision. If however the ACCC did not, for other reasons, conclude that the undertaking is unreasonable, such an audit would be necessary, consistent with the comments by the ACT set out above.

It is also important to again note that the ACT's recent Determination found that Telstra's proposed cost recovery base was unreasonable. The use of a broader cost recovery base would mean that the ACCC would not be able to accept Telstra's undertaking as reasonable even if it accepted all of Telstra's cost claims.

E.4. ACCC's final conclusions on ULLS specific costs

The ACCC considers that the most significant issue in relation to ULLS specific costs remains that of the appropriate cost recovery base. Even if the ACCC accepted Telstra's claims in relation to the appropriate cost pool, the recovery of specific costs over all CAN lines or all ADSL lines would result in a per service charge substantially below that proposed by Telstra. As such, the ACCC concludes that the price terms and conditions, to the extent they reflect a ULLS lines only cost recovery approach:

---

[310] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, para 46.

- are unlikely to promote the LTIE, as they will not promote competition and will not encourage the economically efficient use of, and investment in infrastructure
- will result in Telstra recovering more than is necessary to promote its legitimate business interests
- would harm the interest of access seekers and the persons who have rights to use the service
- may strictly speaking reflect the direct costs of the ULLS service, but would not do so any more than a broader recovery base, and that the fact that the costs are caused by declaration rather than ULLS users alone supports a wider cost recovery base.

Accordingly, the ACCC's final decision is to reject the ULLS specific costs as claimed by Telstra. The ACCC is not satisfied that the price terms and conditions based on such costs are reasonable.

Appendix F. USO Adjustment

F.1. Introduction

Under the *Telecommunications (Consumer Protection and Services Standards) Act 1999* (TCPSS Act), the Universal Service Obligation ensures that all people in Australia have reasonable access, on an equitable basis, to the standard telephone service and payphones[311]. An industry levy is imposed to create a fund referred to in this section as the Universal Service Fund (USF) to support the cost of the USO, estimated as the Net Universal Service Cost (NUSC).

In the past, deriving the value of the NUSC has been a contentious issue for the Department of Communications, Information Technology and the Arts (DCITA) and the Australian Communications Authority (ACA), (now the Australian Communications and Media Authority (ACMA)). Under the TCPSS Amendment Act (No.2) 2000, a previously fundamental element of USO calculation, avoidable cost less revenue forgone, was not included in the amended legislation. Currently, the Minister for DCITA sets subsidies having regard to the advice of ACMA. More importantly, the technology mix from the NUSC model which Telstra has cited for the USO adjustment is not currently applied to estimate the USF[312].

> A single technology mix has been chosen, consisting of copper cable, global system for mobiles (GSM) and satellite solutions, which is the most cost efficient mix over the three year period.

F.2. Telstra's position

In order to avoid over-recovery of network costs, Telstra has calculated the network costs to be recovered in ULLS access charges as the total estimated CAN costs less the costs of radio based access technologies, inclusive of costs incurred in USO areas, less the value of the USF attributable to copper-based CAN SIOs. It is Telstra's view that an adjustment is appropriate because Telstra receives a subsidy from the Government for costs in providing universal service and therefore access prices need to be adjusted accordingly to avoid over-recovery.

Telstra considers that to attain the USO adjustment relevant for the undertaking, the USF should be pro-rated to the CAN. In order to determine the percentage which should be attributed to the copper CAN, Telstra has relied upon the Australian Communications Authority's (ACA) estimation of the NUSC for 1997-98. The ACA's estimates for 1997-98 are shown in Table 1 below.

Figure 1. ACA Net Universal Service Cost Assessment for 1997-98

Cost component	Share of total USO cost
Copper CAN	23.1%

311 DCITA, http://www.dcita.gov.au/tel/fixed_telephone_services/industry_issues/the_universal_service_obligation_uso

312 ACA, *Universal service subsidies for 2005-08 to 2007-08 proposal paper*, November 2004, p. 7.

Other CAN	49.8%
Bearer	5.3%
Operating Expenses	16.2%
Switch	4.0%
Payphones	1.6%
Claim preparation	0.1%

Although the government has announced the USO subsidies for the years 2005-06, 2006-07 and 2007-08, there are potential difficulties with their use as they do not estimate costs by technology. Consequently, Telstra relies upon these older figures as it believes that:

> The last detailed estimate of the net cost of the USO that allows these individual elements to be identified was undertaken by the Australian Communications Authority ("ACA") for 1997/98.

Through Telstra's response to the ACCC's discussion paper, Telstra indicates that it believes the USO adjustment is the only appropriate adjustment to ULLS network cost due to subsidies received. Additionally, Telstra believes their calculation is appropriate.

> If more recent information were available then this would be more appropriate to use. However, given the USO contributions bear no relation to the underlying costs of providing the USO, Telstra believes the methodology it has used is the most accurate available.[313]

F.3. Potential issues with ACA's 1997-98 report

Further consideration of Telstra's cited report used in the calculation raises a concern with the value of the CAN USO adjustment. Telstra argues that it is the last detailed estimate that identifies the individual technological elements. However, the validity of these numbers is compromised by a number of factors.

Criticisms associated with continued use of the 1997-98 NUSC model to cost the USO have been documented in a 2004 Department of Communications, Information Technology and the Arts (DCITA) report[314].

For example, it was suggested that the sample size used by the NUSC model to determine the subsidy was originally too small and has not changed since the original 1997-98 determination. Similarly, the report emphasised that no account has been taken of how the number of services in operation (SIOs) in specific areas may have changed over time, and the sample is now criticised as unrepresentative.

The model can also be criticised as lacking a well-defined cost function based on distance, density, and terrain in the sampled net cost areas (NCA). The original

---

[313] Telstra's Submission to the 2006 Discussion Paper, p. 35.

[314] DCITA, Attachment H, *Universal Service Obligation and Customer Service Guarantee Review,* 17 June 2004, p. 251.

NUSC sample attempted to encapsulate costs as a function of density and the number of SIOs, ignoring distance and terrain.

The ACA 1997-98 report qualifies its estimates, stating:

> "The NUSC amount is very sensitive to changes in key data inputs such as the opportunity cost of capital, technology choice, installation costs and depreciation rates. Minor changes to these variables will significantly affect the NUSC amount."

As mentioned in the introduction of this chapter, significantly, the original interpretation of the USO subsidy, and specifically the formula (avoidable cost less revenue forgone), has been amended since that ACA report has been written. The change in methodology in setting the NUSC may have negative implications on the integrity of the method of calculation. Furthermore, due to a government cap, the actual value determined in the 1997-98 period is different from the amount estimated in the ACA 1997-98 report.

F.3.1. Comparison of models

There are problems associated with comparing the ACA/ACMA models for the periods 1997-98, 2005-08 and Telstra's PIE II model. Due to an inability on the part of Telstra's PIE II model to report on the way in which it constructs Telstra's 'forward-looking' network in USO regions, comparisons between these models are difficult and should be taken as indicative only. The ACCC does not necessarily prefer one model to another but the differences between the two models do need to be examined, given that Telstra has relied upon both models in estimating its efficient costs of providing the ULLS for the purposes of this undertaking.

Currently, the USO subsidies set by the government are based on ACA /ACMA recommendations and using a new calculation methodology. Although the estimations do not identify individual elements, they do break up the USF into areas and also between payphones and standard telephone services. To give an example of the changes in technology estimation since the ACA 1997-1998 report, a percentage breakdown of current government announced USO subsidies is presented in figure 2. It should be noted that DCITA's 2005-06, 2006-07, 2007-08 figures are trended.

Comparing figures 1 and 2, payphones represent 7.72 per cent of DCITA's USO subsidies in 2005-06 and only 1.8 per cent for ACA's report in 1997-98. This raises concerns about the representativeness of the proposed data source.

Figure 2. A percentage breakdown of DCITA's USO subsidies

	2005–06	**2006–07**	**2007–08**
Payphones	7.72%	8.59%	9.55%
Standard Telephone Service	92.28%	91.41%	90.45%
TOTAL	100%	100%	100%

F.3.2. Telstra's PIE II model technology mix assumptions

In response to the ACCC's request for further information relating to the USO adjustment, Telstra stated that the PIE II model:

> … operates on the basis of exchange areas, and does not contain information regarding whether customers belong to a particular, or any, USO area.[315]

The ACCC therefore concludes that PIE II is highly likely to be incapable of generating the information required for accurate assessment of this adjustment. Telstra did, however, separately provide some information as part of the same request that does allow the ACCC to examine the issue to a more limited extent. This information is about technology assumptions inherent in the PIE II model, detailing SIOs by technology type across Bands.

For the purposes of the following analysis the ACCC has conservatively compared PIE II's Band 3 and 4 regions in aggregate, with USO areas as modelled by the NUSC model. As shown in table 3, in moving from Band 3 to Band 4 there is an increase in SIOs in other technologies in the PIE II model of **[c-i-c]** to **[c-i-c]**.

However, in the ACA model the total number of SIOs connected via technologies other than fixed copper and/or fibre is 211,037[316]. Given that this total is greater than the total of Bands 3 and 4 (**[c-i-c]**) in the PIE II model, it appears that if the area in Bands 3 and 4 are conservatively comparable to the USO area, the PIE II model deploys significantly less alternative technologies in its construction of the CAN. The implications are that the USO adjustment attributable to copper-based connections will be less under the ACA's assumptions than that which would be attributable to copper-based connections in Telstra's PIE II model. As Telstra relies on the PIE II model for estimating the costs of the copper CAN for the purposes of ULLS pricing, it is reasonable to conclude that the use of proportions from this model for attribution of the USF to the ULLS would lead to lower access prices.

Finally, a comparison is made between the average USO subsidy per SIO for a technology in ACA's 1997-98 model and also for Telstra's PIE II model. From Telstra's information, if the USO area is a subset of Bands 3 and 4, the maximum number of radio and satellite SIOs in USO areas can only be **[c-i-c]** and **[c-i-c]** respectively. Assuming that the total number of USO SIOs in ACA's 1997-98 model remains the same, then attributing subsidies to different connection types employed in the PIE II model in accordance with the ACA's proportions gives rise to a **[c-i-c]** subsidy per satellite SIO, **[c-i-c]** per radio SIO and **[c-i-c]** for copper SIOs. This compares to the ACA's estimated subsidy of **[c-i-c]** per satellite SIO, **[c-i-c]** for microwave and WLL and **[c-i-c]** for each copper SIO.

From the analysis, the additional aggregated information indicates there are substantial and material differences in attribution of costs between the ACA 1997-98 report and Telstra's own PIE II model.

Figure 3. Technology mix for Telstra's PIE II model

Services in Operation (SIOs) by technology	Copper Lines	Other Technologies	

[315] Telstra, *Response to request by Commission under section 152BT of the Trade Practices Act 1974 (Cth)*, 13 April 2006, p. 2.

[316] This can be calculated from ACA's 1997-98 technology mix in table 4.

	Copper from the NU	AGH/SCAD (fibre)	Radio	Satellite	Total
Basic Access – Band 3	[c-i-c]	[c-i-c]	[c-i-c]	[c-i-c]	[c-i-c]
Basic Access – Band 4	[c-i-c]	[c-i-c]	[c-i-c]	[c-i-c]	[c-i-c]

Figure 4. ACA's 1997-98 technology mix[317]

Services in Operation (SIOs) by technology	Copper Lines	Other Technologies			
		WLL	Point-to-multipoint microwave	Satellite	Total
USO area	206,549	58,140	36,284	115,613	416,586

Figure 5. Average USO per SIO – actual ACA and Telstra's effective estimate [c-i-c]

Average USO subsidy per SIO	ACA 1997	# of SIOs	Telstra PIE II	Maximum Satellite and Radio	# of SIOs
Copper	[c-i-c]	206,549	Copper and fibre	[c-i-c]	[c-i-c]
WLL	[c-i-c]	58,140	Copper	[c-i-c]	[c-i-c]
Microwave	[c-i-c]	36,284	Radio	[c-i-c]	[c-i-c]
Satellite	[c-i-c]	115,613	Satellite	[c-i-c]	[c-i-c]

The substantial differences in the amount of subsidy which would be attributed to the copper-based CAN and therefore the ULLS if the PIE II model were to be used in a way consistent with the calculation of network costs, rather than the NUSC model, are not surprising. The substantial differences in the way PIE II deploys copper relative to the NUSC model were identified by DCITA in 2004:

> …the technology mix that PIE II uses is not the same as the NUSC mix, PIE II using more copper and fibre in non-urban areas as it builds out the customer access network (CAN) from distribution areas (DAs) or pillars using a minimum spanning tree algorithm, rather than a sampling approach...
>
> According to Telstra's briefings on PIE II, the model does not use satellite until an exchange service area (ESA) has less than 15 services in operation in total, although this is a parameter to the model that can be changed. On the basis of the current parameter setting of 15 services in operation, PIE II is likely to arrive at a higher USO subsidy than

[317] ACA, 1997-1998, p. 11.

> the NUSC model as it is likely to place more copper and fibre based DAs in non built-up areas where the NUSC model would potentially use satellite and mobile technology.[318]

Given that the substantial differences between the NUSC model and the PIE II model have long been a matter of public record, the onus is upon Telstra to explain why, given these differences, it is appropriate to rely upon the technology mix employed by the NUSC model to estimate the appropriate amount of the USF to attribute to the copper-based CAN and therefore the ULLS. The ACCC requested such a reconciliation and justification from Telstra through a s. 152BT request, which for several reasons Telstra declined to provide. Accordingly, given the range of difficulties identified above, and the absence of further information supporting Telstra's preferred approach, the ACCC is not satisfied that the amount of the USF attributed to the ULLS by Telstra's USO adjustment is reasonable.

F.4. Telstra's submission to the Draft Decision

In its submission to the ACCC's Draft Decision, Telstra has indicated that it does not disagree with ACCC in regards to the concerns raised by the ACCC in relation to the ACA 1997-98 report.[319] Moreover, Telstra does not purport to provide any reasons why it would not be more appropriate to use the technology mix in Telstra's PIE II model.

Instead, Telstra asserted that, even if the technology mix in PIE II was used, the maximum deduction from ULLS access prices would be 78 cents per line, rather than the maximum of 31 cents per line Telstra used in its Undertaking.[320] Telstra concluded that even if the further 47 cents per month was deducted, Telstra's undertaking would still be reasonable.

F.5. ACCC's final conclusions on the USO adjustment

Telstra employs PIE II to estimate its network costs but uses proportions from the technology mix utilised in the ACA's 1997-98 NUSC model to estimate the proportion of the USF attributable to the copper-wire CAN, and thus the quantum of the USO adjustment to the PIE II estimate of network costs. It was found that the networks designed by the two models vary substantially, if used together in estimating efficient ULLS unit costs, as proposed by Telstra. As a result, the ACCC is not satisfied Telstra's proposed USO adjustment is reasonable.

While an adjustment based on the technology mix in USO regions utilised by the PIE II would reflect the way in which PIE II builds the network, and be more consistent with Telstra's estimation of network costs, such an adjustment cannot be calculated because PIE II is incapable of producing output on the technology mix utilised in the USO regions of the 'forward looking' network it constructs. The calculation of the proposed adjustment therefore suffers from critical practical difficulties due to

---

[318] DCITA (7 April 2004), Review of the operation of the Universal Service Obligation and Customer Service Guarantee, Attachment K, p. 273.

[319] Telstra's Confidential Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005, p.43

[320] Telstra's Confidential Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charge Undertakings Dated 23 December 2005, p.43

substantial differences in the way in which PIE II builds the network in USO regions relative to the NUSC model, upon which Telstra has relied in calculating the proposed USO adjustment.

Given the ACCC's conclusions regarding the USO adjustment are not material to the ACCC's conclusions regarding the reasonableness of Telstra's proposed monthly charge, it is unnecessary for the ACCC to decisively determine whether the making of a USO adjustment would be reasonable. Even if the ACCC were to determine the reasonableness of making a USO adjustment, any attempt to determine the sensitivity of the ULLS monthly charge to the ACCC's conclusions regarding the reasonableness of Telstra's proposed USO adjustment would be frustrated by the insurmountable difficulties associated with the calculation of the proposed USO adjustment.

Appendix G. Network Modernisation

G.1. Introduction

This appendix contains the ACCC's final assessment of whether the non-price terms and conditions relating to network modernisation are reasonable.

G.1.1. Content of the network modernisation clauses

The network modernisation provisions in the undertaking largely require the ULLS access seeker to agree that Telstra has a right to maintain and upgrade its network and acknowledge that such a maintenance and upgrade may result in the ULLS being truncated or no longer being able to be supplied. Access seekers are also required to acknowledge that in some cases access seeker points of interconnection may have to be moved. Telstra undertakes to provide at least 15 weeks notice of any network modernisation upgrade that will affect the supply of the ULLS (except emergency upgrades).

These provisions are notably different to the network modernisation provisions in Telstra's previous ULLS undertakings.[321]

In the ACCC's discussion paper, it separated the changes into two groups based on the nature of the conditions that the access seeker accedes to.[322]

The first group of changes relates to the conditions that the access seeker "agrees to":

- Previously the access seeker agreed that provision of ULLS did not prevent, limit or restrict Telstra from modernising its network in accordance with agreed terms and conditions.
- The revised clause states that the access seeker agrees that:
  - Telstra has the right to maintain and upgrade its network
  - provision of the ULLS does not prevent, limit or restrict Telstra from maintaining or upgrading its network
  - maintenance and upgrade includes a wide variety of activities, including remediation, reconfiguration, enablement, augmentation, maintenance and repair, and specifically includes decommissioning copper and replacing it with fibre optic cable.

The second group relates to the conditions that the access seeker "acknowledges":

- Previously the access seeker acknowledged that any modernisation may include installing RIMs or CMUXs closer to end users than traditional exchanges, and that access seekers' ULLS might be truncated, that POIs might move to those RIMs or CMUXs and that the deployment class of access seeker equipment might change.
- The revised clause now states that the access seeker acknowledges that:
  - a network upgrade might include installation of a TCAM (Telstra customer access module)[323] closer to end-users than an exchange

---

321 These previous undertakings were submitted to the ACCC on 13 December 2004.

322 ACCC's 2006 Discussion Paper, p. 22.

323 A TCAM is a Telstra device that provides dial tone, ring current and power to the end user, and includes RSS, RSU and IRIM.

- such an upgrade might require truncation of a ULLS, that new access seeker POIs might have to be established at the new TCAMs and that the deployment class of access seeker equipment might change
- a network upgrade might mean that ULLS can no longer be supplied or may adversely affect the quality of the ULLS
- Telstra will provide not less than 15 weeks notice where a ULLS needs to be moved to a new POI or a ULLS can no longer be supplied. An exception is "Emergency network upgrades" for which Telstra does not give a minimum guaranteed level of notice.[324]
- if a network upgrade is such that the access seeker needs to establish a new POI and it does not do so, or if a network upgrade means that a ULLS can no longer be supplied, Telstra has the right to terminate the ULLS and the access seeker must comply with a notice for hand-back.

The ACCC notes that the revised provisions do not contain references to modernisation occurring in accordance with "agreed terms and conditions", which was contained in the network modernisation provisions of the previous Telstra ULLS undertaking. In response to an ACCC information request, Telstra confirmed that this was a reference to terms and conditions in access agreements between Telstra and access seekers and relate to matters such as the description of the service, term of supply, applicable pricing, obligations on the access seeker and network modernisation.[325] That response also confirms that Telstra does not intend that the absence of this reference in the current undertakings means that the undertaking is intended to override the provisions and accordingly at this stage the ACCC does not consider that the omission is significant.

The ACCC notes Telstra's comment that the agreed terms and conditions contain the same terms and conditions relating to network modernisation as are contained in the undertaking. While it could be argued that this may signal an element of access seeker acceptance of the network modernisation terms, the ACCC considers that it must assess the terms in the undertakings on the merits and cannot accept terms it does not consider reasonable even if they have been accepted or not disputed by access seekers in the past.

Similarly, Telstra's response to the draft decision submitted that it disagreed that the network modernisation provisions had changed significantly from previous undertakings.[326]

However, as stated in the draft decision, the ACCC does not consider that the crucial issue is whether there are changes from the previous undertaking or whether those changes are significant. The ACCC needs to assess the current undertaking against the statutory criteria. The fact that the ACCC did not conduct a detailed assessment of the provisions in previous undertaking assessments, where network modernisation

---

[324] An emergency network upgrade is defined as "a network upgrade that is required to protect the security or integrity of Telstra's Network or the health or safety of any person"

[325] Telstra, *Response to request by Commission under section 152BT of the Trade Practices Act 1974 (Cth)*, 13 April 2006, p. 10.

[326] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, p. 76.

was not a significant issue and/or where rejection of the undertaking on other grounds meant that detailed assessment was not required, does not affect this statutory requirement.

G.1.2. Relevance of the network modernisation provisions

As noted by both Telstra[327] and Optus[328], network modernisation provisions in previous ULLS undertakings have not received substantial discussion. Interested parties also did not typically raise the provisions as a significant concern. To some extent this may reflect the fact that substantial network modernisation by Telstra was not considered likely at the time of assessing those undertakings.

The ACCC stated in the draft decision that it considered network modernisation to be a more significant consideration in the current undertaking assessment. This was because Telstra had raised the prospect of upgrading its current network to a fibre-to-the-node (FTTN) network.[329] The ACCC considered that this was significant because of the potential maintenance savings and higher internet speeds for end-user customer. The ACCC similarly considered that such an upgrade was significant because access seekers would face the risk of having equipment, such as DSLAMs, stranded.

Telstra's submission to the draft decision stated that it has significant concerns with references to FTTN in the draft decision, stating that:[330]

- network modernisation has been occurring for some time and network modernisation provisions have been included in undertakings for some time
- that the change in the network modernisation provisions was initiated before, and would occur irrespective of, any Telstra FTTN plans[331]
- Telstra no longer has plans to proceed with a FTTN upgrade.

It is correct that Telstra has recently indicated that it considers that talks between Telstra and the ACCC about the appropriate regulatory environment and treatment for an FTTN upgrade have reached an impasse.[332] As this only occurred on 4 August 2006, the ACCC does not consider that it was inappropriate to make reference to FTTN in the draft decision, given that it is clear that the network modernisation provisions are technologically neutral.

Furthermore, the ACCC rejects the assertion that consideration of FTTN has "significantly tainted"[333] its conclusions. The ACCC notes that the issues considered

---

327 Telstra's Submission to the 2006 Discussion Paper, p. 35.

328 Optus, *Optus submission to Australian Competition and Consumer Commission on Telstra's ULLS undertakings*, March 2006, p. 28.

329 A summary of Telstra's FTTN plans can be found in ACCC, *A strategic review of the regulation of fixed network services—an ACCC discussion paper*, December 2005, p. 48.

330 Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 76-78.

331 **[c-i-c]**, *Statement of* **[c-i-c]**, 28 July 2006, p. 3.

332 Telstra, "Fibre-to-the-node talks discontinued" ASX announcement, 7 August 2006.

333 Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 77.

in a FTTN context are the same issues that occur in more ad hoc upgrades, particularly those involving fibre. The ACCC notes that Telstra's own submission emphasises that the use of fibre optic cable to replace copper is continuing and has been occurring for some time.[334]

The ACCC also considers that the FTTN debate has been relevant in the sense that it has raised access seeker awareness of the potential effect and significance of network modernisation activities and therefore provisions.

In any case the ACCC considers that, while there may now be uncertainty about the occurrence and timing of a FTTN upgrade, significant network upgrades might still take place during the proposed period of operation of the undertakings. As such it is still a relevant consideration. In particular, were the undertakings accepted now, and a FTTN deployment take place some time before 2008, the undertaking clauses would still be in operation and would govern the notice periods provided to access seekers.

The ACCC also considers that the impact of network modernisation is much the same whether it refers to an official large scale FTTN project, or to the smaller scale, more ad hoc upgrades that Telstra has submitted are continuing to occur.[335] The use of fibre would still be expected to provide ongoing maintenance cost savings and allow the provision of faster internet services to customers. Similarly, access seeker equipment in exchanges might be stranded or be needed to be moved deeper into the PSTN network to be used appropriately.

Given the possible implications of fibre deployment, the ACCC continues to consider that the network modernisation provisions in this undertaking require more scrutiny than in the past. The ACCC again notes its comment in the draft decision that the network modernisation provisions do not relate exclusively to any FTTN plans, and also apply to more "ad hoc" modernisation activities.

The ACCC notes that fibre deployment by Telstra may have further implications such as a need for access by access seekers to fibre between Telstra's nodes and access seeker interconnection points in Telstra exchanges or to install infrastructure at nodes, and consequent consideration of issues such as the need to modify the ULLS service description, declare a node-to-exchange backhaul or bitstream service or compensate access seekers for infrastructure that is stranded. However the ACCC considers that within the context of this undertaking assessment it would be inappropriate to pre-empt fuller consideration of such issues and that it should confine its consideration to the undertaking provisions.[336] The ACCC notes that Telstra agrees that it would need

---

[334] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 77.

[335] The ACCC notes in this regard that, for example, Telstra has recently stated that it expects to 'invest heavily in transforming the network and IT base" in the next few years—Telstra, *Financial highlights year ended 30 June 2006, Business transformation on track – tough medicine continues*, 10 August 2006, p. 3.

[336] The ACCC's Strategic Review of the regulation of fixed network services is considering such issues in more depth: ACCC, *A strategic review of the regulation of fixed network services—an ACCC discussion paper*, December 2005, p. 48.

to consult on a large number of issues were it to roll out a FTTN network at some time in the future.[337]

G.2. The ACCC's draft decision

In the ACCC's draft decision, it made the following draft conclusions about Telstra's proposed network modernisation provisions:

- the undertaking provisions would appear to unduly negatively affect the interests of access seekers in that:
  - Telstra provides only 15 weeks notice to access seekers, which leaves access seekers with limited ability to plan infrastructure purchases, technical staff allocations and end-user marketing of new services, and negatively affects access seekers' interests in not having existing assets stranded
  - the absence of good faith obligations and the presence of a wide emergency upgrade exception would appear to allow Telstra to target areas where access seekers are most competitive
- the provisions would appear to go beyond what is necessary to protect Telstra's legitimate business interests in being able to modernise its network
- the provisions do not promote the long-term interests of end-users in that:
  - competition will be damaged if access seekers do not receive adequate notice of modernisation activities and if Telstra is able to modernise in a way that targets access seekers
  - access seeker investment in infrastructure will be impeded.

The ACCC made a draft decision that it could not be satisfied that the network modernisation provisions in the undertaking were reasonable when assessed against the matters in s. 152AH.

G.3. Submissions of interested parties

The ACCC received submissions from both Telstra and Optus on this issue in response to both the discussion paper and draft decision. No other interested parties made a submission on network modernisation.

G.3.1. Telstra

Telstra submitted in its supporting submissions that the changes to the network modernisation provisions:[338]

> …assist access seekers by promoting clarity and certainty around their investment decisions and that the network modernisation provisions, as a whole, strike an appropriate balance between Telstra's need to maintain and update its network and the interests of access seekers in having sufficient notice of changes that will affect them.

Telstra also submitted in its response to the discussion paper that "none of [the] changes place the access seeker in a worse position than that under the network

---

[337] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 78.

[338] Telstra's 2005 Supporting Submission.

modernisation provisions of previous ULLS undertakings"[339] and that the inclusion of an explicit notice period in the current undertaking in particular places the access seeker in a better situation than it would have enjoyed under previous undertakings.

In response to the draft decision, Telstra sought to demonstrate that the network modernisation provisions were reasonable.[340] In addition to submissions in response to the ACCC's assessment of each of the statutory criteria, Telstra submitted that:[341]

- the changes to the network modernisation provisions were unrelated to any FTTN plans, but rather merely reflected past access agreements
- Telstra considers that other provisions of the TPA are enough to constrain any anti-competitive behaviour
- the fact that Optus was the only access seeker to make submissions on the network modernisation provisions reflects the fact that access seekers generally do not have a problem with the proposed terms.

Telstra also included statements from **[c-i-c]** and **[c-i-c]** in support of its submissions**.** In addition to the submissions outlined above, the **[c-i-c]** statement also states that Telstra has plans to provide a notification website that would allow all wholesale customers and Telstra retail business units to access notifications of network upgrades at the same time.[342]

G.3.2. Optus

Optus submitted in its response to the discussion paper that the network modernisation provisions were inconsistent with the reasonableness criteria of the TPA.[343] Optus submitted that the proposed provisions gave too much weight to Telstra's business interests above the other regulatory criteria, and allowed Telstra to make network changes without regard to access seekers rights. Optus also submitted that the provisions were against the long-term interests of end-users and would undermine competition since they would allow Telstra to contract out of its right to supply the declared ULLS.

Optus submitted that rather than the proposed clauses, Telstra should be required to ensure continuity of service for the ULLS or else make alternative access services available, and that modernisation should only be allowed to occur when "absolutely" necessary. Optus submitted that the clauses created an unacceptable level of uncertainty for Optus at a time when it is rolling out ULLS services.

---

339 Telstra's Submission to the 2006 Discussion Paper, p. 38.

340 Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 95.

341 Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 96.

342 **[c-i-c]**, *Statement of* **[c-i-c]**, 28 July 2006, p. 4.

343 Optus, *Optus submission to Australian Competition and Consumer Commission on Telstra's ULLS undertakings*, March 2006, p. 27.

Optus provided a submission on network modernisation in response to the draft decision. That submission repeated Optus' view that Telstra's proposed network modernisation clause should not be accepted:[344]

> The contractual rights sought by Telstra in the Network Modernisation Clause are unacceptable and would allow Telstra to use its significant market power to force competitors to concede valuable market share to Telstra and to undermine competition in the customer access network.

Optus submitted that Telstra was effectively asking the ACCC to concede regulatory oversight of network modernisation to Telstra. It submitted that the ACCC cannot be satisfied that the ULLS undertaking would satisfy the legislative reasonableness criteria if it contains the network modernisation provisions.[345] The submission also contained discussions on what Optus submitted were comparable provisions in three relevant overseas jurisdiction—the UK, Canada and the USA. Optus submitted that the regimes in existence in those countries were far more appropriate for a number of reasons including the preservation of a role for the regulator, the length of notice periods, informational requirements, dispute resolution procedures and presumptions about which party incurs costs.[346]

G.4. ACCC's assessment of the network modernisation clause

In this section, the ACCC considers the network modernisation provisions in light of the reasonableness criteria in section 152AH of the TPA.

G.4.1. Interests of persons who have rights to use the declared service

The ACCC considers that the persons who have rights to use the ULLS will typically be access seekers using the ULLS as an input to supply telecommunications services to end-users. In its draft decision, the ACCC considered that access seekers would typically have interests in:

- being able to compete on their relative merits for end-user customers
- not having assets in Telstra exchanges stranded or being denied the necessary access to Telstra's copper network to allow those assets to be used.

Telstra's response to the draft decision agreed that access seekers appropriately have these interests. However it submitted that it must be noted that access seekers did not have an unlimited right to access copper and use DSLAMs in conjunction with copper.[347] The ACCC agrees that there is no unlimited access seeker right that should be allowed to hold back network modernisation. However it also considers that access seekers retain an interest in being able to use their assets appropriately and being able to deploy new assets and engage in appropriate marketing in response to modernisation activities.

---

344 Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 3.

345 Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 7.

346 Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 10.

347 Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 79.

Notice period

The notice period in the network modernisation provisions is a significant consideration. Clause 6.3 provides that Telstra will provide an access seeker with not less than 15 weeks prior notice of a network upgrade, although the notice period may vary depending on the type of upgrade required.

It is particularly relevant to examine Telstra's proposed clause in comparison to the ACCC's model non-price terms and conditions relating to relocations of facilities.[348] The model terms provided that an access provider may relocate a facility if:[349]

- it gives access seekers an **equivalent notice** to that which it gives itself (and in any case gives not less than 120 business days)
- it consults with the access seeker in **good faith** about any reasonable concerns
- relocation may only occur when it is **reasonably necessary** to do so.

The model terms were considered before widespread fibre rollouts seemed likely. The ACCC notes Telstra's submission that widespread fibre rollout should not be considered when assessing the proposed network modernisation clauses. To the extent that is true, the ACCC considers that the model terms are particularly relevant, but notes that they would also be a useful starting point for consideration of more widespread fibre deployment.

Significantly, the model terms state that access seekers should receive equivalent notice to the access provider. This is not mirrored in Telstra's proposed provisions providing for 15 weeks minimum notice. Furthermore, the ACCC also notes that in any case Telstra's proposed notice is less than the model terms' minimum notice period of 120 business days (or approximately 24 weeks).

A number of different lengths of time have been noted in this undertaking assessment as potentially relevant to determining an appropriate notice period. These include:

- the 15 weeks minimum notice proposed in the undertaking
- the 4 weeks mentioned in the **[c-i-c]** submission as the time to plan and implement a number of network upgrades[350]
- the 84 day period for the forecast of the number of ULLS connections that access seekers must provide to Telstra in making mass network migrations[351] (the ACCC stated in its draft decision that it would expect that such connection work, which does not require the relocation of infrastructure, could be expected to require significantly less notice than network modernisation activities)
- the 20 business day period for notifying actual number of ULLS connections that access seekers must provide to Telstra in making mass network migrations

---

348 ACCC, *Final determination—model non-price terms and conditions,* October 2003, p. 34.

349 Ibid, p. 71

350 **[c-i-c]**, *Statement of* **[c-i-c]**, 4 August 2006, p. 30.

351 Evidence to Senate Environment, Communications, Information Technology and the Arts Legislation Committee, Parliament of Australia, Canberra, 24 May 2005, 101 (Denis Mullane).

- the 2 years that Telstra has submitted in the past is the standard length of time taken for a ULLS connection, which emphasises that the use of this service tends to be long term[352]
- the 7 month notice period for significant but less material upgrades used in the UK, as identified in Optus' submission[353]
- the 6 month notice period for the deployment of fibre networks used in Canada, as identified in Optus' submission[354]
- the requirement to give public notice at the earlier of the date of the "make/buy" point or 12 months before the network modernisation activities used in the USA, as identified in Optus' submission.[355]

The ACCC notes that an alternative to these specified times is the equivalent notice (and in any case gives not less than 120 business days) approach in the ACCC's model terms. Equivalent notice ensures that the interests of access seekers are protected and that they are not unduly disadvantaged compared to Telstra.

The ACCC does not have details on how Telstra's proposed 15 weeks notice compares to the equivalent notice that Telstra would itself have of its modernisation activities.[356] The time periods outlined above suggest that it may depend on the type of network modernisation activity that is taking place. In a large scale upgrade such as a FTTN rollout, the ACCC would expect Telstra to have more than 15 weeks notice of modernisation activities. Telstra has confirmed that this would be the case in its submission to the draft decision.[357] In smaller scale upgrades this might not be necessarily true – the ACCC notes the submission from Telstra that upgrades can be planned and carried out within 4 weeks, although Telstra has also submitted that in the majority of cases it would have more than 15 weeks notice.[358] The ACCC considers that, in the context of a possible major network upgrade, the interests of access seekers are likely to be harmed by the fact that Telstra's undertaking does not state that access seekers will receive the same notice period as Telstra itself receives. The same consideration would apply to more ad hoc upgrades, although a smaller scale or localised upgrade may have a lesser effect on the interests of access seekers. The ACCC notes Telstra's submission that more ad hoc modernisation could be expected to occur on a distribution area basis (ie. affect a small number of lines served from a particular pillar or cabinet) than on an exchange area basis.

---

352 Telstra, *Telstra's submission in support of the ULLS connection charges undertaking dated 13 December 2004*, February 2005, p. 4.

353 Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 11.

354 Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 13.

355 Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 14.

356 However it notes that the 15 weeks is less than the model terms minimum notice period of 120 business days when facilities are relocated.

357 Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 81.

358 Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 80.

If the current network provisions were accepted, the ACCC considers that Telstra has a strong incentive to only provide access seekers with the minimum 15 weeks notice of network upgrades. This is because clause 6.4 of the proposed network modernisation provisions requires access seekers to agree that if they do not take the necessary action (such as moving their points of interconnection) specified in a notice within the notice period, they must hand back the customer to Telstra. It is in Telstra's interests to recover end-user customers from its competitors. Telstra therefore has no incentive to give more than 15 weeks notice as this would make it less likely that it will win back the end-user customer.

The ACCC notes Telstra's submission that it is developing a website that would provide notification of all planned network upgrades to wholesale customers and Telstra retail units.[359] It is possible that such a website might help counter some of the ACCC's concerns about the incentives faced by Telstra to provide no more than 15 weeks notice to wholesale customers. Without significant detail about the website, it is difficult for the ACCC to draw any firm conclusions. However the ACCC notes that it is unclear whether this website would be the first and only source for Telstra retail to obtain information about network modernisation. If not, then the incentives outlined above would continue to exist for Telstra and release of information on the website might be expected to be at 15 weeks from the network upgrade.

The ACCC also notes that such a website, even if it does allow equivalence in the retailing and marketing of new products, does not necessarily ensure equivalence between Telstra and access seekers. This is because Telstra Wholesale would be able to engage in infrastructure planning and building activities before the notification was posted on the website, giving it an advantage over wholesale customers.

Similarly, Telstra has submitted that the operational separation plan for Telstra contains equivalence obligations.[360] While this may help to counter some of the ACCC's concerns, the ACCC notes that at this stage the information equivalence strategies under the operational separation plan are yet to be implemented.[361] It also considers that as the operational separation regime is still relatively new, it may be premature to assume that it would provide a sufficient guarantee of equivalent notice.

Overall, the ACCC considers that a 15 week notice period would be likely to place access seekers at a significant disadvantage compared to Telstra under either a large-scale fibre deployment or the majority of more ad hoc modernisation activities. For a large scale FTTN rollout, it would be expected that Telstra would plan its upgrades and associated product marketing significantly in excess of 15 weeks ahead. Similarly, Telstra's submission indicates that more ad hoc upgrades would typically have more than 15 weeks planning by Telstra. The ACCC considers that access seekers would therefore be disadvantaged as they may not have sufficient time to make the necessary upgrades to ensure continuity of their service or respond to new Telstra offerings. Access seekers would be expected to require significant forward

---

359 **[c-i-c]**, *Statement of* **[c-i-c]**, 28 July 2006, p. 4.

360 Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 80.

361 Senator Helen Coonan (Minister for Communications, Information Technology and the Arts), *Telstra's operational separation plan approved*, 23 June 2006.

planning to move infrastructure such as DSLAMs, or to build new infrastructure such as links to Telstra's new nodes. This would in turn have significant impact on access seekers' ability to compete for end-users and negatively affect their interest in not having their assets stranded.

Accordingly, the ACCC considers that, were this undertaking accepted, access seekers will be relatively disadvantaged compared to Telstra, which will have greater time to plan infrastructure purchases, technical staff allocations and end-user marketing of new services. While Telstra's proposed website and the upcoming informational equivalence requirements of the operational separation plan may mean that equivalent notice is provided, the ACCC considers that at this stage the operation of these mechanisms is uncertain.

The ACCC noted in the draft decision that Telstra's right to receive handback of the ULLS and the end-user customer from access seekers applies as long as the access seeker has not complied with the requirements in the time specified in the notice of network modernisation activities. This would apply equally to access seekers who have commenced but not completed works as it would to access seekers who do not respond to a notice. In such a case, infrastructure which the access seeker had commenced building could be totally stranded. This may give Telstra strong incentives to frustrate the completion of infrastructure by delaying the interconnection with Telstra's facilities, and thus negatively affecting the competitiveness of access seekers.

Telstra's submission to the draft decision strongly rejected this, stating that there was no evidence that such behaviour is or would be likely to take place. It also submitted that its legal obligations would prevent this from occurring.[362] The ACCC continues to believe that, while access seekers could possibly have recourse to court action for breach of these legal obligations, the behaviour would appear to be facilitated by the terms of the undertaking and could have significant implications for the competitiveness and capital expenditure of access seekers. While the ACCC does not consider that this means some sort of handback mechanism should not be allowed, it considers that the combination of this mechanism and insufficient notice periods may create circumstances conducive to such behaviour.

Comparatively, if the undertaking was not accepted, access seekers would be able to seek ACCC arbitration of non-price issues such as the notice period for network modernisation activities. The ACCC would be likely to arbitrate notice period issues in accordance with the equivalent notice in its model non-price terms such that access seekers' ability to compete for end-user customers was not damaged.

The ACCC notes that alternatives may exist to equivalent notice, which may be a difficult concept to realistically assess. It may be more realistic to assess what a reasonable length of time would be for access seekers to be able to make alternative arrangements to the current ULLS arrangements which is based on links to exchanges, and then simply enforce this minimum notice period. The fallback position of 24 weeks in the ACCC's model terms recognises this issue. The ACCC

---

[362] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 81.

considers that 15 weeks would appear to be an insufficient period of time, and also considers that even the back-up notice of 120 business days in the model terms might be insufficient in the context of major infrastructure builds.

The ACCC noted above that Optus' submission to the draft decision contained references to notice provisions in overseas jurisdictions.[363] In addition to the notification periods outlined above, the regimes outlined by Optus also emphasise the value of a fairly detailed network modernisation regime in clearly setting out the respective rights and responsibilities of both access seekers and access providers.

In contrast to Optus' submission, the statement provided by Telstra submitted that the proposed network modernisation procedures had effectively been incorporated in standard access agreements since 2000 without complaint from access seekers.[364] The ACCC considers that while certain access seekers may have been willing to accept the term in negotiated access agreements in the past, the ACCC still cannot approve terms it does not consider appropriate. This is particularly so given that these terms would be imposed on all access seekers. The ACCC also notes the different current industry context compared to 2000 and that Telstra's largest wholesale customer has submitted strong objections to the provisions in this inquiry.

Good faith consultation with access seekers and necessity of modernisation

An issue raised by Optus is the risk that network modernisation might be "implemented for the purpose of sabotaging access plans to use the [ULLS]"[365] and that accepting the clauses would give Telstra the ability to "fundamentally undermine the Optus ULLS based broadband network".[366] The ACCC considers that the risk of this during a large-scale FTTN deployment is probably small (although Telstra has submitted to the draft decision that the possibility of a large-scale FTTN deployment is small). However, it would be open for particular upgrades as part of a large-scale FTTN rollout, or for more ad hoc modernisation activities, to be made such that they provided greater impact to access seeker interests. This could occur through the manipulation of the timing and geographic deployment pattern of network modernisation to target areas where access seekers infrastructure has been employed in Telstra exchanges. The ACCC notes again that clause 6.4 of the proposed network modernisation provisions states that, if an access seeker does not comply with a Network upgrade notice, Telstra has the right to terminate the ULLS.

This concern prompted the inclusion in the ACCC's model terms of the clauses requiring that the access provider "consult with the access seeker and negotiate in good faith in relation to any reasonable concerns of the access seeker" and that "the access provider may re-locate a facility only where it is reasonably necessary to do so".[367] Such requirements would allow Telstra the flexibility to make upgrades for reasons of cost savings or improved services, but not allow upgrades made for the

---

363 Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 10.

364 **[c-i-c]**, *Statement of* **[c-i-c]**, 28 July 2006, p. 4.

365 Optus, p. 28.

366 Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 10.

367 ACCC, *Final determination—model non-price terms and conditions,* October 2003, p. 71.

purpose of harming competitors. The ACCC considers that any network modernisation should be conducted in a way that meets the legitimate interests and plans of the access provider, but does not actively aim to damage competitors' interests.

The ACCC's draft decision raised the possibility that, were the undertaking accepted, Telstra may be able to use network modernisation in a way that would actively work against access seeker interests. For example, this might involve network modernisation occurring in areas where there is the greatest number of ULLS lines currently being taken by access seekers, affecting the access seekers' ability to compete and their interest in not having their investments stranded. The ACCC raised concerns that the terms of the proposed provisions are not premised on any consultation taking place with the access seeker. Rather, the clauses are based on Telstra informing the access seeker of modernisation activities and the access seeker either making the necessary changes to its network infrastructure or the ULLS being cancelled. Comparatively, the ACCC considered that if the undertaking was not accepted, it would be likely to arbitrate consistent with its model non-price terms.

Telstra's response to the draft decision objected to the inclusion of such terms, submitting that they introduced uncertainty and extra costs, and might serve to delay network upgrades.[368] Telstra submitted that the ACCC's power to take action against Telstra under Part XIB or Part IV of the TPA would prevent any anti-competitive conduct, and that any good faith provision would be duplicative. It also agreed with the ACCC's comment that it might practically be difficult for access seekers to enforce an obligation to negotiate in good faith or that modernisation activities must only occur when reasonably necessary, stating that this also meant that Telstra's obligations would be uncertain.

The ACCC firstly repeats its conclusion from the draft decision that legal action by the ACCC might negate the need for "good faith negotiation" or "reasonably necessary" provisions in the terms of the undertaking, but that such legal action would often not be timely. The ACCC also repeats that it does not consider that action under Part XIB or Part IV should be used to correct defects in accepted undertakings – rather the undertaking itself needs to be consistent with the legislative criteria.

The ACCC does not consider that good faith or reasonably necessary obligations are as significant a consideration as those relating to notice periods. However it is still a relevant consideration in assessing the undertakings, given the incentives outlined above. The ACCC notes Telstra's concern that 'reasonably necessary' might impose an overly high hurdle on Telstra's modernisation activities. The ACCC does not consider that this concern is well founded, given that its model terms are only a starting point for arbitral decisions and that further detail could be developed in that context. It also disagrees that a threshold of 'reasonably necessary' is a particularly high threshold. The ACCC also disagrees that consultation with access seekers would imply any proprietary interest of those access seekers in Telstra's network. The obligation recognises access seekers' interests in their own infrastructure and in being able to adapt their own infrastructure in response to network modernisation activities

---

[368] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 83.

with Telstra. The ACCC also does not understand Telstra's claim that negotiations would lead to misuse of information, given that Telstra would be expected to have significant knowledge of access seekers' use of ULLS anyway.

Overall, the ACCC considers that obligations of good faith and a need for modernisation would still be appropriate, but notes Telstra's concerns about the wording of such obligations.

Exemptions from notice periods

Telstra's proposed provisions do not commit Telstra to any notice period for "emergency network upgrades". An emergency network upgrade is defined in the undertaking as:

> …a Network Upgrade that is required to protect the security or integrity of Telstra's Network or the health or safety of any person.[369]

Telstra has submitted to both the discussion paper and the draft decision that the provision "reflects industry standard practice in that such an extensive notice period simply cannot be given in the event of an emergency".[370] [371] The ACCC considers that it is appropriate that there be certain network upgrades where Telstra cannot practically give as much notice as it would typically provide, particularly to the extent that the upgrade is needed to protect the health of safety of any person.[372]

However the ACCC noted in its draft decision that the exemption from notice requirements of any upgrade "required to protect the security or integrity of Telstra's Network" appears to be fairly loose wording and may detract from the interests of access seekers. This would be because Telstra would have an incentive to classify all network modernisation activities as ones that protect the integrity of its network, relieving it of its notice obligations and possibly lead to access seeker services being cut off without notice. Accordingly the ACCC considered that, if the undertaking was accepted, it would be open to Telstra to exploit this exception in a way that damages competition. Comparatively, the ACCC considered that, were the undertaking not accepted, the ACCC would arbitrate network modernisation issues between access seekers and Telstra. It considered that it would be more likely to arbitrate in line with its model terms dealing with suspension and termination of services during an emergency situation, which provide more detail than Telstra's proposed clause.[373]

While Telstra has objected to this ACCC view on the basis that the clause is well understood in industry, the ACCC still considers that Telstra at this stage has not presented evidence to satisfy the ACCC that the currently proposed emergency

---

369 Undertaking, Service schedule x167, p. 2.

370 Telstra's Submission to the 2006 Discussion Paper, p. 38.

371 **[c-i-c]**, *Statement of* **[c-i-c]**, 28 July 2006, p. 4.

372 The ACCC has recognised the need for such an ability in its model non-price terms and conditions – see ACCC, *Final determination—model non-price terms and conditions,* October 2003, p. 72.

373 ACCC, *Final determination—model non-price terms and conditions,* October 2003, p. 72.

network upgrade exception is appropriate.[374] The ACCC does not consider that Telstra's submission provides any further information that could demonstrate the claimed well-understood meaning in the industry and accordingly retains its concerns.

Requirements for content of notices

Optus' submission to the draft decision submitted that there needed to be a requirement for detailed information in any notice that would be provided under a Telstra network modernisation clause.[375] It also submitted that extensive notice content requirements were a characteristic of overseas jurisdictions' network modernisation activities.[376] The ACCC considers that it would be necessary for notices of network modernisation activities to contain sufficient information to allow access seekers to plan for and execute infrastructure builds of their own.

However it notes that Telstra's undertaking is silent on the content of notices. Accordingly the ACCC considers that it would be able to arbitrate on notice content issues both if it accepted the undertaking, and (clearly) if it did not accept the undertaking. As such the ACCC does not regard this as being a significant issue in the undertaking assessment but agrees that detailed notification procedures would be desirable, particularly for a large scale FTTN deployment.

G.4.2. Telstra's legitimate business interests

The ACCC conventionally assesses Telstra's legitimate business interests as being its ability to recover the costs (including a normal commercial cost of capital) of efficiently incurred investments. In considering the non-price network modernisation provisions in Telstra's undertaking, however, the ACCC considers that Telstra's legitimate business interests in the context of network modernisation are more relevantly thought of as its reasonably free ability to perform upgrades to its network. The ACCC considers that it is appropriate that Telstra have the flexibility to alter the underlying structure of its network and that it is not unduly restricted to legacy network arrangements. Upgrades should be allowed both as part of a large-scale FTTN rollout and on a more ad hoc basis.

Notice period

To the extent that Telstra's legitimate business interests relate to its ability to make a normal commercial rate of return on its efficient investments, the ACCC considers that the length of notice given to access seekers will be unlikely to have an effect. The ACCC considers that notice requirements would only harm Telstra's interest in making a commercial rate of return if a prescribed notice period to access seekers was so long that Telstra was limited in the extent to which it could make and use its modernised investments. Telstra has submitted in response to the draft decision that any minimum notice period other than its proposed 15 weeks might mean Telstra

---

[374] The ACT has stated that a party submitting an undertaking bears an "onus of affirmatively proving the reasonableness of the terms and conditions of the undertaking": Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)* [2006] ACompT 4, paragraph 20.

[375] Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 10.

[376] Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 10.

could not efficiently use its investments.[377] Telstra particularly focuses on the minimum 120 business days from the model terms. However, the ACCC has actually argued that equivalent notice is the appropriate benchmark. Accordingly, the ACCC does not consider that Telstra's concerns are well founded. Telstra's legitimate business interests will not be harmed in that it does not have to give any more notice that it already has itself for its planning purposes.

To the extent that Telstra's legitimate business interests extend to being relatively free to perform upgrades to its network, the major limitation in the network modernisation provisions on Telstra is the 15 week notice period for those upgrades that will require an access seeker to take some action to continue to use the ULLS or will prevent the access seeker from obtaining the ULLS at all. The ACCC considers that this notice period is not a particularly onerous restriction on Telstra, given that network modernisation would be expected to be planned a significant period of time beforehand. Accordingly, the ACCC considers that, were the undertaking accepted, Telstra's legitimate business interests would not be unduly harmed.

However, the ACCC considers that the fact that this is the only restriction on Telstra's ability to upgrade its network, and that there is no promise to consult in good faith or only undertake necessary upgrades, may mean that Telstra's network modernisation provisions go beyond what is necessary for the protection of Telstra's legitimate business interests.

In particular, the ACCC considers that, were the undertaking rejected, access seekers might be able to negotiate a different period of notice, or seek ACCC arbitration if they could not come to an agreement with Telstra. As stated above, in such a case the ACCC would be likely to arbitrate in accordance with the principles of its model non-price terms and conditions, requiring that Telstra provide parties with an equivalent notice to that which it provides itself. The ACCC considers that this would be likely to be more than the 15 week minimum notice period included in the undertaking.

Telstra has subsequently provided submissions to the ACCC that certain network upgrades could be expected to take place within 4 weeks. However it has also submitted that any FTTN upgrades and the majority of more ad hoc upgrades would be expected to take longer than its proposed 15 weeks. While Telstra has made reference to "the expected percentage of network upgrades that could be implemented within 15 weeks", the ACCC notes that Telstra has not provided this percentage to the ACCC. In such a situation, it is difficult for the ACCC to properly assess Telstra's claims such that it can be satisfied about the appropriateness of the proposed period. However, the ACCC again notes that equivalent notice should not harm Telstra's legitimate business interests and also notes that evidence presented by Optus tends to suggest that 15 weeks would be a relatively short notice period. Overall the ACCC continues to consider that an increased notice obligation would be unlikely to negatively affect Telstra's legitimate business interests. This is because Telstra's network modernisation activities would be free to go ahead at the planned time, and so its interests in conducting a relatively unfettered modernisation would not be affected. However it would have to provide a more appropriate notice period to

---

[377] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 87.

access seekers, which as stated above would better balance the interests of access seekers and the interests of Telstra.

Other restrictions proposed by Optus

As noted in section G.3, Optus proposed further restrictions in its submission to the discussion paper that it considers should apply were the undertaking not accepted.[378] While consideration of alternative access services (which was raised by Optus in both its submissions) is beyond the scope of this assessment, Optus' other points can be briefly considered.

The ACCC considers that the requirement that upgrades only be allowed to occur when "absolutely" necessary would derogate from Telstra's legitimate business interests that might preclude Telstra from modernisation to provide new services, and only allow modernisation where existing infrastructure was faulty. As discussed above the ACCC considers that "reasonably" necessary would be a better benchmark. In its submission to the draft decision, Optus appeared to agree with the ACCC's position, stating that network modernisation "should be no more than is reasonably required to promote Telstra's legitimate business interests".[379]

The ACCC considers that, in the context of a FTTN upgrade, a requirement to ensure continuity of service would be inappropriate, given that the nature of the upgrade may necessitate a break in the service. To the extent that requiring continuity might mean minimising outage time for services, the ACCC considers that such a requirement might be appropriate. However it considers that, as in any case, Telstra has an incentive to minimise outages for its own end-user customers, and legislative and undertaking clause obligations to treat access seekers in a non-discriminatory way in respect of technical and operation issues, this is unlikely to be a significant issue.

Accordingly the ACCC considers that Optus' proposed restrictions would be unlikely to be enforced by the ACCC in an arbitration. The ACCC notes Telstra's agreement with the ACCC's position in this regard.[380]

Whether modernisation activities might be stalled

The ACCC also considers that, as long as notice periods are appropriate and the upgrade is made for a legitimate purpose, it is in Telstra's legitimate business interests to be able to perform its network modernisation in accordance with its plans and not be unduly delayed in those plans. The ACCC's model terms contain a provision stating that:[381]

> G.11 Notwithstanding any negotiations between the access provider and the access seeker, a re-location proposed by the access provider shall come into effect at the time stated in clause G.9(a), unless the access provider and the access seeker agree otherwise.

where clause G.9 contains the notice provisions.

---

[378] Optus, *Optus submission to ACCC on Telstra's ULLS undertakings,* March 2006, p. 28

[379] Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 10.

[380] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 90.

[381] ACCC, *Final determination—model non-price terms and conditions,* October 2003, p. 72.

The ACCC considers that this is an appropriate principle to apply in this case as well. To require agreement between the access provider and potentially affected access seekers as to all timings for network modernisation activities could potentially stymie any such upgrades indefinitely. The ACCC considers that, as long as sufficient notice is provided, upgrades should generally be allowed to proceed as planned. To that extent, the ACCC does not necessarily agree with Optus' contention that Telstra should not be allowed to make network upgrades if there is "any disagreement" about the costs, timing or systems changes related to network modernisation activity.[382]

Accordingly, the ACCC considers that clause 6.1 of the proposed network modernisation provisions, which requires the access seeker to agree that Telstra has the right to maintain and upgrade its network, and the provision of the ULLS does not prevent it from doing so, is appropriate to protect Telstra's legitimate business interests and achieves an appropriate balance between Telstra's and access seekers' interests.

In the absence of an equivalent clause, the ACCC considers that Telstra's rights would be restricted unduly and its ability to modernise would be unduly restricted. In the absence of the undertaking, and if the ACCC was called on to arbitrate in relation to this matter, it would be likely to arbitrate in accordance with its model terms in order to protect Telstra's legitimate interest to perform upgrades. However, it notes that it considers it appropriate that Telstra engage in good faith discussions with access seekers about their reasonable concerns.

G.4.3. Long term interests of end-users

In determining whether particular terms and conditions in an undertaking promote the long-term interests of end-users (LTIE), the TPA requires the ACCC to consider the extent to which the undertaking terms result in achieving the following:

- the objective of promoting competition in markets for listed carriage services
- the objective of achieving any-to-any connectivity in relation to carriage services that involve communications between end-users
- the objective of encouraging the economically efficient use of, and economically efficient investment in
  - the infrastructure by which listed services are supplied
  - any other infrastructure by which listed services are, or are likely to become, capable of being supplied.[383]

In considering the LTIE criteria, the ACCC considers that the "with or without test" can be a useful aid and has employed it as an aid in the following assessment.

---

[382] Optus, *Optus submission on Telstra's network modernisation clause*, July 2006, p. 5.

[383] The TPA was recently amended to provide for consideration of the efficient investment in any other infrastructure by which listed carriage services are, or are likely to become, capable of being supplied. See the *Telecommunications Legislation Amendment (Competition and Consumer Issues) Act 2005*.

Promotion of competition

Competition is a process of rivalry. The degree to which competition will be promoted by a decision to accept or not accept an undertaking is therefore difficult to forecast. The ACCC accordingly tends to consider the likely effect of competition on such matters as the price, quality and availability of services to end-users. The ACCC considers that in its assessment of the network modernisation provisions it is appropriate to consider to what extent the provisions may improve these outcomes from the end-user's perspective.

As stated above, the proposed network modernisation provisions could have implications for competition in that they appear to give Telstra significantly more notice compared to its competitors of when network modernisation upgrades are likely to occur. To the extent that 15 weeks is insufficient to allow access seekers to plan new infrastructure builds, negotiate new access arrangements and contact their customers, competition will suffer as access seekers will be unable to guarantee the provision of services to end-user customers, reducing their reputation and viability in the market place for end-user customers. The ACCC notes Telstra's submission that access seekers will be able to obtain an alternative service such as wholesale ADSL to protect their viability with end-users.[384] However the ACCC notes that there is no guarantee that alternative access arrangements will necessarily be available, or that any alternative will be of the same type or quality as that provided by the access seeker.[385]

The ACCC also notes its concern that the proposed network modernisation provisions have no restriction on the reasons for Telstra's modernisation activities, potentially creating incentives for Telstra to target areas where competitors have significant customer numbers. This could also have significant detrimental effects on competitors, who would be unable to provide competing services to end-users. In fact, it would be likely that competition would be reduced in areas which had seen the greatest competition to date.

Both large scale network modernisation activities such as a FTTN upgrade and smaller scale ad hoc network modernisation may bring benefits to end-users in the form of improved services. Telstra has submitted that network upgrades will 'increase the range and quality of services available to end-users'.[386] However this will not occur if the provisions in the undertaking prevent a sufficient level of competition developing. Telstra has said that a FTTN network would be capable of providing 12Mbps to all end-users within the network, which is potentially significantly higher than the current lowest entry-level speed in the market of 256Kbps. It has also said that it would achieve reduced maintenance costs. Presumably similar benefits would be derived from more ad hoc upgrades. However end-users will only achieve these benefits if competition is sufficiently strong that Telstra is under an incentive to

---

[384] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 92.

[385] For example, the ACCC notes that Telstra's ADSL offerings currently only offer speeds up to 1.5Mbps, where other access seekers using the ULLS have speeds of up to 24 Mbps.

[386] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 91.

provide higher speeds and lower prices. The ACCC has stated above its concern that Telstra's proposed network modernisation provisions may inhibit competitors' ability to compete for end-user customers. Without adequate notice periods to allow access seekers to negotiate alternative access or roll out necessary infrastructure, or if Telstra can target competitors infrastructure, access seekers would be unable to successfully provide competing services. At least some of the benefits of a FTTN rollout could accordingly be largely lost to end-users if the undertaking were accepted.

The ACCC notes Telstra's submission that any network modernisation in the near future would be likely to relate only to particular distribution areas rather than whole exchange service areas.[387] This may partly reduce the ACCC's concerns. However the ACCC notes that the incentive to perform upgrades and have a greater range of services of a higher quality available in areas which have seen the greatest competition would be likely to remain.

Comparatively, if the undertaking was not accepted, and parties were to negotiate, or the ACCC was to arbitrate, more appropriate notice periods and terms for network modernisation, the ACCC considers that the potential benefits of FTTN rollout would be more readily achieved. This is because competitors would be in a position where they could respond to the more competitive products being supplied by Telstra, and Telstra would have an incentive to actually make those products available. The ACCC also considers that a greater notice period would have no effect on the speed of services that Telstra could deliver under a FTTN structure. Accordingly, the ACCC considers that, if the undertaking was not accepted, and longer notice periods were negotiated or arbitrated by the ACCC, the products potentially available over the FTTN network would be the same as if the undertaking were accepted.

Any-to-any connectivity

The ACCC considers that it is relevant to consider the potential effect of the undertaking on any-to-any connectivity.

In the context of network upgrades, including FTTN upgrades, made while the undertaking was operational, Telstra has two main options to maintain any-to-any connectivity between Telstra's own customers and end-users currently receiving services via access seeker ULLS. Firstly, it could maintain the current copper loops to the exchange so that the access seekers can maintain their current POIs. Alternatively, it can require access seekers to move their POIs to the new nodes, or force the access seekers to hand back the ULLS and the end-user customer to Telstra if the access seeker cannot move their POIs. However the ACCC would expect that based on the terms of the undertaking and its understanding that a significant benefit of fibre upgrades comes from the need to no longer maintain separate copper links, that the second of these possibilities would be more likely. The ACCC has considered the competition implications of this above.

In the absence of any hand-back procedure, it is unclear that end-user customers of access seekers would have their connectivity maintained.

---

[387] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 92.

Accordingly, it would seem to the ACCC that any-to-any connectivity would be preserved by the operation of a hand back mechanism, and that a clause such as that in the undertaking may be appropriate to ensure that any-to-any connectivity is maintained. However it notes its conclusions in other parts of this assessment that such a provision must be accompanied by appropriate provisions relating to matters such as notice periods.

Economically efficient use and investment

The ACCC considers that consideration of the economically efficient use of infrastructure is a concept more relevant to pricing matters, where it is possible to consider whether the price of the ULLS is close to marginal costs of production. However it is possible to consider investment issues in the context of non-price matters such as network modernisation.

The ACCC's assessment of this criterion typically considers the desirability of Telstra making economically appropriate investments to its infrastructure and ensuring that access seekers face appropriate build/buy decisions in acquiring the ULLS. However, in the context of non-price provisions, build/buy issues (which largely rely on cost) are less directly relevant. The ACCC considers that it is therefore difficult to assess whether economically efficient investment will occur in a consideration of non-price provisions. As such, the ACCC considers that its consideration of this criterion must remain reasonably high level.

Infrastructure by which listed services are supplied

In this undertaking assessment, the ACCC considers that the infrastructure by which listed services are supplied relevantly includes the ULLS and the infrastructure, such as DSLAMs and MSANs, used by service providers with the ULLS and by Telstra. The ACCC understands that this is also infrastructure that could be used to provide listed services under a FTTN architecture, albeit possibly with different POIs or additional access services or in certain areas only.

The ACCC recognises that network modernisation provisions which favour Telstra's interests will tend to impede the rollout of infrastructure such as DSLAMs by access seekers, who will be reluctant to run the risk of assets being stranded. Comparatively, provisions which better protect access seeker interests will encourage the rollout of infrastructure such as DSLAMs.

The ACCC, as stated above, considers that acceptance of the proposed network modernisation provisions may unnecessarily harm access seeker interests and go beyond what is necessary to ensure Telstra's legitimate business interests. Accordingly, the ACCC considers that were the undertaking accepted, the investment by access seekers in competing broadband infrastructure might be inhibited. If the undertaking was not accepted, the ACCC considers that this would be less likely to occur. The ACCC considers that more appropriate notice periods and protection from upgrades not made in good faith would encourage rollouts by access seekers. This is because access seekers rolling out infrastructure now would be less likely to have assets stranded and lose end-user customers if they had adequate notice periods to

allow them to move existing infrastructure, install additional infrastructure or make alternative access arrangements.

The ACCC notes Telstra's submission that consideration of Telstra's own DSLAM network should also be considered.[388] The ACCC agrees with this submission and considers it more relevant in light of Telstra's professed intention not to continue with a FTTN deployment. The ACCC notes that Telstra has submitted that increased notice periods might affect its ability to make commercial return on investment. However the ACCC again reiterates that it does not consider that equivalent notice would lead to this situation.

Any other infrastructure by which listed services are, or are likely to become, capable of being supplied

In this undertaking assessment, the ACCC considers that the infrastructure by which listed services are, or are likely to become, capable of being supplied relevantly includes Telstra's proposed FTTN infrastructure and also other infrastructure that might be deployed as part of more ad hoc modernisations.

Network modernisation provisions which favour Telstra's interests will tend to encourage investment by Telstra. The ACCC has stated above that the provisions of the undertaking create incentives for Telstra to rollout new infrastructure not only for the reasons of cost savings and improved services, but also for inhibiting competition. Accordingly, it could be argued that the provisions provide strong incentives to Telstra to roll out infrastructure. However, to the extent that the provisions create incentives for investment that inhibits competition, the ACCC considers that this would be likely to be inefficient investment.

If the undertaking was not accepted, as stated previously, the ACCC considers that in an arbitration it would be likely to arbitrate consistently with its model terms and conditions. The ACCC considers that such an arbitral decision would better recognise access seeker interests but would not detract from Telstra's interest in performing upgrades to its network. Accordingly, the ACCC does not consider that not accepting the undertaking would inhibit the rollout of infrastructure. While certain of Telstra's incentives may be reduced, the ACCC considers that the deployment of efficiently invested infrastructure would not be prevented.

ACCC conclusion on the LTIE

The ACCC considers that the network modernisation terms and conditions do not promote the long term-interests of end-users in that:

- competition will be damaged if access seekers do not receive adequate notice of modernisation activities and if Telstra is able to modernise in a way that targets access seekers
- access seeker investment in infrastructure will be impeded.

---

[388] Telstra, *Response to the Commission's draft decision on Telstra's ULLS monthly charges undertakings dated 23 December 2005*, August 2006, pp. 93.

G.4.4. Direct costs

The ACCC does not consider that this criterion is relevant to consideration of non-price terms and conditions.

G.4.5. Operational and technical requirements

The ACCC does not consider that this criterion is particularly relevant to consideration of the network modernisation provisions. However, it notes that the reliable operation of access seeker services could be affected if access seekers have insufficient notice periods to allow them to build appropriate infrastructure or negotiate appropriate access arrangements. The ACCC also notes that the inclusion of some type of 'emergency network upgrade' section would be presumably necessary for the reliable operation of Telstra's PSTN, but notes its concerns above at G.4.1 that Telstra's particular clause appears to be widely worded.

G.4.6. Economically efficient operation

The ACCC considers that consideration of this criterion is the same as consideration of the economic efficiency criteria in its consideration of the LTIE.

G.5. ACCC's final conclusions on network modernisation

The ACCC has considered Telstra's proposed network modernisation provisions against the regulatory criteria and confirms its draft conclusions:

- the undertaking provisions would appear to unduly negatively affect the interests of access seekers in that:
  - Telstra provides only 15 weeks notice to access seekers, which leaves access seekers with limited ability to plan infrastructure purchases, technical staff allocations and end-user marketing of new services, and negatively affects access seekers' interests in not having existing assets stranded
  - the absence of good faith obligations and the presence of a wide emergency upgrade exception would appear to allow Telstra to target areas where access seekers are most competitive
- the provisions would appear to go beyond what is necessary to protect Telstra's legitimate business interests in being able to modernise its network
- the provisions do not promote the long-term interests of end-users in that:
  - competition will be damaged if access seekers do not receive adequate notice of modernisation activities and if Telstra is able to modernise in a way that targets access seekers
  - access seeker investment in infrastructure will be impeded.

It is necessary for the ACCC to consider each of its conclusions on the regulatory criteria in determining whether it considers that the network modernisation provisions are reasonable or not.

The ACCC considers that it is not satisfied that the network modernisation provisions in the undertaking are reasonable. It considers that Telstra has not satisfied the "onus of affirmatively proving the reasonableness of the terms and conditions of the

undertaking" relating to network modernisation.[389] Provisions requiring the access seeker to acknowledge Telstra's rights to modernise its services, requiring the access seeker to make changes to POIs and infrastructure, and requiring hand-back of services in certain circumstances are not inappropriate per se and could reflect an appropriate system for modernisation of a telecommunications network. However the ACCC considers that the details of the provisions submitted by Telstra mean that the ACCC is not satisfied that the network modernisation provisions are reasonable.

The ACCC notes that issues surrounding network modernisation are inherently complex. It considers that such clauses would more usually be determined by bilateral commercial negotiation or by agreed operational procedures through self-regulatory mechanisms.

[389] Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556)*, [2006] ACompT 4, paragraph 20.

Appendix H. Section 152CGA Specification of Documents

For the purposes of section 152CGA, the documents that the ACCC examined in the course of making its decision are specified in this section.

Below is a list of submissions that have been submitted to the ACCC and were examined by the ACCC as part of this undertaking assessment.[390]

Many of these documents contain confidential information. Where this is the case, the document title has been marked with an asterisk (*). In most cases public versions of documents are available, and confidential versions may be accessed subject to appropriate confidentiality undertakings with the owner of the information.

H.1. Telstra submissions in support of the undertaking

(*) Bowman, R. G., *Report on the Appropriate Weighted Average Cost of Capital for ULLS and SSS, Prepared for Telstra*, Annexure C to Telstra's Supporting Submission, December 2005.

(*) Bowman, R. G., *Report on the Appropriate Weighted Average Cost of Capital for the ULLS Network, Prepared for Telstra*, Annexure C to Telstra's Supporting Submission, December 2005.

(*) Mitchell, B.M., *Appropriateness of Telstra's 2005 Cost Modelling Methodology*, Annexure D to Telstra's Supporting Submission, December 2005.

Telstra, *Attachment A to the Undertakings – Service Schedule x167 – Telstra Unconditioned Local Loop Service – Definitions*, December 2005.

(*) Telstra, *Telstra's Submission in Support of the ULLS Monthly Charges Undertakings Dated 23 December 2005*, 23 December 2005.

H.2. Submissions in response to the ACCC's discussion paper

The following submissions were received in response to the ACCC's discussion paper which was released on 31 January 2006.

H.2.1. AAPT

Hathaway, N., *Telstra's WACCs for Network ULLS and the ULLS and SSS Businesses—Review of Reports by Prof. Bowman*, Capital Research, 15 March 2006.

H.2.2. Austar

Austar United Communications Limited, *Response to ACCC Discussion Paper—Telstra's Undertakings for the Unconditioned Local Loop Service*, March 2006.

[390] These submissions may refer to other submissions to earlier core services undertaking assessments or model price determinations. Although not necessarily be listed here, public versions of these documents are likely to be available on the ACCC's website.

H.2.3. Competitive Carriers Coalition

CCC, *Submission in Response to Telstra Undertakings for the ULLS*, 28 March and 5 May 2006.

Marsden Jacob Associates, *Averaging vs. De-averaging—A Report Prepared by Marsden Jacob Associates for the Competitive Carriers Coalition*, 28 March 2006.

(*) Marsden Jacob Associates and Europe Economics, *Comments on Discussion Paper—Telstra's Undertaking in Relation to the Unconditioned Local Loop Service*, 4 May 2006.

H.2.4. Optus

(*) Optus, *Optus Submission to Australian Competition and Consumer Commission on Telstra's ULLS Undertakings*, March 2006.

H.2.5. Telstra

(*) Bowman, R.G., *Report on WACC in Response to ACCC Draft Decision on ULLS and SSS, Prepared for Telstra Corporation Limited*, September 2005.

(*) Ergas, H., *Response to Inaccurate Citations by the ACCC of Previous Expert Reports by Henry Ergas*, CRA International, September 2005.

(*) Mitchell, B.M., *Commentary on Network Costs Section of ACCC Draft Decision*, 29 September 2005.

(*) Sidak, G., *Expert report of J. Gregory Sidak*, 22 September 2005.

(*) Telstra, *Telstra's Response to the ACCC's Draft Decision on Telstra's ULLS and LSS Monthly Charges Undertakings*, 23 September 2005.

(*) Telstra, *Telstra's Submission in Response to the Australian Competition and Consumer Commission's Draft Decision on Telstra's ULLS and LSS Monthly Charges Undertakings, Annexure A, Background*, 23, September 2005.

(*) Telstra, *Telstra's Submission in Response to the Australian Competition and Consumer Commission's Draft Decision on Telstra's ULLS and LSS Monthly Charges Undertakings, Annexure B, ULLS and LSS Specific Costs*, 23 September 2005.

(*) Telstra, *Telstra's Submission in Response to the Australian Competition and Consumer Commission's Draft Decision on Telstra's ULLS and LSS Monthly Charges Undertakings, Annexure D, Network Costs*, 23 September 2005.

(*) Telstra, *Telstra's Submission in Response to the Australian Competition and Consumer Commission's Draft on Telstra's ULLS and LSS Monthly Charges Undertakings, Annexure F, Response to Access Seekers Submissions*, 10 October 2005.

(*) Telstra, *Telstra's Submission in Response to the Australian Competition and Consumer Commission's Draft Decision on Telstra's ULLS and LSS Monthly Charges Undertakings, Annexure G, Previous Submissions*, 23 September 2005.

(*) Telstra, *Telstra's Submission in Response to the Australian Competition and Consumer Commission's Discussion Paper in Respect of ULLS Dated January 2006*, 14 March 2006.

(*) **[c-i-c]** *Second Statement of **[c-i-c]***, 20 September 2005.

(*) **[c-i-c]** *Statement of **[c-i-c]*** 29 September 2005.

(*) **[c-i-c]** *Statement of **[c-i-c]***, 29 September 2005.

(*) **[c-i-c]** *Second Statement of **[c-i-c]***, 23 September 2005.

H.2.6. Western Australian Department of Industry and Resources

Western Australian Department of Industry and Resources, Telstra's Unconditioned Local Loop Service Monthly Charge Undertaking, March 2006.

H.3. ACCC's draft decision

ACCC, A*ssessment of Telstra's ULLS monthly charge undertaking—draft decision*, June 2006.

H.4. Submissions provided in response to the ACCC's draft decision

H.4.1. Austar

Austar, *Response to the ACCC's Draft Decision on Telstra's ULLS Monthly Charge Undertaking*, 18 July 2006.

H.4.2. Competitive Carriers Coalition

Competitive Carriers' Coalition Inc., *Submission in Response to Telstra Undertakings for the ULLS*, 7 July 2006.

H.4.3. Optus

Attenborough, N. and Sharma, Y., *Assessment of the PIE II Model: A Report for Optus*, National Economic Research Associates, July 2003.

Frontier Economics, *Telstra's ULLS Undertaking – Impact of average ULLS Charges on Promotion of Competition: A Report Prepared for Optus*, July 2006.

Hird, T., *Role of TSLRIC in Telecommunications Regulation: A Report for Optus*, National Economic Research Associates, July 2003.

Kalmus, P. and Sorensen, S., *Comments on PSTN Conveyance – Costs in PIE II: A Report for Singtel Optus,* National Economic Research Associates, March 2004.

Ockerby, J., *Response to a Report on the appropriate weighted average cost of capital for the ULLS network by Professor Bowman dated December 2005*, 12 April 2005.

Optus, *Optus Submission to the Australian Competition and Consumer Commission on The Interaction between Retail Pricing Parity Obligations and Deaveraged ULLS Pricing*, February 2006.

Optus, *Optus Submission to the Australian Competition and Consumer Commission on Telstra's PIE II Model*, May 2006.

Optus, *Optus Submission on ACCC Draft Decision on ULLS Monthly charge undertaking – Confidential version*, July 2006.

Optus, *Optus submission on Telstra's network modernisation clause*, July 2006.

Optus, *Confidential response to Telstra's comments on the impact of ULLS price averaging on access seeker plans*, 11 August 2006.

Optus, *Optus comments on Telstra's post 21 July submissions to the ACCC's of Telstra's ULLS undertaking*, August 2006.

H.4.4. Network Strategies

Network Strategies, *An accurate assessment of the comparative costs of wireless access technologies in Australia: Report to ACCC*, 7 July 2006.

H.4.5. Telstra

Australian Communications Industry Forum, Untitled, April 2005.

Bowman, R.G., *Telstra's WACCs for Network ULLS and the ULLS and SSS Businesses - A Reply to Jason Ockerby's "Response to a Report on the appropriate weighted average cost of capital for the ULLS network by Professor Bowman dated December 2005": Prepared for Telstra*, 27 July 2006.

Bowman, R.G., *Telstra's WACCs for Network ULLS and the ULLS and SSS Businesses - A Reply to A/Prof Neville Hathaway "Review of Reports by Prof. Bowman": Prepared for Telstra*, July 2006.

Bowman, R.G., *Response to ACCC's Draft Decision on Telstra's ULLS Network Undertaking: Prepared for Telstra*, August 2006.

Ernst & Young, *Best Practices In Accounting For The Costs Of Developing Or Obtaining Internal-Use Software*, 29 June 1999.

Ernst & Young, *Global Telecom Depreciation Survey*, October 2002.

Mitchell, B.M., *Appropriateness of Telstra's Cost Modelling Methodology – Confidential Version*, 28 May 2003.

Mitchell, B.M., *Commentary on Network Costs Section of ACCC Draft Decision: Report Prepared for Telstra Corporation Limited*, CRA International, 29 September 2005.

Mitchell, B.M., *ULLS Supplemental Commentary: Report Prepared for Telstra Corporation Limited*, CRA International, 14 August 2006.

Mitchell, B.M., *ULLS Commentary on Marsden Jacob Associates and Analysis Submissions: Report Prepared for Telstra Corporation Limited*, CRA International, August 2006.

Mitchell, B.M., *ULLS Commentary on NERA/Optus Submissions: Report Prepared for Telstra Corporation Limited*, CRA International, August 2006.

Mitchell, B.M. and Kennet, M., *Confidential Commentary on PIE II Model Assumptions: Final Report Prepared for Telstra*, CRA International, May 2005.

Potter, M., *Telstra Corporation Ltd.: Confidential Report on the Appropriateness of Demand Assumptions*, Axiom Forensics, 15 April 2005.

Potter, M., *Telstra Corporation Ltd.: Report on Timing of Capital Expenditure and Demand in Telstra's ULLS Specific Costs Model*, Axiom Forensics, 15 August 2006.

PricewaterhouseCoopers, *Telco Network Service Lives*, March 1999.

PricewaterhouseCoopers, letter re: *Telco Capitalised Software Expenditure*, 23 August 1999.

Sappington, David, *Expert Report of David E. M. Sappington on ULLS-Specific Cost and Payment Reconciliation*, July 28 2006.

Sappington, David, *Expert Report of David E. M. Sappington on the Merits of Uniform ULLS Prices*, July 28 2006.

Sappington, David, *Assessment of Frontier Economics' Report on Telstra's ULLS Undertaking, by David E. M. Sappington*, August 10 2006.

Sappington, David, *Expert Report of David E. M. Sappington on the Appropriate Incidence of ULLS-Specific Costs*, July 28 2006.

Sappington, David, *Supplemental Statement of David E. M. Sappington*, August 10 2006.

Telstra, *Telstra's Confidential Response to the Commission's Draft Decision on Telstra's ULLS Monthly Charges Undertakings dated 23 December 2005*, 7 August 2006.

Telstra, *Telstra's Confidential Submission in Response to the CCC Submissions dated 5 May 2006*, 9 August 2006.

Telstra, *Confidential Telstra Submission in Support of the ULLS Specific Costs Model in the Matter of the ULLS Monthly Charges Undertakings dated 23 December 2005*, 10 August 2006.

Telstra, *Telstra's Confidential Response to the Optus Submission on Telstra's Network Modernisation Clause dated July 2006*, 10 August 2006.

Telstra, *Telstra's Confidential Response to the Optus Submission to the Australian Competition and Consumer Commission on Telstra's ULLS Undertaking dated March 2006*, 17 August 2006.

Telstra, letter re: *Telstra's 2006/08 ULLS Undertakings*, 21 July 2006.

Telstra, letter re: *Telstra's 2006/08 ULLS Undertakings*, 25 July 2006.

Telstra, letter re: *Telstra's 2006/08 ULLS Undertakings*, 27 July 2006.

Telstra, letter re: *Telstra's 2006/08 ULLS Undertakings*, 28 July 2006.

Telstra, *Telstra's Confidential Submission in Response to the Analysys Report*, 21 August 2006.

Telstra, *Confidential Telstra Supplementary Submission in Relation to Price in the Matter of Telstra's ULLS Monthly Charges Undertakings dated 23 December 2005*, 21 August 2006.

Telstra, *Telstra's Response to the NERA Submission to the Australian Competition and Consumer Commission called: Assessment of the PIE II Model – A Report for Optus – July 2003*, 21 August 2006.

Telstra, *Telstra's Response to the Optus Averaging Submission to the Australian Competition and Consumer Commission on: The Interaction Between Retail Pricing Parity Obligations and Deaveraged ULLS Pricing dated February 2006*, 22 August 2006.

Telstra, *Confidential Telstra Supplementary Submission in the Matter of the ULLS Monthly Charges Undertakings dated 23 December 2005*, 22 August 2006.

Telstra, *ULLS Specific Costs August FINAL.xls* (Microsoft Excel Spreadsheet).

Telstra, *Telstra Regulatory Briefing*, 1 December 2005.

Telstra, *Telstra Regulatory Briefing Transcript*, 2 December 2005.

Telstra, *Transcript from Analysts Question and Answer session—Telstra Investor Day*, 16 November 2005.

Telstra, *Telstra CEO Speech and request to end trading halt*, 15 November 2005.

Telstra, *Transcript of presentation by Chief Operations Officer at the Telstra Investor Day*, 15 November 2005.

Telstra, *Transcript from Media Question and Answer session—Telstra Investor Day*, 16 November 2005.

Telstra, *Transcript from Telstra Technology Briefing*, 17 November 2005.

Telstra, *Telstra Technology Briefing*, 16 November 2005.

[c-i-c] Statement of **[c-i-c]**, 3 August 2006 (including attachments and annexures).

(*) **[c-i-c]** Statement of **[c-i-c]**, 3 August 2006 (including annexures).

(*) **[c-i-c]** Supplementary Statement of **[c-i-c]**, 11 August 2006 (including annexures).

(*) **[c-i-c]** Statement of **[c-i-c]**, 25 May 2005.

(*) **[c-i-c]** Statement of **[c-i-c]**, 28 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 23 June 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 1 August 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 9 August 2006.

(*) **[c-i-c]** Supplementary Statement of **[c-i-c]**, 21 August 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 28 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 21 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 28 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 21 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 28 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 27 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 26 July 2006 (including annexures).

(*) **[c-i-c]** Supplementary Statement of **[c-i-c]**, 4 August 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 2 August 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 21 July 2006 (including annexures).

(*) **[c-i-c]** Statement of **[c-i-c]**, 4 August 2006 (including annexures).

(*) **[c-i-c]** Statement of **[c-i-c]**, 26 July 2006.

(*) **[c-i-c]** Supplementary Statement of **[c-i-c]**, 4 August 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 25 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 21 July 2006.

(*) **[c-i-c]** Statement of **[c-i-c]**, 21 August 2006.

H.5. Past ACCC reports and decisions

ACCC, *Access Pricing Principles – Telecommunications*, July 1997.

ACCC, *Access Arrangement by Transmission Pipelines Australia, Final Decision*, October 1998.

(*) ACCC, *Assessment of Telstra's Undertaking for Domestic PSTN Originating and Terminating Access – Final Decision*, June 1999.

ACCC, *Declaration of Local Telecommunications Services*, July 1999.

ACCC, *Telecommunications services—declaration provisions: a guide to the declaration provisions of Part XIC of the Trade Practices Act*, July 1999.

ACCC, *NSW and ACT Transmission Network Revenue Caps 1999/00-2003/04 – Decision*, 25 January 2000.

ACCC, *A Report on the Assessment of Telstra's Undertaking for the Domestic PSTN Originating and Terminating Access Services*, July 2000.

ACCC, *Final Decision on GasNet Australia Access Arrangement Revisions for the Principal Transmission System*, 13 November 2002.

ACCC, *Telecommunications Market Indicator Report 2002-03*, June 2004.

(*) ACCC, *Final Determinations for Model Price Terms and Conditions for the PSTN, ULLS and LCS Services*, October 2003.

ACCC, *Final Determination—Model Non-Price Terms and Conditions*, October 2003.

ACCC, *Section 152ATA Digital Pay TV Anticipatory Individual Exemption Application lodged by Foxtel Management Pty Limited*, December 2003.

ACCC, *Decision: Statement of Principles for the Regulation of Electricity Transmission Revenues- Background Paper*, 8 December 2004.

(*) ACCC, *Assessment of Telstra's undertakings for PSTN, ULLS and LCS – Draft Decision*, October 2004.

(*) ACCC, *Assessment of Telstra's undertakings for PSTN, ULLS and LCS – Final Decision*, December 2004.

ACCC, *Telstra's Undertakings for the Unconditioned Local Loop Service— Discussion Paper*, January 2005.

ACCC, *ACCC telecommunications reports 2003-04*, March 2005.

ACCC, *ACCC telecommunications reports 2004-05*, June 2006.

ACCC, *Final Decision for NSW and ACT Transmission Network Revenue Cap, TransGrid 2004-05 to 2008-09*, 27 April 2005.

(*) ACCC, *Telecommunications Infrastructure in Australia 2004*, June 2005.

(*) ACCC, *Assessment of Telstra's ULLS and LSS Monthly Charge Undertakings— Draft Decision*, August 2005.

(*) ACCC, *Assessment of Telstra's ULLS and LSS Monthly Charge Undertakings— Final Decision*, December 2005.

ACCC, *A strategic review of the regulation of fixed network services—an ACCC discussion paper*, December 2005.

ACCC, *Current Cost Accounting Report Relating to Accounting Separation of Telstra for the Half Year to June 2005*, December 2005.

ACCC, *Declaration inquiry for the ULLS, PSTN OTA and CLLS—final determination*, July 2006.

ACCC, *Local Services Review—final decision,* July 2006.

H.6. Past Telstra submissions and reports

(*) Ergas, H., *Expert Report on Access Deficit*, CRA International, May 2005.

(*) Ergas, H., *Expert Report on Recovery of ULLS Specific Costs*, CRA International, May 2005.

(*) Telstra, *Telstra's detailed submission in support of its PSTN OTA and LCS undertaking dated 9 January 2003*, 31 July 2003.

Telstra, *Submission in support of the Undertaking for Domestic PSTN Originating and Terminating Access – Part A: Economic Submission*, 6 May 1998.

Telstra, *Submission in response to ACCC discussion paper entitles Local services review 2005*, 28 June 2005.

(*) Telstra, *Submission in Response to the Australian Competition and Consumer Commission's Discussion Paper in Respect of ULLS Received March 2005*, 27 May 2005.

Telstra, *Submission to the Australian Competition and Consumer Commission—Response to the ACCC position paper on a strategic review of the regulation of fixed network services,* July 2006.

Telstra, *Submission to the Australian Competition and Consumer Commission—Response to the ACCC proposal—"A strategic review of the regulation of fixed network services",* February 2006.

(*) Telstra, *Telstra's Submission in Support of the ULLS Connection Charges Undertaking dated 13 December 2004*, February 2005.

Telstra, *Telstra's submission in response to the Local Services review*, April 2006.

Telstra, *Annual Report as at 30 June 2004*, August 2005.

(*) Mitchell, B.M. and Kennet, M., *Confidential Commentary on PIE II Model Assumptions: Final Report Prepared for Telstra*, CRA International, May 2005.

H.7. Additional information examined by the ACCC

The following is the list of additional information examined by the ACCC in reaching the final decision on Telstra's ULLS monthly charge undertaking:[391]

[391] This may not necessarily be a complete list of information provided to the ACCC or information referred to by the ACCC. Other information may be referred to in the body of the decision itself.

- AAPT, *Submission by AAPT Limited to the Australian Competition and Consumer Commission in response to Telstra's Unconditioned local loop service and Telstra's undertakings for the line sharing service discussion papers March 2005,* May 2005.
- ACCC, *Re: ULLS monthly charges undertaking for the period 1 January 2006 to 30 June 2008 (Undertaking) —request for further relevant information*, 23 March 2006.
- ACCC, *WACC variable supporting calculations and Bloomberg data*, August 2006.
- ACCC, *WACC variable supporting calculations and Bloomberg data*, August 2006 (Microsoft Excel Spreadsheet).
- ActewAGL, *Response to Draft Report (ICRC)*, 24 December 2003.
- ACIF, C559:2005, *Uncondiitoned Local Loop Service (ULLS) Network Deployment Rules.*
- Allen Consulting Group, *Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities, Final Report for the ACCC*, July 2002.
- Allen Consulting Group, *Debt and Equity Raising Transaction Costs – Report to the Australian Competition and Consumer Commission*, December 2004.
- Allen Consulting Group Dandolo Partners, *A Competitive Model for National Broadband Upgrade*, 10 July 2006.
- (*) Analysys, *Comparative Costing of Wireless Access Technologies—Final Report for the ACCC*, 5 May 2006.
- (*) Analysys, *Comparative Costing of NGN Fibre Access Networks in Australia—Final Report for the ACCC*, 5 May 2006.
- (*) Analysys, *Impact on Telstra costs*, 11 August 2006, (Microsoft Excel spreadsheet).
- (*) Analysys, *Wireless Access model*, version 2, 11 August 2006, (Microsoft Excel spreadsheet).
- (*) Analysys, *Review of Specific Issues in Telstra's PIE II Model: Report for the Australian Competition and Consumer Commission,* 24 May 2006.
- Armstrong, M. "Access Pricing, Bypass and Universal Service*", American Economic Review, Papers and Proceedings* 91(2), May 2001.
- Armstrong, M. and Sappington, D. E. M., "Regulation, Competition, and Liberalization*"*, *Journal of Economic Literature*, Vol. XLIV, June 2006.
- Australian Competition Tribunal, *Application by GasNet Australia (Operations) Pty Ltd, [2003] ACompT 6*, 23 December 2003.
- Australian Competition Tribunal, *Telstra Corporation Limited (ACN 051 775 556), [2006] ACompT 4*, 2 June 2006.
- Bieler , D. and Nicoletti, S., *Regulation of Cost of Capital in the European Fixed-line Telecoms Sector*, Ovum, 22 February 2006.
- Bloomberg, *MSCI index MM700001, MSCI Capital Market Global.*

- Bowman, R., *Estimating the Market Risk Premium*, JASSA, Iss 3, Spring 2001.
- Brealey, R. and Myers, S., *Principles of Corporate Finance* (7th ed), McGraw-Hill/Irwin, Boston, 2003.
- Bush et al, *Computer modeling of the local telephone network*, October 1999.
- Cannavan, D., Finn, F. and Gray, S., *The Value of Dividend Imputation Tax Credits in Australia*, Journal of Financial Economics, v 73(1), 2004.
- Cave, M. E., Majumdar S. K. and Vogelsang I., *Handbook of Telecommunications Economics,* Volume 1: Structure, Regulation and Competition, 2002.
- Chen, N., Roll , R. and Ross, S., *Economic Forces and the Stock Market*, Journal of Business, 1986.
- CMPI and AAS, *Review of Telstra's ULLS-specific Costs – Draft Report*, 2001.
- CMPI and AAS, *Review of Telstra's ULLS-specific Costs – Final Report*, 12 October 2001.
- Costello (Treasurer) and Minchin (Minister for Finance and Administration), *2006-07 Budget Paper No 1 – Budget Strategy and Outlook 2006-07*, Commonwealth of Australia, Canberra, 9 May 2006.
- Damodaran, A., *Estimating Risk Parameters, Leonard N. Stern School of Business*, New York University.
- Damodaran, A., US company data. URL: http://www.stern.nyu.edu/~adamodar/pc/datasets/compfirm.xls. Accessed 13 June 2006.
- Damodaran, A., Australia, New Zealand and Canada company data. URL: http://www.stern.nyu.edu/~adamodar/pc/datasets/restcompfirm.xls. Accessed 13 June 2006.
- DCITA, *Universal service obligation (USO)* http://www.dcita.gov.au/tel/fixed_telephone_services/industry_issues/the_universal_service_obligation_uso, accessed 14 June 2006.
- DCITA, *Review of the operation of the Universal Service Obligation and Customer Service Guarantee*, 7 April 2004.
- DCITA, *Universal Service Obligation and Customer Service Guarantee Review,* 17 June 2004.
- EIRCOM, *Current Cost and Long Run Incremental Cost Statements for Year Ended 31 March 2005, Accounting Documents*, 12 October 2005.
- Envestra, *Weighted Average Cost of Capital for the South Australian Regulated Natural Gas Distribution Network*, September 2005.
- Evidence to Senate Environment, Communications, Information Technology and the Arts Legislation Committee, Parliament of Australia, Canberra, 24 May 2005, 101 (Denis Mullane).
- Fama, E. F. and French, K. R., *The Equity Premium*, The Journal of Finance, vol LVII, no. 2, April 2002.

- Federal Communications Commission, *Trends in Telephone Service – Industry Analysis and Technology Division – Wireline Competition Bureau*, April 2005.
- Fernandez, P., *Market Risk Premium: Required, Historical and Expected (Working Paper)*, IESE Business School, University of Navarra, October 2004.
- Gans, J., *Response to Professor Sappington: A report on behalf of the Australian Competition and Consumer Commission*, CoRE Research, 6 August 2006.
- Gans, J., *The Treatment of ULLS Specific Costs—A Report on Behalf of the ACCC, CoRE Research*, 29 May 2006.
- Hathaway, N. and Officer, R., *The Value of Imputation Tax Credits*, manuscript, University of Melbourne, 1992.
- Hathaway and Officer, *The Value of Imputation Tax Credits—Update 2004*, Capital Research, November 2004.
- Hays, P., Johnk, M. and Melincher, M., *Determinants of Risk Premiums in the Public and Private Bond Market*, Journal of Financial Research, Fall 1979.
- Ibbotson Associates, *Cost of Capital 2006 Yearbook: Data Through March 2006*, 2006.
- Ibbotson Associates, *Cost of Capital 2006 Yearbook: Data Through June 2006*, 2006.
- Independent Pricing and Regulatory Tribunal, *NSW Electricity Distribution Pricing 2004/05 to 2008/09 – Final Report*, June 2004.
- Lee, I., Lochhead, S., Ritter, J. and Zhao, O., *The Costs of Raising Capital*, Journal of Financial Research, Spring 1996.
- Mayfield, E. S., *Estimating the Market Risk Premium*, Journal of Financial Economics, 73, 2004.
- McKinsey and Company, Ltd, *Valuation: Measuring and Managing the Value of Companies* (3rd Ed), John Wiley & Sons, New York University, 2000.
- McKinsey & Company Limited, *Valuation: Measuring and Managing the Value of Companies* (4th Ed), John Wiley & Sons, New Jersey, 2005.
- Minister for Communications, Information Technology and the Arts, *Explanatory statement—Telecommunications (Consumer protection and service standards) Act 1999—Telstra Carrier Charges – Price Control Arrangements, Notification and Disallowance Determination No. 1 of 2005*, (*Amendment No. 1 of 2006)*, 27 Feb 2006.
- (*) NATSEM, *Analysis of expenditure on Telstra telephone services, Research report for the ACCC*, January 2005.
- NECG, *International Comparisons of WACC Decisions, Submission to the Productivity Commission Review of the Gas Access Regime from the Network Economics Consulting Group*, September 2003.
- (*) n/e/r/a, *Comments on PSTN Conveyance Costs in PIE II: A Report for Singtel Optus*, March 2004.

- New Zealand Treasury, *The Market Equity Risk Premium*, May 2005.
- OECD Competition Committee, *The Regulation of Access Services (with a focus on telecommunications)*, November 2003.
- OECD Competition Committee, *Access Pricing in Telecommunications,* 2004.
- OECD, *Product Market Competition and Economic Performance in Australia*, 13 October 2005.
- Ofcom, *Review of the Wholesale Local Access Market*, 16 December 2004.
- Ofcom, *Next Generation Networks: future arrangements for access and interconnection,* 13 January 2005.
- Ofcom, *Ofcom's Approach to Risk in the Assessment of the Cost of Capital – Final Statement*, 18 August 2005.
- Ofcom, *Next Generation Networks: Developing the regulatory framework*, 7 March 2006.
- Ovum, *Consumer FTTP: is it worth it?* 30 March 2006.
- PricewaterhouseCoopers, *Disaggregating BT's Beta – A Report Prepared for Ofcom by PricewaterhouseCoopers LLP*, June 2005.
- Reserve Bank of Australia, *Occasional Paper No. 10: Historical data for 1976-1993*, viewed 10 August 2006, <http://www.rba.gov.au/Statistics/occasional_paper_10.XLS>
- Reserve Bank of Australia, *Interest Rates and Yields: Money Market and Commonwealth Government Securities,* viewed 10 August 2006, <http://www.rba.gov.au/Statistics/OP10_update.xls>
- Sappington, David "On the irrelevance of input prices for make-or-buy decisions" *American Economic Review*, December 2005, p. 1631.
- Scholes, M. and Williams, J., *Estimating Betas from Nonsynchronous Data*, Journal of Financial Economics 5, 1997.
- Coonan (Minister for Communications, Information Technology and the Arts), *Telstra's Operation Separation plan approved*, 23 June 2006.
- Siegel, J. J., *The Shrinking Equity Premium – historical facts and future forecasts*, Journal of Portfolio Management, Fall 1999.
- Standard & Poor's, *Standard & Poor's Stock Appreciation Ranking System (STARS): Methodology, Analysis & Performance Attribution*, June 2005.
- *Sydney Airports Corporation Ltd (2000) 156 FLR 10.*
- Telecom New Zealand, *Submission in respect of the Commerce Commission's draft determination on the application for pricing review for designated interconnection services*, 26 May 2005.
- *Telecommunications Act 1997*
- *Telecommunications Legislation Amendment (Competition and Consumer Issues) Act 2005.*
- *Telecommunications Competition Bill 2002, Explanatory Memorandum.*

- *Telecommunications Legislation Amendment (Competition and Consumer Issues) Bill 2005, Explanatory Memorandum.*
- Telstra, *Annotated extract from Telstra customer terms regarding changes to HomeLine Part*, 2 December 2005.
- Telstra, *Annual Report 2005*, September 2005.
- Telstra, "Fibre-to-the-node" ASX announcement, 21 December 2005.
- Telstra, *Our customer terms—Basic telephone service section—Part B—HomeLine plan*, 1 August 2006, viewed on 7 August 2006, <http://www.telstra.com.au/customerterms/docs/hf_fixed_homeline.pdf>
- (*) Telstra, *Response to request by Commission under section 152BT of the Trade Practices Act 1974 (Cth)*, 13 April 2006.
- Telstra, *Pricing of Unconditioned Local Loop Services and Review of Telstra's Proposed ULLS charges – Telstra's Submission to the ACCC's Draft Discussion Paper*, 15 September 2000.
- Telstra, *Residential Bundled Service Record Keeping and Reporting Rules Quarterly Report – September 2005 Report*, November 2005.
- Telstra, *Residential Bundled Service Record Keeping and Reporting Rules Quarterly Report – December 2005 Report (revised)*, February 2006.
- Telstra, *Residential Bundled Service Record Keeping and Reporting Rules Quarterly Report – March 2006 Report*, May 2006.
- Telstra, *Residential Bundled Service Record Keeping and Reporting Rules Quarterly Report – June 2006 Report*, August 2006.
- (*) Telstra, *Telstra's Detailed Submission in Support of its Undertaking dated 9 January 2003*, 31 July 2003.
- Telstra, *Telstra Corporation Limited Financial Results for the year ended 30 June 2006*, 10 August 2006.
- Telstra, *Unconditioned Local Loop – Pricing*, Discussion with the ACCC, 9 December 1999.
- Telstra, *Unconditioned Local Loop Service*, Meeting with ACCC, 19 July 2000.
- TelstraClear, *Cross-submission on the draft determination on the application for pricing review for designated interconnection services,* 10 June 2005.
- TelstraClear, *Submission on the draft determination on the Application for pricing review for designated interconnection services*, 26 May 2005.
- *Trade Practices Amendment (Telecommunications) Bill 1996, Explanatory Memorandum.*
- *Trade Practices Act 1997*
- ACA, *Advice to the Minister: New USO Arrangements*, September 2000.
- ACA, *Universal service subsidies for 2005-08 to 2007-08 proposal paper*, November 2004.
- ACA, *Net Universal Service Cost Assessment for 1997-98*, October 1999.

- ACA, *Estimate of Net universal service costs for 1998/99 and 1999/00,* January 2000.
- *Telecommunications Laws Amendment (Universal Service Cap) Act 1999*.
- *Telecommunications (Consumer protection and service standards) Act 1999* (Cth)
- *Telecommunications (Consumer protection and service standards) Amendment Act (No. 1) 2000* (Cth).
- *Telecommunications (Consumer protection and service standards) Amendment Act (No. 2) 2000* (Cth).
- Second Reading speech, *Telecommunications (Consumer Protection and Service Standards) Amendment Bill (No. 2) 2000, Telecommunications (Universal Service Levy) Amendment Bill 2000*, Senate Hansard, No. 14, 2000, 11 October 2000, p. 18334.
- Ovum, *Calculation of the intangible potential benefits of being the Universal Service provider—a report to the Australian Communications Authority*, 12 Jan 2000.
- Alston (Minister for Communications, the Information Economy and the Arts) and Anderson (Minister for Transport and Regional Services), *Government USO decisions break new ground*, 23 March 2000.
- Second Reading speech, *Telecommunications (Consumer Protection and Service Standards) Amendment Bill (No. 1) 2000*, Senate Hansard, No. 8, 2000, 22 June 2000, p. 15499.
- Second Reading speech, Telecommunications Laws Amendment (Universal Service Cap) Bill 1999, Senate Hansard, 19 April 1999, p. 3766.
- Provided by Derek Francis, submission 1, *Submission to the ACCC on ULLS regulation*, 9 Aug 06.
- Provided by Derek Francis, submission 2, *Why the ACCC should set averaged ULLS prices*, 9 Aug 06.
- Provided by Derek Francis, submission 3, *Why the ACCC should not regulate ULLS*, 9 Aug 06.
- ACCC, *Post Tax Revenue Model*, 25 October 2001 (Microsoft Excel spreadsheet)
- ACCC, *Post Tax Revenue Model handbook*, October 2001.
- Tirole, Jean, *The Theory of Industrial Organization*, The MIT Press, Cambridge, 1988.