



DOMESTIC TRANSMISSION CAPACITY SERVICE

***An ACCC Final Report on reviewing the declaration of
the domestic transmission capacity service***

September 2010



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Table of Contents

1	Introduction.....	1
1.1	The declared service	1
1.2	Background to the DTCS declaration	1
1.3	Review of the DTCS declaration	2
1.4	Summary of findings of the inquiry	3
2	Issues raised in the review process	5
3	Proposed variations to the DTCS service description	12
3.1	Discussion paper	12
3.2	Draft final report	17
4	Will varying the declaration promote competition?.....	21
4.1	The Commission’s approach to defining markets	21
4.2	Defining the market in which the eligible services are supplied	21
4.3	Market Structure	25
4.4	Conclusion on whether the proposed variation will promote competition	28
5	Will varying the declaration achieve any-to-any connectivity?.....	29
6	Will varying the declaration encourage efficient use of, and investment in, infrastructure?	31
7	The Commission’s overall conclusion	35
8	Other issues.....	36
8.1	National broadband network products and the DTCS	36
8.2	Quality of service	37
	Appendix 1 - Current DTCS service description.....	38
	Appendix 2 - Revised DTCS service description.....	42
	Appendix 3 - Long-term interests of end-users.....	45
	Appendix 4 - List of submissions received by the ACCC.....	51

1 Introduction

1.1 The declared service

The domestic transmission capacity service (DTCS) is a generic service that can be used for the carriage of voice, data or other communications using wideband or broadband carriage (the minimum data rate in the current declaration is 2.048 Megabits per second (Mbit/s)). Carriers and/or carriage service providers (CSPs) can use transmission capacity to set up their own networks for aggregated voice or data channels, or for integrated data traffic (such as voice, video and data).

In respect of the declared service, the Australian Competition and Consumer Commission (the Commission) recognises a number of types of transmission capacity services, including:

- inter-capital transmission
- ‘other’ transmission (e.g. capital-regional routes)
- inter-exchange local transmission, and
- tail-end transmission.¹

1.2 Background to the DTCS declaration

The supply of various types of transmission capacity was deemed to be a declared service in June 1997.² The declaration was subsequently varied in 1998, 2001 and 2004. In 2004, the Commission put in place a new service description which, in addition to inter-capital transmission,³ excluded 14 nominated capital-regional routes from the declaration.⁴

In March 2009 the Commission varied the 2004 DTCS declaration to reflect the Commission’s final decision on Telstra’s transmission exemption applications (Final Exemption Decision).⁵ The Final Exemption Decision exempted capital-regional transmission on an additional 9 capital regional routes and inter-exchange transmission in 16 capital city areas and 72 metropolitan areas.

¹ ACCC, *Domestic Transmission Capacity Service – an ACCC Final Report on reviewing the declaration for the domestic transmission capacity service*, March 2009 (2009 DTCS Final report), p.3.

² ACCC, *Deeming of Telecommunications Services: a statement pursuant to section 39 of the Telecommunications (Transitional Provisions and Consequential Amendments) Act 1997*, June 1997.

³ Transmission between transmission points of interconnection which are located in exempt capital cities.

⁴ ACCC, *Transmission Capacity Service - Review of the declaration for the domestic transmission capacity service – Final Report*, April 2004, (2004 DTCS Final report), pp. 48-49.

⁵ *Telstra’s domestic transmission capacity service exemption applications – Final decision*, November 2008 (Final Exemption Decision). For full details of the Commission’s Final Exemption Decision visit the Commission’s website at www.accc.gov.au

The current declaration took effect on 1 April 2009 and is due to expire on 31 March 2014. The service description is set out in full at [Appendix 1](#).

1.3 Review of the DTCS declaration

The Commission commenced a public inquiry in November 2009 to review the existing DTCS declaration (and if necessary vary the declaration) pursuant to sections 152AO and 152AL of the *Trade Practices Act 1974* (the Act), subsection 33(3) of the *Acts Interpretation Act* (AIA) and Part 25 of the *Telecommunications Act 1997* (Telecommunications Act).

The purpose of the review was to clarify the DTCS service description and assess whether the current DTCS service description covers all commonly used network interfaces on transmission networks in Australia such as the PDH (Plesiochronous Digital Hierarchy), SDH (Synchronous Digital Hierarchy) and Ethernet network interfaces.

The Commission released the *Domestic Transmission Capacity Service – an ACCC Discussion Paper reviewing the declaration of the domestic transmission capacity service* (Discussion paper) in November 2009 in order to inform the declaration review. The Commission received submissions and briefings in response to the Discussion paper between January and April 2010 from:

- AAPT Ltd (AAPT)
- Herbert Geer on behalf of Chime Communications Pty Ltd, Primus Telecommunications Pty Ltd, Agile Pty Ltd and Wideband Networks Pty Ltd (the Access seekers)
- Macquarie Telecom Pty Limited (Macquarie Telecom)
- Singtel Optus Pty Limited (Optus)
- Telstra Corporation Ltd (Telstra), and
- Vodafone Hutchison Australia Limited (VHA).

AAPT, VHA, Macquarie Telecom, Telstra, Gilbert and Tobin and Optus representatives also attended a roundtable meeting with Commission staff on 10 March 2010.

On 20 July 2010 the Commission released the *Domestic Transmission Capacity Service – an ACCC Draft Final Report on reviewing the declaration of the domestic transmission capacity service* (Draft final report). In response to the Draft final report the Commission received submissions in July and August 2010 from:

- Austar Entertainment Pty Limited (Austar)
- Macquarie Telecom
- Optus

- Telstra, and
- VHA.

All submissions have been considered and reflected where appropriate in this Final report on the DTCS declaration review.

The public submissions and briefings that were lodged are also available on the Commission's website at www.accc.gov.au. A list can also be found in Appendix 4 of this Final report. Further information on the Commission's approach to declaration inquiries is outlined in its publication *Telecommunications services – Declaration provisions – a guide to the declaration provisions of Part XIC of the Trade Practices Act*, July 1999, available on the Commission's website at www.accc.gov.au.

1.4 Summary of findings of the inquiry

The Commission's view is that the DTCS declaration should be varied so that it covers all commonly used network interfaces used on transmission networks in Australia. The Commission notes that the intention behind the DTCS service description is that it be technologically neutral, not restricted to any particular network interface and apply to the underlying transmission service regardless of the type of interface used.⁶ In order to achieve this, the Commission has specifically added Ethernet network interfaces to the other commonly used network interfaces referred to in the service description.

The Commission notes that the standard access obligations only apply to a carrier or carriage service provider that supplies declared services, whether to itself or to others (ie. 'active declared services' under subsection 152AR(2) of the Act). The Commission considers that access providers need only provide access to the DTCS via a network interface and data rate which the access provider uses to provide the service to itself or others within a particular exchange service area (ESA). The Commission is of the view that it is in the long term interests of end-users (LTIE) for access seekers to have the right to request access via a particular network interface and data rate where there is more than one type being used by the access provider in the deployment of the DTCS at an ESA.

The Commission finds that the revised DTCS service description (set out in Appendix 2) is in LTIE. The Commission has reached this view for the following reasons:

- **Promotion of competition** – the Commission considers that varying the service description will promote competition by ensuring that access seekers continue to be provided with the DTCS without being limited by the network interface used to deliver the service. Varying the service description will also

⁶ ACCC, *Deeming of Telecommunications Services: a statement pursuant to section 39 of the Telecommunications (Transitional Provisions and Consequential Amendments) Act 1997*, June 1997, p.63.

promote competition in downstream services as transmission services delivered via Ethernet network interfaces create opportunities for retail operators to offer competitive services to end-users.

- **Any-to-any connectivity** – the Commission considers that any-to-any connectivity will be promoted by the variation to the declaration as it remains technologically neutral in terms of network interfaces through which any-to-any connectivity may be achieved. Any-to-any connectivity will also be promoted for voice and data services which use transmission services delivered via Ethernet network interfaces.
- **Economically efficient use of and investment in infrastructure** – the Commission considers that efficient use of infrastructure used to provide the DTCS will be promoted by the proposed variation. The Ethernet network interface is common in modern network equipment and likely to be used in future upgrades to Australian telecommunication networks. The Commission notes that adapters or other equipment are unlikely to be necessary where Ethernet network interfaces are used given the prevalence of Ethernet in the market. The Commission considers that the use of Ethernet network interfaces is likely therefore to be more cost effective than other network interfaces. The Commission is also of the view that the variation to the declaration will provide certainty for CSPs in their investment decisions and help them build a customer base as a consequence. The Commission considers that this will encourage them to invest in efficient infrastructure once their retail customer base reaches a certain threshold.

2 Issues raised in the review process

The Commission conducted a public inquiry to clarify whether the DTCS service description covers all commonly used network interfaces on transmission networks in Australia such as the PDH, SDH and Ethernet network interfaces.

The current opening description of the DTCS (detailed in [Appendix 1](#)) describes the DTCS as:

...a service for the carriage of certain communications from one transmission point to another transmission point via network interfaces at a designated rate on a permanent basis by means of guided and/or unguided electromagnetic energy, except communications between [certain transmission points]...

The designated rate is defined as:

...a transmission rate of 2.048 Megabits per second, 4.096 Megabits per second, 6.144 Megabits per second, 8.192 Megabits per second, 34 to 35⁷ Megabits per second, 140/155 Megabits per second (or higher orders).⁸

The data rates included in the above definition of a 'designated rate' of the DTCS service description relate to network interfaces known in the industry as PDH and SDH.

Commonly used PDH data rates include:

- 2.048 Mbit/s per second – also referred to as E1
- 34.368 Mbit/s – also referred to as E3
- 139.264 Mbit/s – also referred to as E4, and
- 44.736 Mbit/s – used for digital TV signals.

Commonly used SDH data rates include:

- 155.520 Mbit/s – also referred to as STM 1
- 622.080 Mbit/s – also referred to as STM 4
- 2488.320 Mbit/s – also referred to as STM 16, and
- 9953.280 Mbit/s – also referred to as STM 64.

⁷ The reference here to 35 is a typographical error and should be 45 (refer to the service description in the 2004 DTCS Declaration review). Herbert Geer, *Submissions from Chime Communications Pty Ltd, Primus Telecommunications Pty Ltd, Agile Pty Ltd and Wideband Networks Pty Ltd (the Access Seekers) in response to the ACCC's discussion paper reviewing the declaration for the Domestic Transmission Capacity Service (DTCS)*, 1 February 2010 (Access seeker submission on discussion paper), p.4; Telstra submission on Draft final report, p.16.

⁸ ACCC, 2009 DTCS Final report, p.41.

The current DTCS service description may be ambiguous on its face as to whether it includes the following Ethernet data rates:

- 10 Mbit/s – also referred to as Ethernet
- 100 Mbit/s – also referred to as Fast Ethernet
- 1000 Mbit/s – also referred to as Gigabit Ethernet
- 10000 Mbit/s – also referred to as 10 Gigabit Ethernet

In the Discussion paper, the Commission proposed to vary the DTCS declaration by including the following definitions:

a designated rate is a transmission rate of 2.048 Megabits per second or higher using Ethernet, PDH or SDH interface protocols.

Ethernet, PDH or SDH interface protocols are Ethernet, Plesiochronous Digital Hierarchy (PDH) or Synchronous Digital Hierarchy (SDH) interface protocols as established and amended from time to time by the International Telecommunications Union, Telecommunication Standardization Sector (ITU-T) or the Institute of Electrical and Electronic Engineers (IEEE).⁹

The Draft final report proposed the following changes to the current opening description of the DTCS:

- replacing of the current definition of ‘designated rate’ with a new definition of ‘network interfaces’
- describing network interfaces as ‘symmetric’, and
- describing the basis upon which transmission is delivered as ‘uncontended’.

The opening description of the DTCS proposed in the Draft final report is as follows:

...a service for the carriage of certain communications from one transmission point to another transmission point via symmetric network interfaces on a permanent uncontended basis by means of guided and/or unguided electromagnetic energy...

The Commission defines ‘uncontended’ as dedicated and not shared and ‘network interfaces’ non-exhaustively to:

include Ethernet, Plesiochronous Digital Hierarchy (PDH) and Synchronous Digital Hierarchy (SDH) interface protocols used to provide a transmission rate of 2.048 Megabits per second or above which an access provider provides to itself or others¹⁰

The revised service description proposed by the Commission in the Draft final report is set out in full in Appendix 2 of this Final report.

⁹ ACCC, Discussion paper, p.7.

¹⁰ ACCC, *Domestic Transmission Capacity Service – an ACCC Draft Final Report on reviewing the declaration for the domestic transmission capacity service*, July 2010 (Draft final report).

Submissions against variation

Telstra submits that it is not necessary or appropriate to vary the service description to include Ethernet network interfaces for a number of reasons.

First, the DTCS in its current form already enables access seekers to convert an underlying (declared) SDH service (acquired from Telstra or another provider) to 'Ethernet over SDH'. Telstra argues that:

- there is no material difference between the cost for access seekers to convert SDH transmission services to Ethernet and the cost of Telstra to supply Ethernet over SDH at the wholesale level
- the costs of multiplexing and other electronic equipment have not been considered a barrier to entry because they are relatively low, are declining over time and may be recovered
- there is no efficiency gain from extending regulation to Ethernet services
- in some circumstances the supply of carrier grade Ethernet can be created more cheaply from underlying DTCS by access seekers than by Telstra supplying the same services (for example, the supply of a 155 Mbit/s STM-1 SDH service)
- Ethernet conversion by the access seeker provides a wider footprint than Telstra's own Ethernet over SDH. For Telstra to provide 'Ethernet over SDH' an Ethernet interface card must be inserted into a pre-existing Next Generation Add Drop Multiplexer (NG-ADM). However, not all ADMs have been upgraded to the Next Generation Network. Telstra does not offer 'Ethernet over SDH' in all geographic locations where SDH is available as it is not economical for it to do so unless access seekers have a significant block of capacity, and
- it is simpler for access seekers to self-supply 'Ethernet over SDH' as they only need to acquire a standard SDH transmission service from Telstra at a specified bandwidth and install a Network Terminating Unit (NTU) at the end of each SDH transmission link. Similarly, access seekers can provide Ethernet via the declared ULLS service through 'Ethernet over Copper'. The equipment required to 'self-supply' is also readily available and allows access seekers to control their traffic across their networks.¹¹

Secondly, Telstra submits that there is sufficient evidence of effective competition and no evidence of market failure in Ethernet markets. Telstra reasons that:

¹¹ Telstra Corporation Ltd *Response to the ACCC Discussion Paper reviewing the Declaration for the Domestic Transmission Capacity Service*, 26 January 2010 (Telstra submission on discussion paper), pp.3-8 (in Executive Summary and Section A). Telstra Corporation Ltd, *Response to the ACCC Draft Final Report on review of the declaration of the domestic transmission capacity service – public version*, 20 August 2010 (Telstra submission on Draft final report), pp.3-5.

- there is no undeclared network bottleneck in Ethernet markets, or any evidence of enduring or unregulated bottlenecks
- there are many competitors offering Ethernet services demonstrating low barriers to entry
- wholesale Ethernet services are widely supplied on a commercially competitive and unregulated basis
- competition is already effective in downstream markets
- ‘Ethernet over fibre’ normally coincides with routes where infrastructure-based competition already exists. Carriers and carriage service providers which do not own their own fibre can buy the regulated SDH transmission service provided by Telstra to create their own Ethernet services. In both cases, Telstra argues that there is already significant product differentiation in these markets
- exempted regions under-represent the true scale of competition and that many more areas where Ethernet is available should be made exempt due to high levels of competition, and
- pricing of Telstra’s wholesale ‘Ethernet over SDH’ is effectively constrained because access seekers can convert SDH services themselves and self-supply Ethernet over copper via the declared ULLS service.¹²

Thirdly, Telstra argues that it is unnecessary to vary the current DTCS service description because it would have adverse consequences if implemented. Specifically, the removal of the stipulated designated speeds would allow access seekers to seek DTCS and Ethernet at a range of non-standard bandwidths in a way that is inconsistent with the rates contemplated by international standards.¹³

Finally, Telstra argues that the variation is unnecessary because it is premature, potentially harmful and has adverse ramifications for the future supply of the DTCS and all types of Ethernet. Telstra considers there is insufficient evidence to support the conclusion that regulation of Ethernet is in the LTIE and that further market analysis is necessary. Telstra also considers that there is no evidence of an unregulated enduring bottleneck whilst describing the ‘Ethernet over fibre’ service as evolving and in the earlier stages of its product life cycle. Telstra submits that it should not be regulated (if at all) until the markets have matured and to do otherwise would adversely influence technology choice and impede its adoption.¹⁴

AAPT agrees with Telstra that the DTCS declaration should not be varied. AAPT is not aware of any enduring bottleneck issue in the wholesale or retail Ethernet markets and raises concerns over regulation without any reference to quality of service or security aspects of the services. AAPT considers that the current DTCS service

¹² Telstra submission on discussion paper, pp. 3-4 (in Executive Summary and Section A), 9-12, 14.
Telstra submission on Draft final report, pp. 6-7.

¹³ Telstra submission on discussion paper, pp.3-4 (in Executive Summary), 15.

¹⁴ Telstra submission on discussion paper, pp.2-3 (in Executive Summary), 10, 15.

description is unclear as to whether it includes Ethernet services. AAPT is of the view that it does not cover commonly used Ethernet data rates of 10 Mbit/s and 100 Mbit/s, but might catch Ethernet data rates such as GE or 10GE.¹⁵

Telstra and AAPT agree on the importance of Ethernet network interfaces in the delivery of telecommunication services. Telstra describes Ethernet as:

- widely supplied on a commercially competitive and unregulated basis
- a common ‘interface protocol’ with a wide range of services and devices interconnecting, and
- used in a multitude of services and which have, in effect, become ubiquitous.¹⁶

Submissions supporting variation because Ethernet network interfaces are used in transmission services

Optus, Macquarie Telecom, VHA, Austar and Access seeker submission agree that Ethernet network interfaces are widely used in transmission capacity services and should be included in the DTCS service description.¹⁷ Submitters describe Ethernet network interfaces in the following ways:

- a key standard in the market with the Australian Communications and Media Authority (ACMA) recognising a link between the growing demand for higher bandwidth and increasing market presence of Ethernet network interfaces¹⁸
- the preferred network interface of the developing broadband network environment¹⁹
- the preferred interface for providing cost effective and scalable interfaces. Macquarie Telecom notes that it, and many other carriers, are replacing many of the SDH interfaces used in their core networks with Ethernet interfaces²⁰

¹⁵ AAPT Ltd, *Submission by AAPT Limited to the Australian Competition and Consumer Commission in response to Domestic Transmission Capacity Service, a discussion paper reviewing the declaration for the domestic transmission capacity service, dated November 2009* (AAPT submission on discussion paper), pp.2-4.

¹⁶ Telstra submission on discussion paper, pp.19-20. Telstra submission on Draft final report, p.7.

¹⁷ Singtel Optus Pty Ltd, *Optus submission to ACCC in response to the DTCS service description*, January 2010 (Optus submission on discussion paper), p.9. Macquarie Telecom Pty Ltd, *Letter - Review of Domestic Transmission Capacity Service Declaration*, 18 December 2009 (Macquarie Telecom submission on discussion paper), p.1. Vodafone Hutchison Australia Ltd, *Domestic Transmission Capacity Service – Scope of the Definition – Submission to the Australian Competition and Consumer Commission*, January 2010 (VHA submission on discussion paper), p.5. Austar Entertainment Pty Limited, *Comments on the ACCC Final Draft Report on reviewing the Domestic Transmission Capacity Service*, 20 August 2010 (Austar submission on the Draft final report), p.4. Access seeker submission on discussion paper on discussion paper, p.3.

¹⁸ Optus submission on discussion paper, p.6.

¹⁹ Macquarie Telecom submission on discussion paper, p.2.

²⁰ Macquarie Telecom submission on discussion paper, p.1.

- the network interface with the potential (for carriage of internet protocol services) of allowing use of cheaper equipment than that required by PDH and SDH standards further facilitating competition in downstream markets²¹
- the default standard for telecommunications equipment vendors²²
- a network interface which is rapidly replacing earlier standards.²³ Access seekers consider Ethernet layer services (as opposed to internet protocol (IP)) as essential for connecting IP DSLAMs back to core networks²⁴
- a network interface which is consistent with the future technology path for mobile and fixed services²⁵ and the inclusion of which supports the principle that regulation should be technology neutral.²⁶

The Access seeker submission argues that if it is accepted that the DTCS service description should be 'generic' and 'technologically neutral' then it must follow that the service description should apply to all transmission network interfaces commonly used over the Australian network. To do otherwise would risk divorcing the DTCS from the guiding principle of contestability applied by the Commission.²⁷

The Access seeker submission also notes that if the only transmission service that Telstra offers in a non-contested transmission route is an Ethernet based service or other service not at the 'designated rate', they will have no recourse to a regulated service in respect of that transmission route even though that route is not contested. Access seekers submit that this is not in the LTIE.²⁸

Similarly Macquarie Telecom and Optus note that Telstra has refused to supply wholesale transmission services using Ethernet network interfaces in the past, particularly in non-CBD areas, and that a technology-neutral service description is likely to change Telstra's policy on the supply of transmission services and thereby enable them to offer competitive services to end-users.²⁹ Telstra however denies that it has refused to supply Ethernet services in areas enabled for the provision of such services.³⁰

Submissions supporting variation because the service description is unclear

Optus, Macquarie Telecom, VHA and the Access seekers agree that the revised service description will clarify the scope of the existing DTCS service description and

²¹ Optus submission on discussion paper, p.9.

²² Macquarie Telecom submission on discussion paper, p.1.

²³ Optus submission on discussion paper, p.6. Access seeker submission on discussion paper, p.4.

²⁴ Access seeker submission on discussion paper, p. 3.

²⁵ VHA submission on discussion paper, pp. 1, 7.

²⁶ Macquarie Telecom submission on discussion paper, p.2.

²⁷ *Domestic Transmission Capacity Service - An ACCC Final Report on reviewing the declaration of the domestic transmission capacity service, March 2009.*

²⁸ Access seeker submission on discussion paper, pp. 2-4.

²⁹ Optus submission on discussion paper, p.9. Macquarie Telecom submission on discussion paper, p.1.

³⁰ Telstra submission on Draft final report, p.8.

should be varied to specifically refer to Ethernet network interfaces as well as PDH and SDH.³¹

Macquarie Telecom submits that Ethernet network interfaces are not included in the current DTCS service description as the ‘designated rate’ is defined by data rates which do not match those of Ethernet network interfaces. Macquarie Telecom suggests that, at best, Ethernet network interfaces could be considered as partly included in the service description as data rates of one Gigabit (1000 Mbit/s per second) or more arguably fall within the scope of the definition of the designated rate while data rates of 10 Mbit/s or 100 Mbit/s do not.³² Optus notes that it could be argued that Ethernet network interfaces are included by implication as the service description refers to “higher orders” of bandwidth or excluded on the basis that the lower orders of bandwidth listed specifically refer to PDH and SDH protocols.³³

The Commission’s view

The Commission notes that all submissions are in agreement over the importance of Ethernet network interfaces in the delivery of transmission services. The Commission considers that the role and importance of Ethernet network interfaces is therefore well established and accepted by industry.

The Commission notes that most submissions also agree that there exists a level of ambiguity surrounding the particular network interfaces which are covered by the DTCS service description. The Commission considers that variation of the DTCS is necessary in order to remove this ambiguity and to ensure that the service description covers all commonly used network interfaces in the Australian network. Maintaining the DTCS service description in its current form would fail to address the ambiguity over the network interface which may be used to supply the DTCS and risks excluding from regulation transmission services which use Ethernet network interfaces in markets which lack competition.

³¹ Optus submission on discussion paper, p. 7. Macquarie Telecom submission on discussion paper, pp.2-3. VHA submission on discussion paper, pp. 1, 5. Access seeker submission on discussion paper, p.3.

³² Macquarie Telecom submission on discussion paper, p.2.

³³ Optus submission on discussion paper, p.7.

3 Proposed variations to the DTCS service description in submissions

3.1 Discussion paper

The Commission received submissions which identified further changes or areas requiring clarification to the form of the proposed service description in the Discussion paper. Parties submitted that the DTCS service description needed to:

- clarify the calculation of the bandwidth, particularly with regard to Ethernet services
- clarify issues over Ethernet's application in the Open Systems Interconnection (OSI) model
- include an 'automatic exemptions clause' that adjusts the level of regulation to match the level of competition
- define network interfaces based on international standards, such as the International Telecommunications Union, Telecommunication Standardization Sector (ITU-T) or the Institute of Electrical and Electronic Engineers (IEEE).

Clarify the calculation of the bandwidth

Telstra sought the clarification of bandwidth, particularly with regard to Ethernet services and whether it included the entire frame or just the payload within the Ethernet frame.

Telstra raised the possibility of access seekers requesting transmission services at speeds outside current bandwidth increments and in a manner inconsistent with international standards.³⁴ Telstra referred to the approach in the United Kingdom (UK), which limits regulation of Ethernet to low bandwidth (i.e. less than 1 Gbp/s) transmission services³⁵ and suggested the following draft wording:

a **designated rate** is a transmission rate of:

- (a) 2.048 Megabits per second, 4.096 Megabits per second, 6.144 Megabits per second, 8.192 Megabits per second, 34 to 35 Megabits per second, 140/155 Megabits per second (or higher orders) using SDH or PDH presentation; or
- (b) a transmission rate of 10, 100 or 1000 Megabits per second using 'Ethernet over SDH' delivery where neither transmission point is a customer transmission point

³⁴ Telstra submission on discussion paper, pp.4 (in Executive Summary), 15, 33.

³⁵ Telstra submission on discussion paper, pp.27, 32.

Telstra submitted that the words ‘where neither transmission point is a customer transmission point’ ensures that the service description applies to inter-exchange services only.³⁶

Clarify concerns over Ethernet’s application in the Open Systems Interconnection (OSI) model

Optus submitted that it would be inappropriate for the declaration to be expanded to cover valued-added services at higher levels such as point to multipoint and VPLS and that it should refer to point to point services delivered over a Layer 2 Ethernet interface if the Commission does not want to broaden the scope of the service description. Optus proposed the following draft:

For the avoidance of doubt, an Ethernet interface protocol in this context applies only to point to point services provided over a layer 2 Ethernet interface (where “Layer 2” refers to the Open System Interconnection Reference Model).³⁷

Telstra submitted that the proposed variation in the Discussion paper was too broad in scope and application and would result in regulation of the same underlying infrastructure at multiple levels of carriage technologies. Telstra claimed the proposed variation may:

- regulate SDH transmission and Ethernet services conveyed via SDH transmission. Should the Commission decide that Ethernet is to be regulated, then any variation to the existing DTCS service description should be expressly confined to ‘Ethernet over SDH’ in non-metropolitan areas that are not yet subject to effective competition. Telstra proposed that the Commission limit the scope of its variation as described in the previous point above.
- regulate Ethernet services supplied over the local access infrastructure (including ULLS and FTTP networks) thereby regulating wholesale DSL, Business Grade Ethernet and Ethernet Private Network Services. It could also cover other Layer 2 and Layer 3 ‘routed’ services and apply across multiple infrastructure types, including fibre, the CAN and microwave.³⁸

Telstra also submitted that if the service description includes Ethernet services it should state that it is supplied over mainly ‘Layer 1’ and ‘Layer 2’ transport technologies. Also, if the service description is not confined to ‘Ethernet over SDH’, any variation should make clear that the declaration applies to wholesale carrier grade services in Telstra’s network and not to the business grade services (i.e. ‘Ethernet over fibre’). Telstra proposed the following draft:

³⁶ Telstra submission on discussion paper, pp.33-34.

³⁷ Optus submission on discussion paper, pp.7- 8.

³⁸ Telstra submission on discussion paper, pp. 4 (in Executive Summary), 7-8, 13-14, 18, 31. Telstra Corporation Limited, *Ethernet Briefing – Proposed DTCS variation*, 15 December 2009 (Telstra Ethernet Briefing), p.2.

The domestic transmission capacity service is a service for the carriage of certain communications from one transmission point to another transmission point via network interfaces at a designated rate on a permanent, uncontended, circuit switched basis by means of guided and/or unguided electromagnetic energy...

Telstra submitted that the words ‘circuit switched’ would ensure that services covered by the DTCS service description remain as a ‘Layer 2’ service (without routing) and do not include ‘Layer 3’ services (with routing).³⁹

Telstra also submitted that the proposed variation in the Discussion paper may have the unintended effect of:

- regulating other transport protocols, such as ATM, which are not regulated in the core network as part of the DTCS service but will be regulated if used to supply Ethernet
- applying to basic residential broadband services provided over the unconditioned local loop such as ADSL. In this manner, wholesale customers of Telstra that are acquiring ULLS and then selling ADSL may become subject to regulation, potentially requiring the wholesaling of their retail ADSL services on price and non-price terms potentially determined by the ACCC.
- applying to a wide range of new wholesale and retail markets and services including those currently being developed by NBN Co. Telstra argues that such regulation may delay the development and roll-out of next generation Ethernet-based access services, thus hampering innovation and efficiency.⁴⁰

In Telstra’s opinion, any regulation of emerging national broadband network (NBN) services would be premature in circumstances where the future industry structure is still the subject of ongoing analysis and negotiation, and specifically that ‘Ethernet over fibre’ should not be subject to regulation until its use has fully matured. Nonetheless, Telstra submitted that if the proposed variation is implemented and Ethernet is regulated, that regulation should not apply to any transmission routes where NBN Co has overbuilt existing transmission of any carrier.⁴¹

The Access seeker submission stated that due to the nature of transmission services it was not possible to regulate a transmission service on a ‘generic’ basis without creating, at least in theory, the possibility of ‘double regulation’. Access seekers submitted that double regulation is possible with PDH and SDH network interfaces when, for example, an access seeker obtains a service from Telstra using STM 1 and that access seeker supplies its spare capacity on a wholesale basis to other access seekers at a lower ‘designated rate’.⁴²

³⁹ Telstra submission on discussion paper, pp.32-33.

⁴⁰ Telstra submission on discussion paper, pp.2, 4 (in Executive Summary), 14, 18, 24, 27, 32.

⁴¹ Telstra submission on discussion paper, p.15, 25, 34.

⁴² Access seeker submission on discussion paper, p.3.

Include an ‘automatic exemptions’ clause

Telstra noted the removal of access providers’ ability to seek ordinary exemptions under the proposed *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill* (the CACS Bill) or the *Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010* (Access Bill) (the **proposed legislation**).⁴³ As a consequence Telstra requested that the Commission adopt a new methodology for declarations, involving an in-built mechanism that adjusts the level of regulation to match the level of competition.⁴⁴ The determination of whether a particular route is competitive would be based on data taken from record keeping rules (RKR)s.⁴⁵

Telstra submitted that if the Commission were to implement a variation to the DTCS service description it should also take the opportunity to vary the service description to ensure that declaration does not apply to:

- any transmission routes where NBN Co has overbuilt existing transmission of any carriers
- any transmission routes where excess capacity exists and there is more than one infrastructure-based competitor, and
- where there are more than two infrastructure-based competitors on a route.⁴⁶

Telstra submitted that a similar mechanism has been adopted by the Australian Competition Tribunal in *Application by Chime (no 3)* [2009] ACompT 4.⁴⁷

Define network interfaces based on international standards, such as the ITU-T and IEEE⁴⁸

VHA submitted that the Commission should refer to particular ITU-T or IEEE standards.⁴⁹ Optus and VHA requested that new protocols and interface standards be added to the service description as they are recognised by the ITU-T and IEEE.

VHA suggested that the Commission determine that including additional network interfaces is a variation of a minor nature for the purpose of s. 152AO(3) of the Act and expressly stated that, notwithstanding the reference to particular network interfaces, the service description is intended to be technology neutral. Alternatively, the definition of the expression ‘designated rate’ could be drafted non-exhaustively to

⁴³ Currently in exposure draft form.

⁴⁴ Telstra submission on discussion paper, p.34.

⁴⁵ Telstra submission on Draft final report, p.24.

⁴⁶ Telstra submission on discussion paper, p.34.

⁴⁷ Telstra submission on the Draft final report, p.24.

⁴⁸ Optus submission on discussion paper, p. 8. VHA submission on discussion paper, p. 5. Macquarie Telecom submission on discussion paper, p.3.

⁴⁹ VHA submission on discussion paper, p. 5.

include SDH, PDH, Ethernet or any other protocol which provides similar functionality.⁵⁰

The Commission's view

The Commission is of the view that the DTCS declaration should apply to all transmission services regardless of the network interface used to provide the service. However, the Commission has carefully considered all submissions and recognises that there is a level of ambiguity about the network interfaces covered by the DTCS service description in its current form.

The Commission considers that this ambiguity can be addressed by amending the service description to simplify the opening description of the DTCS and include a new definition of network interfaces that more closely reflects industry practice and is sufficiently technological neutral to be able to adapt to changes in technology.

In response to these submissions on the Discussion paper, the Commission revised the opening description of the DTCS in the Draft final report:

The domestic transmission capacity service is a service for the carriage of certain communications from one transmission point to another transmission point via symmetric network interfaces on a permanent uncontended basis by means of guided and/or unguided electromagnetic energy, except communications between....

The revision clarifies that transmission services are provided on a symmetric and permanent basis to a particular access seeker and are not shared with other access seekers.

The new definition of 'network interfaces' replaces the current definition of 'designated rate' and expressly, but not exhaustively, identifies the widely used transmission network interfaces PDH, SDH and Ethernet. This would provide certainty as to the network interfaces covered by the service description and provide sufficient flexibility to accommodate any changes in industry practice about the network interfaces used for transmission services.

The new definition of 'network interfaces' also specifies a minimum transmission rate of 2.048 Mbit/s or above which access providers provide to themselves or others. This would address concerns about access to transmission rates that are not commonly available by capturing only the transmission services above a certain speed that the access provider already provides itself (or others).

In addition, a new definition of 'uncontended' is introduced to clarify that transmission services are dedicated to particular access seekers and are not shared

⁵⁰ Optus submission on discussion paper, p. 8. VHA submission on discussion paper, p. 5.

with other access seekers. The Commission has also corrected minor grammatical errors in the service description.

The revised service description is set out in full in [Appendix 2](#).

The Commission has not included an automatic exclusion clause (as proposed by Telstra) in the context of this review because it considers that it would go beyond the bounds of the purpose of this inquiry and may be inconsistent with proposed legislation.⁵¹ The Act does not expressly provide for conditions to be placed on declarations; rather, exemptions are available to ‘wind back’ the application of standard access obligations in certain circumstances after a public inquiry. With respect to the Australian Competition Tribunal’s adoption of such a mechanism, the Commission notes that the Tribunal adopted this mechanism in the exemptions context, where the Act expressly provides for conditions and limitations to be placed on exemptions. The Commission is of view that it would not be appropriate to adopt such a mechanism in the context of this inquiry. In relation to the proposed legislation, and given that it is currently being considered by Parliament and is not yet law, the Commission notes there will be the ability to conditionally exclude certain routes from the standard access obligations in an access determination (assuming the proposed legislation passes in its present form).⁵² The Commission also considers that Telstra’s proposed automatic exclusion may cause uncertainty for industry and that further consultation would be required.⁵³

3.2 Draft final report

The Commission received submissions on the revised service description which, for the most part, supported the approach taken by the Commission in the Draft final report. There were a number which identified further changes or areas requiring clarification including the need for the DTCS service description to:

- either delete or define the word ‘symmetric’
- specifically identify ‘Ethernet over SDH’ in the service description
- re-define ‘uncontended’ so that it does not exclude ‘Ethernet over fibre’ services
- re-define ‘network interfaces’ to remove ambiguity
- include an automatic exemption clause.

⁵¹ The proposed legislation includes the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill* (the CACS Bill) or the *Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010* (Access Bill).

⁵² See for example proposed paragraph 152BC(3)(h) inserted by item 116 of the CACS Bill.

⁵³ Refer to sections 152AS to 152ATA of the Act.

Delete or define the word ‘symmetric’

VHA submits that the word ‘symmetric’ should be taken out of the opening wording of the service description on the basis that it is not required⁵⁴ while Optus submits that it should be defined as ‘the same data rate in both directions’.⁵⁵

Identify ‘Ethernet over SDH’ in the service description

Telstra repeats the submission that ‘Ethernet over SDH’ be specifically identified in the service description on the basis that it would create the greatest level of certainty over the Ethernet technology which the Commission intends to regulate. Telstra nevertheless supports the use of the words ‘permanent’, ‘uncontended’ and ‘symmetric’ in the service description in order to identify ‘Ethernet over SDH’ should the Commission choose not to specifically name ‘Ethernet over SDH’.⁵⁶

Re-define ‘uncontended’ so that it does not exclude ‘Ethernet over fibre’ services

Optus submits that by defining ‘uncontended’ as ‘dedicated and not shared’ the proposed definition has the potential to exclude ‘Ethernet over fibre’, or native Ethernet services, which can be considered as both shared and uncontended. In doing so the proposed definition would go against the objective of having a declaration which is technologically neutral in circumstances where transmission technology is moving towards Ethernet over fibre. It would also impede access seeker ability to access DTCS services which use Ethernet network interfaces. Optus proposes the following alternative definition in order to overcome such an eventuality:

Uncontended means that the sum of the total bandwidth assigned to users on a given transmission link is no more than the total bandwidth available, ie. the bandwidth assigned to each user is guaranteed.⁵⁷

Re-define ‘network interfaces’ to remove ambiguity

A number of submissions were made in relation to the definition of ‘network interfaces’. Austar suggests that it be amended to mean ‘a network interface, including Ethernet’.⁵⁸ VHA submits that the following words be added (italicised) ‘include, *but are not limited to* Ethernet, PDH an SDH network interfaces...’ to ensure that new network interfaces are accommodated.⁵⁹

⁵⁴ Vodafone Hutchison Australia Ltd, *Letter - Domestic Transmission Capacity Service – proposed variation to the Declaration*, 23 August 2010 (VHA submission on the Draft final report), p.2.

⁵⁵ Singtel Optus Pty Ltd, Optus submission to Australian Competition and Consumer Commission in response to the Draft Report on the DTCS Service Description – Public Version, August 2010 (Optus submission on the Draft final report), p.4.

⁵⁶ Telstra submission on Draft final report, p.16.

⁵⁷ Optus submission on the Draft final report, pp. 5-7.

⁵⁸ Austar submission on the Draft final report, p.5.

⁵⁹ VHA submission on the Draft final report, p.2.

Telstra argues that the DTCS should not cover Ethernet network interfaces but that if the Commission is minded to include Ethernet network interfaces as well as PDH and SDH network interfaces, it should define ‘network interfaces’ to include only these three. To this end the definition should be exhaustive so that it does not capture services going into data centres with different network interfaces and network interfaces yet to be developed without any analysis of markets they serve or state of competition. For the definition to be exhaustive the word ‘including’ should be changed for ‘are’.

Telstra also submits that the proposed variation is too broad and would lead to regulation of Ethernet services supplied by access seekers using their own infrastructure or using ULLS and SDH inputs.⁶⁰

Include an automatic exemption clause

Telstra’s submissions concerning the automatic clause are similar to the submissions it made on the Discussion paper.⁶¹

The Commission’s view

The Commission considers that the service description proposed in the Draft final report (set out in [Appendix 2](#) and adopted in this Final report) adequately balances the need to define the DTCS so that it extends to wholesale transmission services but is broad enough that it captures all point to point transmission services irrespective of the network interface or underlying input used to provide each service.

The Commission considers it necessary to describe network interfaces as ‘symmetric’ in order to avoid capturing services such as DSL. The Commission notes that ‘symmetric’ is a term which is widely understood by the telecommunications industry to mean the same data in both directions and that it does not therefore require defining within the DTCS service description. The Commission also does not consider it necessary to specifically refer to Ethernet over SDH in the DTCS service description as it is already adequately covered in the revised service description with ‘...symmetric network interfaces on a permanent, uncontended basis’.

In relation to Optus’ submission on the definition of ‘uncontended’, the Commission notes that Telstra retains control of the quality of its business grade services (such as the ‘Ethernet over fibre’ services) whereas the DTCS is a transmission service in which the supply and quality of service is controlled by the access seeker. The Commission does not intend to regulate business services such as Telstra’s ‘Ethernet over fibre’ and is not persuaded by the proposition that the revised service description is not in the LTIE or in accordance with the principle of regulating the underlying transmission service irrespective of the interface used to deliver the service.

⁶⁰ Telstra submission on the Draft final report, p.17.

⁶¹ Telstra submission on the Draft final report, pp.24-25.

Finally, the Commission notes that the definition of 'network interfaces' is intended to be inclusive so that the service description captures transmission services irrespective of the network interface used to provide the service. The Commission considers that the revised definition achieves this objective. The Commission also considers that declaration and exemption inquiries already provide for regular assessment of the state of competition in DTCS markets and that it is not necessary therefore to conduct a market analysis every time the industry adopts a new network interface.

4 Will varying the declaration promote competition?

4.1 The Commission's approach to defining markets

Defining markets relevant for transmission services allows the Commission to meaningfully analyse the effectiveness of competition, and the likely effect of varying the existing DTCS declaration. The markets identified may be for declared transmission, non-declared transmission, or any relevant downstream markets.

The Act directs the Commission's attention to the markets for listed services in which competition may be promoted. In most cases, this is likely to be the markets for downstream services rather than the market in which the eligible service is supplied. The process of market definition also involves determining the market boundaries of transmission or any downstream markets, which can be described in product, geographic and functional terms.⁶²

4.2 Defining the market in which the eligible services are supplied

In the 2009 DTCS Final report, the Commission identified the relevant downstream markets for the DTCS as the range of retail services (that can be supplied using transmission services) which are delivered over optical fibre including national long distance, international call, data and IP-related markets. The Commission also found that mobile services including voice and data were relevant downstream markets.

The Commission sought submissions in the Discussion paper on whether the proposed variation to the service description of the DTCS declaration was likely to have an impact on the definition of markets for transmission services.

Market definition

Telstra submitted in its submissions on the Discussion paper that the proposed variation would extend the market definition for transmission services well beyond what is normally considered a 'transmission service'. Telstra argued that the market relating to the proposed service description in the Discussion paper could include Ethernet services at multiple network layers and that the proposed variation is inconsistent with the method of market definition normally adopted by the Commission. Telstra considered that the Commission should undertake analysis of the different wholesale markets and also undertake a proper analysis of product substitutability in Ethernet markets. Telstra's key argument was that declarations should not simultaneously apply to multiple product markets and regulate products that are inherently not substitutable given that they exist in different markets. Telstra

⁶² ACCC, *Merger Guidelines*, November 2008, p. 15. ACCC, *Telecommunications services – Declaration provisions – a guide to the declaration provisions of Part XIC of the Trade Practices Act*, July 1999, pp.40-47.

was also concerned that under the proposed variation in the Discussion paper, asymmetric services such as DSL might be captured within the same markets as Ethernet.⁶³

Telstra argued that the position adopted by the Commission is inconsistent with international approaches to the regulation of Ethernet. Although regulation of Ethernet has been considered necessary in some overseas jurisdictions, in the UK, SDH/PDH transmission was found to exist in a different wholesale market to Ethernet-based transmission, and regulation of Ethernet only applied to Ethernet services utilising low bandwidth and terminating services. In Canada, Ethernet-based transmission services are also defined and regulated separately to traditional SDH and PDH transmission.⁶⁴

VHA and Macquarie Telecom submitted that they did not expect the proposed variation in the Discussion paper to have any effect on the market definition for transmission services.⁶⁵ Macquarie Telecom reasoned that while Ethernet network interfaces, in addition to other existing protocols, might change the style of delivering services to end-users it would not change the services delivered to end-users *per se* on the basis that no new services would be created nor would any existing services be withdrawn as a result of the proposed variation.⁶⁶

Geographic dimension

In establishing the geographic dimensions of the market, the Commission has regard to factors including any limitations on the ability of access to alternative sources of supply in different regions; the costs of switching to alternative sources of supply; and the relative price levels and price movements of different geographic sources of supply.⁶⁷ The 2009 DTCS Final report found that broad geographical categories for transmission services were useful in identifying particular transmission markets. The Commission concluded that the geographic markets encompassed inter-capital transmission, capital-regional routes, inter-regional routes and local exchange and tail-end transmission in regional, metropolitan and CBD areas.⁶⁸

In the Discussion paper, the Commission sought views on whether the geographic dimension of the transmission services markets was likely to be affected by the proposed variation to the DTCS service description.

Telstra submitted that the geographic scope for regulation would be greatly increased due to the broader functional scope of the service description and the different geographical areas supplied by that broader functional scope. Telstra argued that, currently, there is no geographical impediment in Ethernet markets and that the

⁶³ Telstra submission on discussion paper, p. 35.

⁶⁴ Telstra submission on discussion paper, pp.27-28.

⁶⁵ VHA submission on discussion paper, p.9. Macquarie Telecom submission on discussion paper, p.3.

⁶⁶ Macquarie Telecom submission on discussion paper, p.3.

⁶⁷ ACCC, *Merger Guidelines*, November 2008, pp.16-17.

⁶⁸ ACCC, 2009 DTCS Final report, p.10.

Commission should define the service description to automatically exclude any routes where there are multiple competitors with excess capacity.⁶⁹

In response to the Draft final report, Telstra submits that it fails to adequately address the geographic aspect of the declaration and that the declaration will potentially apply to locations where there is already effective competition. Telstra argues that the Final Exemption Decision is based on information collected in 2007 and that since then competition has increased due to new investment, an introduction of Government funded competitors and advances in alternative transmission technologies. Telstra also considers that the geographic footprint of competition for Ethernet services is different to that of SDH transmission and that long term leases should also be considered equivalent to fibre build for exemption purposes. Telstra considers that there are a significant number of routes subject to regulation which have two or more fibre infrastructure competitors and that it is incumbent on the Commission to consider the impact of the geographic reach of competition and update the scope of declaration accordingly.⁷⁰

In their submissions on the Discussion paper, VHA and Macquarie Telecom submitted that they did not consider that the proposed variation would impact the geographic dimensions for the declared DTCS.⁷¹ Macquarie Telecom reasoned that this was because Ethernet network interfaces (in addition to other existing protocols) applied equally across the geographic markets and that no new geographic markets would be created nor would any existing geographic markets be closed as a result of the proposed variation.⁷²

Technologies used to provide transmission services

In the 2009 DTCS Final report and Final Exemption Decision, the Commission concluded that optical fibre remained the dominant technology for the provision of transmission services despite the alternate technologies which are sometimes utilised for a similar function.⁷³

The Commission sought submissions in the Discussion paper on whether the proposed variation to the DTCS service description to include Ethernet network interfaces would have an impact on the use of optical fibre for the provision of transmission services.

Telstra submitted that the proposed regulation would adversely influence technology choice and impede its adoption. Telstra also argued that the proposed regulation of

⁶⁹ Telstra submission on discussion paper, pp. 3 (in Section A), 36. Telstra submission on the Draft final report, pp. 24-25.

⁷⁰ Telstra submission on the Draft final report, pp.19-24.

⁷¹ VHA submission on discussion paper, p.9. Macquarie Telecom submission on discussion paper, p.4.

⁷² Macquarie Telecom submission on discussion paper, p.4.

⁷³ ACCC, 2009 DTCS Final report, pp.14-15.

Ethernet would impede the long-term development of effective infrastructure competition.⁷⁴

VHA submitted that SDH, PDH and Ethernet are the technologies which are almost universally used to deliver the DTCS by optical fibre and that the proposed variation to the service description to include Ethernet network interfaces would not affect the use of optical fibre for the provision of transmission services.⁷⁵ Macquarie Telecom agreed that the proposed variation would have no impact on the use of optical fibre because the use of Ethernet network interfaces equally applied to optical fibre as the existing network interfaces and no new technology would be required for the use the Ethernet network interfaces.⁷⁶

The Commission's view

The Commission is of the view that the proposed variation to the DTCS service description is unlikely to alter the definition of downstream DTCS markets identified by the Commission in 2009 DTCS Final report. The inclusion of Ethernet network interfaces in the DTCS service description is not expected to, by itself, create new services and geographic markets, withdraw services or close markets.

The Commission notes that Ethernet network interfaces use optical fibre as do SDH and PDH network interfaces and that the variation to the DTCS service description will not therefore affect the use of technology in the provision of transmission services or create new data delivery methods.

Furthermore, the Commission notes its findings in the 2009 DTCS Final report that alternative technologies which may be employed for certain aspects of transmission do not possess the full range of service attributes as optical fibre. For example, the Commission does not consider microwave services will become a viable substitute on capital-regional routes given that it cannot be utilised effectively across the entire range of downstream demands.

Similarly, tail-end transmission technologies such as Unconditioned Local Loop Service (ULLS), Hybrid Fibre Coaxial network (HFC), Local Multipoint Distribution System (LMDS) and Multi-Channel Multipoint Distribution System (MMDS) are unable to match optical fibre in terms of capacity or customer acceptance for the full range of transmission requirements.⁷⁷

The Commission is therefore of the view that the variation of the service description to include Ethernet network interfaces will not alter the viability of such technologies.

⁷⁴ Telstra submission on discussion paper, p.36.

⁷⁵ VHA submission on discussion paper, p.9.

⁷⁶ Macquarie Telecom submission on discussion paper, p.4.

⁷⁷ ACCC, 2009 DTCS Final report, pp.14-15.

The Commission considers that the revised service description in the Draft final report addresses Telstra's concern over possible regulation of multiple network layers or asymmetric services such as DSL where it describes network interfaces as 'symmetric' and delivered on an 'uncontended' and 'permanent' basis. The Commission further notes that Telstra has not made any further submissions on this point in its submissions on the Draft final report.

In relation to the suggestion that government funded competitors provide competitive constraints, the Commission notes that most of these services are either in their infancy or still in the process of being rolled-out. Further, any long-term leased transmission services in declared areas are provided on the existing underlying infrastructure which is the source of the bottleneck for the DTCS.

Finally, the Commission considers that the routes which were exempted in the 2009 Final Exemption Decision adequately address Telstra's concerns over regulation of transmission markets with effective competition or contestability. As already stated earlier in this Final report, the Commission considers that deregulation should be achieved through the existing exemption process and not using conditional mechanisms in a declaration.

4.3 Market Structure

Market structure is an important determinant of a competitive market. When examining the effect of the proposed variation on the structure of transmission markets the Commission is interested in assessing whether the current number of participants in transmission services is likely to change via new market entry or existing players exiting the market.

In the 2009 DTCS Final report, the Commission found that existing capital-regional or inter-capital fibre networks which were less than 1 km from a town's regional post office could provide a constraint on incumbent behaviour and pricing. Nevertheless, there was limited contestability in metropolitan and CBD tail-end transmission markets and relevant markets for many inter-exchange transmission services. The Commission considered high sunk costs in the transmission market represented a significant barrier to entry making it economically inefficient to duplicate existing network infrastructure. The Commission also found that optical fibre was likely to remain the dominant technology across all transmission services, and that high barriers to entry in many DTCS markets were likely to remain.⁷⁸

In the Discussion paper, the Commission sought comments on whether the market structure for the DTCS was likely to be affected by the proposed variation to the DTCS service description.

⁷⁸ ACCC, 2009 DTCS Final report, p.20.

Telstra submitted that the proposed variation of the service description in the Discussion paper risked catching a wide range of new wholesale and retail markets, that it might have an adverse impact on competition in downstream markets on the basis that it would impede upstream infrastructure investment and slow facilities based competition in wholesale markets. Additionally, Telstra argued that the declaration itself becomes a barrier to entry in transmission markets by deterring potential infrastructure-based competitors. As a result, Telstra submitted that the proposed variation could lead to regulation of a range of services at multiple layers of the supply chain.⁷⁹

Macquarie Telecom reasoned that while the use of the Ethernet network interfaces (in addition to other existing protocols) would affect the style of delivering services to end-users, it would not materially alter the height of entry barriers *per se* as they applied to transmission markets. The outcome of the proposed variation would therefore be to create the potential for variation to the style of service delivery. There would be no change to the optical fibre delivery platform, or any material change in the cost structure of end-user service delivery as a result. As such, Macquarie Telecom did not expect the proposed variation to change existing incentives for potential entrants to the market for transmission services.⁸⁰

Macquarie Telecom predicted that the proposed variation would have a positive (and likely minor) effect on competition in downstream markets on the basis that the proposed variation would ensure that Telstra would supply the DTCS using Ethernet network interfaces which in turn would create opportunities for retail operators to offer competitive services to end-users.⁸¹

VHA agreed that the proposed variation would not affect the barriers to entry. To the extent Ethernet network interfaces were not covered by the current service description, VHA submitted that the proposed variation promoted competition in downstream markets for the reasons set out by the Commission in the 2009 DTCS Final report.

To the extent Ethernet network interfaces were covered by the current service description, VHA submitted that the variation promotes the LTIE as it removes any doubt regarding the scope of the declaration and provides additional business certainty for access providers with respect to their investment decisions and for access seekers with respect to the scope of the declared DTCS.⁸²

The Commission's view

The Commission considers that the proposed variation to the DTCS declaration would not alter the Commission's market analysis or affect the Commission's

⁷⁹ Telstra submission on discussion paper, pp.16, 27-37.

⁸⁰ VHA submission on discussion paper, p.10. Macquarie Telecom submission on discussion paper, p.5.

⁸¹ Macquarie Telecom submission on discussion paper, p.5.

⁸² VHA submission on discussion paper, p.10.

findings in the 2009 DTCS Final report. In its March 2009 Final report,⁸³ the Commission found a range of downstream markets relevant for the purposes of evaluating whether the DTCS declaration would promote competition. These downstream markets included national, long distance, international call, data and IP-related markets, mobile and local call markets.⁸⁴ In 2009 the Commission also exempted particular routes from regulation based on the existence of competition and irrespective of the network interface used.⁸⁵

The Commission reaffirms its competition analysis in the 2009 DTCS Final report that the declared DTCS is largely characterised by significant barriers to entry caused by the cost of laying fibre, limited supply or demand side substitutability and a dominant incumbent.⁸⁶ The competition analysis in the 2009 DTCS Final report did not define network interface specific markets, rather it assessed the DTCS market as a whole. For this reason, the Commission does not consider that the downstream markets for the DTCS and the state of competition are likely to have changed.

The Commission also does not consider it necessary to separately define DTCS markets on the basis of network interfaces used to provide the service or conduct definitive competition analysis on this basis. The Commission notes that it is sufficient under Part XIC of the Act to broadly identify the scope of relevant markets likely to be affected by the declaration and that a market definition analysis should be seen in the context of shedding light on how a variation would promote competition rather than in the context of developing 'all purpose' market definitions.⁸⁷

Further, the inclusion of Ethernet network interfaces in the DTCS service description will not affect the use of optical fibre as the main technology for the delivery of the DTCS nor the high sunk costs which are associated with laying it.

The Commission considers that, irrespective of the cost of technology used to convert to an Ethernet interface protocol, a bottleneck exists in DTCS routes which are currently declared. This bottleneck affects the state of competition in DTCS markets and exists irrespective of the network interface used to deliver the service. Where it does not, the Commission has exempted the route from regulation. The state of competition in DTCS markets does not therefore pivot on a particular network interface but on other factors which prevent entry into the market such as the high cost associated with laying optic fibre, the absence of substitute services and presence of a dominant incumbent. It is for this reason that the Commission does not consider further market analysis on transmission services delivered via a particular network interface to be necessary to assessing the current and likely future state of competition, with or without the variation to the service description.

⁸³ *Domestic Transmission Capacity Service - An ACCC Final Report on reviewing the declaration of the domestic transmission capacity service*, March 2009.

⁸⁴ ACCC, 2009 DTCS Final report, p.10. The ACCC confirmed the markets identified in the 2004 DTCS Final report at page 22.

⁸⁵ ACCC, 2009 DTCS Final report, pp.27, 38-40.

⁸⁶ ACCC, 2009 DTCS Final report, p.26.

⁸⁷ ACCC, *Fixed Services Review, A second position paper – public version*, April 2007, p.33.

4.4 Conclusion on whether the proposed variation will promote competition

The revised service description in Appendix 2 provides a technology-neutral approach to the regulation of transmission services. It will promote competition by ensuring that access seekers continue to be provided with the DTCS, where the market would otherwise not be competitive, without being limited by the network interface used to provide the service. Without the variation to the DTCS declaration, the state of competition in markets of transmission services using Ethernet network interfaces is likely to remain the same where they are uncompetitive due to the cost of laying fibre, limited substitutability and a dominant incumbent.

The Commission notes that the DTCS requires network interfaces in order to operate and that by ensuring that the DTCS service description covers Ethernet network interfaces, the variation removes obstacles of access to transmission services which use this particular network interface as its underlying technology.

In addition to gaining access to DTCS services which use Ethernet network interfaces, the Commission is cognisant of how critical it is for access to be at a reasonable price in order to ensure continued innovation and vigorous competition in downstream services. The Commission is of the view that by varying the service description to include Ethernet network interfaces, innovation and competition in downstream services will be further encouraged as transmission services delivered via Ethernet network interfaces create opportunities for retail operators to offer competitive services to end-users.

The Commission will remain attentive to developments in the market and assess any potentially competitive services with a view of rolling back regulation where it is found to be in the LTIE.

5 Will varying the declaration achieve any-to-any connectivity?

In determining whether the DTCS declaration should be varied the Commission must make an assessment as to whether a variation to the service declaration would be likely to achieve any-to-any connectivity in relation to carriage services that involve communication between end-users. In the 2009 DTCS Final report, the Commission found that the variation to the declaration would not have an impact on the achievement of any-to-any connectivity between end-users.

In the Discussion paper, the Commission sought views on whether the proposed variation to the DTCS service description to include reference to network interfaces and a minimum data rate is likely to affect the achievement of any-to-any connectivity between end-users.

Telstra submitted that the proposed variation was unlikely to affect any-to-any connectivity given that there is no evidence of Ethernet being unavailable in the market or any refusal of providers to supply it.⁸⁸ Macquarie Telecom submitted that the proposed variation would not impinge on any-to-any connectivity as Ethernet network interfaces (in addition to other existing protocols) might change the style of delivering services to end-users but not the ability of any end-user to connect with another end-user.⁸⁹ VHA did not expect there to be any impact on any-to-any connectivity.⁹⁰

The Commission's view

The Commission notes the submissions from Macquarie Telecom and Optus which suggest that there have been instances where Telstra has refused to supply wholesale transmission services using Ethernet network interfaces in the past.⁹¹ The Commission also notes Telstra's submission that it occasionally has been unable to meet access seeker requests in particular areas where the local exchange locations were not enabled for the supply of Ethernet services but that it is unaware of any instance of refusal to supply Ethernet services in areas enabled for the provision of such services.⁹²

Although the Commission does not consider that it is at present in a position to determine whether Telstra has refused to supply transmission services using Ethernet network interfaces, the Commission nevertheless considers that the proposed variation to the DTCS service description will serve to encourage any-to-any connectivity between end-users in relation to voice and data services which use

⁸⁸ Telstra submission on discussion paper, pp.16, 36.

⁸⁹ Macquarie Telecom submission on discussion paper, p.5.

⁹⁰ VHA submission on discussion paper, p.10.

⁹¹ Optus submission on discussion paper, p.9. Macquarie Telecom submission on discussion paper, p.1.

⁹² Telstra submission on Draft final report, p.8.

transmission services delivered via Ethernet network interfaces. The Commission considers that this is likely given the prevalence of current use of Ethernet in telecommunication equipment and delivery of services in the telecommunications market.

6 Will varying the declaration encourage efficient use of, and investment in, infrastructure?

In assessing whether a variation to the DTCS service description will promote the LTIE the Commission must consider whether it is likely to encourage the economically efficient use of, and economically efficient investment in:

- infrastructure by which listed services are supplied, and
- any other infrastructure by which listed services are, or are likely to become, capable of being supplied.

The Commission considers that efficiency has three major components – allocative, productive and dynamic. In general, each of these forms of efficiency is enhanced when prices of given services reflect the underlying costs of providing these services. These components are discussed further in [Appendix 3](#).

In its 2009 DTCS Final report, the Commission was of the view that the varied 2009 DTCS declaration promoted both the efficient use of and efficient investment in infrastructure.

In the Discussion paper, the Commission sought submissions on whether the proposed variation to the DTCS service description to include reference to network interfaces and a minimum data rate would encourage or discourage the efficient use of, and investment in, infrastructure.

Telstra submitted that the proposed variation of the DTCS would not encourage efficient investment as regulating at higher layers offers access seekers a choice between creating their own service (based on the regulated lower layer inputs) or simply buying the end product. Telstra submitted that this would result in reliance on regulated access products and reduce investment in key infrastructure and alternative infrastructure.⁹³

Telstra also argued that introducing regulation at multiple layers would:

- distort investment decisions and increase the likelihood of inefficient outcomes
- distort build/buy signals and create scope for significantly regulatory arbitrage
- distort prices across downstream and substitute services, and
- distort and deter new investment and impede the long-term development of effective infrastructure competition, particular backhaul services.⁹⁴

⁹³ Telstra submission on discussion paper, pp.16-17.

⁹⁴ Telstra submission on discussion paper, pp. 4 (in Executive Summary), 14, 16, 36. Telstra submission on Draft final report, p.14

Telstra submitted that double regulation of substitute products could lead to inefficient investment decisions since the risk of error in relative pricing is greatly increased. Access providers would also be wary as to their ability to recover their actual costs under an 'efficient cost' pricing construct and the move to wholesale price controls as contemplated by the new legislative regime.⁹⁵

Further, the proposed variation had the potential to deter and delay investment in, and the roll out of, new wholesale Ethernet services (because any new technology will be subject to regulation) and that internationally regulatory forbearance has occurred in markets where Ethernet is still in the early stages of deployment to encourage innovation and investment in the technology.⁹⁶ Regulation would also not promote efficient use of Ethernet interfaces, or transmission infrastructure, because access seekers are able to self-supply Ethernet services and there is a widespread commercial supply by a number of carriers.⁹⁷

Macquarie Telecom, Optus, VHA and Access seekers found that the proposed variation would encourage efficient use, and efficient investment in, infrastructure.⁹⁸ Macquarie Telecom was of the view that the proposed variation ensures that Ethernet network interfaces are integral to the DTCS and this supported investor confidence in investments which are dependent on the DTCS. Macquarie Telecom considered investment in a service or infrastructure which includes Ethernet to be preferable to an investment which excludes Ethernet.⁹⁹

Optus considered that the inclusion of Ethernet network interfaces in the service description was likely to facilitate more widespread adoption of and investment in modern transmission technologies. The availability of wholesale Ethernet would enable more advanced services to be provided by a greater number of carriers and stimulate greater service differentiation and product choice in the market. It would also enable a greater number of entrants to build a retail customer base and this in turn would encourage such carriers to invest in their own infrastructure in the future.¹⁰⁰

VHA submitted that the proposed variation to the service definition creates an incentive (albeit a moderate one) for an access provider to deliver transmission capacity services through a technology not covered by the declaration. VHA did not consider at this stage that viable alternatives to the network interfaces proposed by the Commission existed or that the newly created incentive would be sufficient for an access provider to change their technology choice. VHA submitted that the risk of the service description distorting investment decisions would be minimised if it expressly

⁹⁵ Telstra submission on discussion paper, pp.17, 36. Telstra submission on Draft final report, p.15.

⁹⁶ Telstra submission on discussion paper, pp.2 (in the Executive Summary), 36.

⁹⁷ Telstra submission on Draft final report, p.14.

⁹⁸ Macquarie Telecom submission on discussion paper, p. 5. Optus submission on discussion papers, p.9. VHA submission on discussion paper, p.10. Access seeker submission on discussion paper, pp.3-4.

⁹⁹ Macquarie Telecom submission on discussion paper, p.5.

¹⁰⁰ Optus submission on discussion papers, p.9.

states that it is intended to be technology neutral and if the Commission determines that including additional network interfaces is a variation of a minor nature for the purpose of s.152AO(3) of the Act, thereby forgoing the need for a further public inquiry.

To the extent Ethernet network interfaces are not covered by the current service description, VHA submitted that the variation promotes the efficient investment in infrastructure for the reasons in the 2009 DTCS Final report. To the extent Ethernet network interfaces are covered by the current service description, VHA expected the proposed variation would moderately encourage economically efficient use of, and investment in, transmission infrastructure (over and above declaration itself). As submitted above, the clarification of the service definition provides additional business certainty for access providers with respect to their investment decisions and for access seekers with respect to the scope of the declared DTCS. VHA strongly supported the Commission's move to improve business certainty with respect to declared services.¹⁰¹

The Access seeker submission submitted that Ethernet layer services (as opposed to IP layer) are essential for connecting their IP DSLAMs back to their core networks. The lack of clarity about the application of the current DTCS declaration to Ethernet interface and transport detracted from the access seekers' ability to deploy DSLAMs at exchanges where only Telstra transmission is available.

Furthermore, an inability to obtain reasonably priced access to Ethernet backhaul has led to access seekers having to purchase 34 Mbit/s backhaul and then move to STM-1 (155 Mbit/s) backhaul links depending on the level of traffic per access seeker DSLAM site. Access seekers regarded this as inefficient (and not in the LTIE) when Ethernet capacity increments can be less than 1 Mbit/s thereby avoiding unnecessary wastage of network capacity by access seekers.¹⁰²

The Commission's view

The Commission notes that the purpose of the variation inquiry is to remove any ambiguity about the services covered by the DTCS and to ensure that the service description has the effect of being appropriately technologically neutral by including reference to all commonly used network interfaces in a way which is able to adapt to new network interfaces as they emerge.

The Commission has had regard to the submissions on the cost effectiveness and efficiencies of Ethernet technologies. The Commission does not consider that it is in the LTIE to limit the network interface in the DTCS service description based on whether access seekers can access Ethernet over SDH. The Commission also considers that it would be inefficient to require access seekers to convert a transmission service using an SDH network interface to an Ethernet network interface

¹⁰¹ VHA submission on discussion paper, p.10.

¹⁰² Access seeker submission on discussion paper, p.3.

as it would require the provision of additional electronic equipment by access seekers when access providers can supply the same service by inserting an Ethernet line card into an SDH multiplexer in areas where it is technically possible. The Commission further notes that there are cost related and technical efficiencies which can be gained from using Ethernet network interfaces in the delivery of transmission services to end-users and that these will serve to encourage efficient use of the infrastructure used to deliver the DTCS.

The Commission considers that it is technically feasible for access providers to provide the DTCS using Ethernet network interfaces given the prevalence of Ethernet network interfaces in the current transmission market and the fact that it is likely to be used in future upgrades to Australian telecommunication networks.

The Commission considers that it has addressed Telstra's concerns over regulation of higher or multiple layers in the revised service description and notes that it did not receive any submissions from access providers on whether the cost of supply of the DTCS using Ethernet network interfaces were unreasonable or whether the supply of the DTCS using Ethernet network interfaces would have particular effects on the operation or performance of telecommunications networks. The Commission is of the view that these are not issues for access providers whilst noting access seeker submissions which describe Ethernet interfaces as the preferred interface for providing cost effective and scalable interfaces.¹⁰³

The Commission considers that the technical feasibility by which access seekers are able to obtain transmission services and provide retail services to end-users is increased by the revised service description as it incorporates Ethernet network interfaces, the default standard for vendors of telecommunication equipment and preferred network interface for broadband networks. The Commission also has regard to the legitimate commercial interests of access providers, including their ability to exploit economies of scale and scope, and considers that these interests will be enhanced by the revised service description as it serves to clarify the services covered by the DTCS declaration.

The Commission notes access seeker views which, in different ways, submit that the proposed declaration variation will encourage efficient use, and investment in, infrastructure used to supply the DTCS, or at the very least not discourage it. The Commission considers that DTCS routes which have been recently exempted from the DTCS declaration as evidence that regulation has helped to encourage efficient investment in infrastructure used to provide the DTCS.

The Commission notes that the revised service description will also serve to cover transmission services where there is a lack of effective competition irrespective of network interface. This will provide certainty for CSPs' investment decisions and is likely to encourage efficient investment by CSPs once they secure a retail customer base of a certain threshold.

¹⁰³ Macquarie Telecom submission on discussion paper, p.1.

7 The Commission's overall conclusion

The Commission considers that the variation to the DTCS service description is in the LTIE as it serves to ensure that regulation of the DTCS encourages competition in relevant DTCS markets, promotes any-to-any connectivity between end-users and encourages efficient use, and investment in, infrastructure used to provide the DTCS (and related downstream markets) irrespective of network interface used.

The Commission considers that the proposed variation to the DTCS declaration will promote competition in DTCS markets by ensuring that access seekers will continue to be provided with the DTCS where the market would otherwise not be competitive. In doing so the proposed variation will ensure regulation of the DTCS where there is a lack of competition in DTCS markets and not on whether it is delivered via a particular network interface.

The Commission considers that the proposed variation will encourage any-to-any connectivity between end-users given the prevalence of the current use of Ethernet in telecommunication equipment and delivery of services in the telecommunications market.

The Commission considers that efficient use of infrastructure used to provide the DTCS will be promoted by the proposed variation. The Ethernet network interface is common in modern network equipment and likely to be used in future upgrades to Australian telecommunication networks. The Commission notes that adapters or other equipment are unlikely to be necessary where Ethernet network interfaces are used given the prevalence of Ethernet in the market. The Commission considers that the use of Ethernet network interfaces is likely therefore to be more cost effective than other network interfaces. The Commission is also of the view that the variation to the declaration will provide certainty for CSPs in their investment decisions and help them build a customer base as a consequence. The Commission considers that this will encourage them to invest in efficient infrastructure once their retail customer base reaches a certain threshold

8 Other issues

8.1 National broadband network products and the DTCS

A number of submissions considered the likely impact of the DTCS declaration variation on NBN services. AAPT submitted that the DTCS declaration remain unchanged until the industry has more clarity on NBN services and the Commission has conducted a full inquiry into how these services should be declared.

Telstra submitted that any regulation of emerging national broadband network (NBN) services was premature in circumstances where the future industry structure is still the subject of ongoing analysis and negotiation. Telstra also submitted that regulation should not apply to any transmission routes where an NBN corporation has overbuilt existing transmission of any carrier.¹⁰⁴

VHA considered that it was too early to assess how NBN Co's (potential) transmission services would impact various markets for the declared DTCS.¹⁰⁵

The Commission's view

The Commission agrees that there is uncertainty surrounding the services which NBN corporations will be providing and how they will be regulated. The Commission also considers that it is too early to assess the impact of the NBN on DTCS markets.

The Commission nevertheless considers that until details of NBN final service offerings are finalised, regulation of the DTCS is in the LTIE regardless of whether it is supplied over Ethernet, PDH or SDH network interfaces and regardless of the access provider supplying it. Services provided by NBN corporations which fall within the scope of the DTCS declaration will either be regulated under the current access regime or be regulated under an NBN corporation specific access regime if the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill* (the CACS Bill) and/or the *Telecommunications Legislation Amendment (National Broadband Network Measures—Access Arrangements) Bill 2010* (Access Bill)¹⁰⁶ are passed into law.

In relation to whether NBN services will provide competitive or substitute services in transmission markets, the Commission notes that it has an ongoing commitment to assessing the level of competitiveness in DTCS related markets, including the effect of NBN services when these are made available, with a view of rolling back regulation where it is found to be in the LTIE.

¹⁰⁴ Telstra submission on discussion paper, p.34.

¹⁰⁵ VHA submission on discussion paper, p.10.

¹⁰⁶ Currently, an exposure draft.

8.2 Quality of service

AAPT submitted that there may be risks in varying the declaration without any reference to quality of service or security aspects of the services when regard is had to prospective NBN Co services.¹⁰⁷

The Commission's view

The Commission notes that the DTCS is a transmission service in which the access seeker controls the quality of service which it provides to end-users.

¹⁰⁷ AAPT submission on discussion paper, p.4.

Appendix 1 - Current DTCS service description

The domestic transmission capacity service is a service for the carriage of certain communications from one transmission point to another transmission point via network interfaces at a designated rate on a permanent basis by means of guided and/or unguided electromagnetic energy, except communications between:

- (a) one customer transmission point and another customer transmission point
- (b) a transmission point in an exempt capital city and a transmission point in another exempt capital city
- (c) one access seeker network location and another access seeker network location

Capital-regional routes

- (d) a transmission point in Sydney and a transmission point in any of the following regional centres: Albury, Lismore, Newcastle, Grafton, Wollongong, Taree, Dubbo and, with effect from 25 November 2009, Campbelltown, Gosford, Coffs Harbour and Goulburn
- (e) a transmission point in Melbourne and a transmission point in any of the following regional centres: Ballarat, Bendigo, Geelong and Shepparton
- (f) a transmission point in Brisbane and a transmission point in any of the following regional centres: Toowoomba, Gold Coast and, with effect from 25 November 2009, Townsville, Rockhampton, Bundaberg and Maryborough
- (g) a transmission point in Adelaide and a transmission point in Murray Bridge and, with effect from 25 November 2009, Port Augusta

Inter-exchange transmission (metropolitan areas)

- (h) with effect from 25 November 2009, inter-exchange transmission for the following metropolitan ESAs:
 - (1) in Sydney between transmission points located at an Exchange in any of the following ESAs: Ashfield, Balgowlah, Bankstown, Blacktown, Burwood, Campsie, Carramar, Castle Hill, Chatswood, Coogee, Cremorne, East, Eastwood, Edgecliff, Epping, Glebe, Granville, Harbord, Homebush, Hornsby, Hurstville, Kensington, Kingsgrove, Kogarah, Lakemba, Lane Cove, Lidcombe, Liverpool, Mascot, Mosman, Newtown, North Parramatta, North Ryde, North Sydney, Parramatta, Pendle Hill, Pennant Hills, Petersham, Randwick, Redfern, Revesby, Rockdale Rydalmere, Ryde, Seven Hills, Silverwater, St Leonards, Undercliffe, Waverley.

- (2) in Brisbane between transmission points located at an Exchange in any of the following ESAs: Paddington, South Brisbane, Toowong, Valley, Woolloongabba.
- (3) in Melbourne between transmission points located at an Exchange in any of the following ESAs: Ascot, Brunswick, Caulfield, Coburg, Elsternwick, Footscray, Heidelberg, Malvern, Moreland, North Melbourne, Port Melbourne, Preston, Richmond, South Melbourne, St Kilda, Toorak
- (4) in Perth between transmission points located at an Exchange in the ESAs: South Perth and Subiaco

Inter-exchange transmission (CBD areas)

- (i) with effect from 25 November 2009, inter-exchange transmission for the following CBD ESAs:
 - (1) in Sydney between transmission points located at an Exchange in any of the following ESAs: City South, Dalley, Haymarket, Kent and Pitt.
 - (2) in Brisbane between transmission points located at an Exchange in any of the following ESAs: Charlotte, Edison and Spring Hill.
 - (3) in Adelaide between transmission points located at an Exchange in any of the following ESAs: Flinders and Waymouth.
 - (4) in Melbourne between transmission points located at an Exchange in any of the following ESAs: Batman, Exhibition and Lonsdale.
 - (5) in Perth between transmission points located at an Exchange in the ESAs: Bulwer, Pier and Wellington.
 - (6) in Sydney between transmission points located at an Exchange in
 - i. any of the following ESAs: City South, Dalley, Haymarket, Kent and Pitt; and
 - ii. any of the Sydney Metro Exemption ESAs
 - (7) in Brisbane between transmission points located at an Exchange in
 - iii. any of the following ESAs: Charlotte, Edison and Spring Hill; and
 - iv. any of the Brisbane Metro Exemption ESAs
 - (8) in Melbourne between transmission points located at an Exchange in

- v. any of the following ESAs: Batman, Exhibition and Lonsdale; and
 - vi. any of the Melbourne Metro Exemption ESAs.
- (9) in Perth between transmission points located at an Exchange in
- vii. any of the following ESAs: Bulwer, Pier and Wellington; and
 - viii. any of the Perth Metro Exemption ESAs.

Definitions

Where words or phrases used in this Annexure are defined in the *Trade Practices Act 1974* or the *Telecommunications Act 1997*, they have the meaning as given in the relevant Act.

In this appendix:

an **access seeker network location** is a point in a network operated by a service provider that is not a point of interconnection or a customer transmission point

an **exempt capital city** means Adelaide, Brisbane, Canberra, Melbourne, Perth or Sydney

a **customer transmission point** is a point located at customer equipment at a service provider's customer's premises in Australia (for the avoidance of doubt, a customer in this context may be another service provider)

a **designated rate** is a transmission rate of 2.048 Megabits per second, 4.096 Megabits per second, 6.144 Megabits per second, 8.192 Megabits per second, 34 to 35 Megabits per second, 140/155 Megabits per second (or higher orders)

exchange means a telecommunications exchange and includes the land, buildings and facilities (within the meaning of section 7 of the *Telecommunications Act 1997* (Cth)) that comprise or form part of the exchange.

exchange service area or **ESA** has the meaning given to that phrase by the Australian Communications Industry Forum Limited definition in ACIF C559:2006, Part 1.

a **point of interconnection** is a physical point of interconnection in Australia between a network operated by a carrier or a carriage service provider and another network operated by a service provider

a **transmission point** is any of the following:

- a) a point of interconnection
- b) a customer transmission point
- c) an access seeker network location.

Appendix 2 - Revised DTCS service description

The domestic transmission capacity service is a service for the carriage of certain communications from one transmission point to another transmission point via symmetric network interfaces on a permanent uncontended basis by means of guided and/or unguided electromagnetic energy, except communications between:

- (a) one customer transmission point directly to another customer transmission point
- (b) one access seeker network location directly to another access seeker network location

Inter-capital routes

- (c) a transmission point in an exempt capital city and a transmission point in another exempt capital city. Exempt capital cities include: Adelaide, Brisbane, Canberra, Melbourne, Perth or Sydney

Capital-regional routes

- (d) a transmission point in Sydney and a transmission point in any of the following regional centres: Albury, Lismore, Newcastle, Grafton, Wollongong, Taree, Dubbo, Campbelltown, Gosford, Coffs Harbour and Goulburn
- (e) a transmission point in Melbourne and a transmission point in any of the following regional centres: Ballarat, Bendigo, Geelong and Shepparton
- (f) a transmission point in Brisbane and a transmission point in any of the following regional centres: Toowoomba, Gold Coast, Townsville, Rockhampton, Bundaberg and Maryborough
- (g) a transmission point in Adelaide and a transmission point in Murray Bridge and, Port Augusta

Inter-exchange transmission (metropolitan areas)

- (h) inter-exchange transmission for the following metropolitan ESAs:
 - (1) in Sydney between transmission points located at an exchange in any of the following ESAs: Ashfield, Balgowlah, Bankstown, Blacktown, Burwood, Campsie, Carramar, Castle Hill, Chatswood, Coogee, Cremorne, East, Eastwood, Edgecliff, Epping, Glebe, Granville, Harbord, Homebush, Hornsby, Hurstville, Kensington, Kingsgrove, Kogarah, Lakemba, Lane Cove, Lidcombe, Liverpool, Mascot, Mosman, Newtown, North Parramatta, North Ryde, North Sydney, Parramatta, Pendle Hill, Pennant Hills, Petersham, Randwick,

Redfern, Revesby, Rockdale Rydalmere, Ryde, Seven Hills, Silverwater, St Leonards, Undercliffe, Waverley

- (2) in Brisbane between transmission points located at an Exchange in any of the following ESAs: Paddington, South Brisbane, Toowong, Valley, Woolloongabba
- (3) in Melbourne between transmission points located at an Exchange in any of the following ESAs: Ascot, Brunswick, Caulfield, Coburg, Elsternwick, Footscray, Heidelberg, Malvern, Moreland, North Melbourne, Port Melbourne, Preston, Richmond, South Melbourne, St Kilda, Toorak
- (4) in Perth between transmission points located at an Exchange in any of the following ESAs: South Perth and Subiaco

Inter-exchange transmission (CBD areas)

- (j) inter-exchange transmission for the following CBD ESAs:
 - (1) in Sydney between transmission points located at an Exchange in any of the following ESAs: City South, Dalley, Haymarket, Kent, Pitt and exempted Sydney Metropolitan ESAs as set out in item (h)(1) of this service description
 - (2) in Brisbane between transmission points located at an Exchange in any of the following ESAs: Charlotte, Edison, Spring Hill and exempted Brisbane Metropolitan ESAs as set out in item (h)(2) of this service description
 - (3) in Adelaide between transmission points located at an Exchange in any of the following ESAs: Flinders and Waymouth.
 - (4) in Melbourne between transmission points located at an Exchange in any of the following ESAs: Batman, Exhibition, Lonsdale and exempted Melbourne Metropolitan ESAs as set out in item (h)(3) of this service description
 - (5) in Perth between transmission points located at an Exchange in any of the following ESAs: Bulwer, Pier, Wellington and exempted Perth Metropolitan ESAs as set out in item (h)(4) of this service description

Definitions

Where words or phrases used in this Annexure are defined in the *Trade Practices Act 1974* or the *Telecommunications Act 1997*, they have the meaning given in that Act.

an **access seeker network location** is a point in a network operated by a service provider that is not a point of interconnection or a customer transmission point

a **customer transmission point** is a point located at customer equipment at a service provider's customer's premises in Australia (for the avoidance of doubt, a customer in this context may be another service provider)

network interfaces include Ethernet, Plesiochronous Digital Hierarchy (PDH) and Synchronous Digital Hierarchy (SDH) network interfaces used to provide a transmission rate of 2.048 Megabits per second or above which an access provider provides to itself or others

exchange means a telecommunications exchange and includes the land, buildings and facilities (within the meaning of section 7 of the *Telecommunications Act 1997* (Cth)) that comprise or form part of the exchange

exchange service area or **ESA** has the meaning given to that phrase by the Australian Communications Industry Forum Limited definition in ACIF C559:2006, Part 1

a **point of interconnection** is a physical point of interconnection in Australia between a network operated by a carrier or a carriage service provider and another network operated by a service provider

a **transmission point** is any of the following:

- a) a point of interconnection
- b) a customer transmission point
- c) an access seeker network location

uncontended means dedicated and not shared

Appendix 3 - Long-term interests of end-users

Section 152AB of the Act states that, in determining whether declaration promotes the LTIE, regard must be had to the extent to which declaration is likely to result in the achievement of the following objectives only:

- promoting competition in markets for listed services
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users, and
- encouraging the economically efficient use of, and the economically efficient investment in: (i) the infrastructure by which listed services are supplied; and (ii) any other infrastructure by which listed services are, or are likely to become, capable of being supplied.

These objectives are interrelated. In many cases, the LTIE may be promoted through the achievement of two or all three of these matters simultaneously. In other cases, the achievement of one of these matters may involve some trade-off in terms of another of the matters, and the Commission will need to weigh up the different effects to determine whether remaking, extending, revoking or varying the existing declaration, or allowing it to expire promotes the LTIE. In this regard, the Commission will interpret 'long-term' to mean a balancing of the flow of costs and benefits to end-users over time in relation to the criteria. Thus, it may be in the LTIE to receive a benefit for even a short period of time if its effect is not outweighed by any longer term cost.

The following discussion provides an overview of what the Commission must consider in assessing each of these objectives.

Promotion of competition

Subsections 152AB(4) and (5) of the Act provide that, in interpreting this objective, regard must be had to, but is not limited to, the extent to which the arrangements will remove obstacles to end-users gaining access to listed services. The explanatory memorandum to Part XIC of the Act states that:

...it is intended that particular regard be had to the extent to which the...
[declaration]... would enable end-users to gain access to an increased range or
choice of services.¹⁰⁸

The concept of competition is of fundamental importance to the Act and has been discussed many times in connection with the operation of Parts IIIA, IV, XIB and XIC of the Act.

¹⁰⁸ Trade Practices Amendment (Telecommunications) Act 1997 (Cth) explanatory memorandum.

In general terms, competition is the process of rivalry between firms, where each market participant is constrained in its price and output decisions by the activity of other market participants. The Trade Practices Tribunal (now the Australian Competition Tribunal) stated that:

In our view effective competition requires both that prices should be flexible, reflecting the forces of demand and supply, and that there should be independent rivalry in all dimensions of the price-product-service packages offered to consumers and customers. Competition is a process rather than a situation. Nevertheless, whether firms compete is very much a matter of the structure of the markets in which they operate.¹⁰⁹

Competition can provide benefits to end-users including lower prices, better quality and a better range of services over time. Competition may be inhibited where the structure of the market gives rise to market power. Market power is the ability of a firm or firms to constrain or manipulate the supply of products from the levels and quality that would be observed in a competitive market for a significant period of time.

The establishment of a right for third parties to negotiate access to certain services on reasonable terms and conditions can operate to constrain the use of market power that could be derived from the control of these services. Accordingly, an access regime such as Part IIIA or Part XIC addresses the structure of a market, to limit or reduce the sources of market power and consequent anti-competitive conduct, rather than directly regulating conduct which may flow from its use, which is the role of Part IV and Part XIB of the Act. Nonetheless, in any given challenge to competition, both Parts XIB (or IV) and XIC may be necessary to address anti-competitive behaviour.

To assist in determining the impact on markets of remaking, extending, revoking or varying the existing declaration or allowing its expiration, the Commission will first need to identify the relevant market(s) and then to assess the likely effect on competition in each market.

Section 4E of the Act provides that the term ‘market’ includes a market for the goods or services under consideration as well as any other goods or services that are substitutable for, or otherwise competitive with, those goods or services. The Commission’s approach to market definition is discussed in its 2008 Merger Guidelines, is canvassed in its information paper, *Anti-competitive conduct in telecommunications markets*, August 1999 and is also explored in the Commission’s second *Fixed Services Review position paper*, April 2007.

The second step is to assess the likely effect of the proposal on competition in each relevant market. As noted above, subsection 152AB(4) requires that regard must be

¹⁰⁹ *Re Queensland Co-operative Milling Association Ltd; Re Defiance Holdings Ltd*, (1976) ATPR 40-012, 17,245.

had to the extent to which a particular thing will remove obstacles to end-users gaining access to listed services.

The Commission considers that denial to service providers of access to necessary upstream services on reasonable terms is a significant obstacle to end-users gaining access to services. In this regard, declaration can remove such obstacles by facilitating entry by service providers, thereby providing end-users with additional services from which to choose. For example, access to a mobile termination service may enable more service providers to provide fixed to mobile calls to end-users. This gives end-users more choice of service providers.

Where existing market conditions already provide for the competitive supply of services, the access regime should not impose regulated access. This recognises the costs of providing access, such as administration and compliance, as well as potential disincentives to investment. Regulation will only be desirable where it leads to benefits in terms of lower prices, better services or improved service quality for end-users that outweigh any costs of regulation.

In the context of considering whether remaking, extending, revoking or varying the declaration or allowing its expiration will promote competition, it is appropriate to examine the impact of the existing declaration on each relevant market, the likely effect of altered access obligations (due to the removal of the declaration) on the relevant market, and compare the likely competitive environment in that market before and after the proposed remaking, extension, revocation, variation, or expiration of the declaration. In examining the market structure, the Commission considers that competition is promoted when market structures are altered such that the exercise of market power becomes more difficult; for example, because barriers to entry have been lowered (permitting more efficient competitors to enter a market and thereby constraining the pricing behaviour of the incumbents) or because the ability of firms to raise rivals' costs is restricted.

Any-to-any connectivity

Subsection 152AB(8) of the Act provides 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 means of that service, or a similar service, with other end-users whether or not they are connected to the same network. The reference to 'similar' services in the Act enables this objective to apply to services with analogous but not identical functional characteristics, such as fixed and mobile voice telephony services or Internet services which may have differing characteristics.

The any-to-any connectivity requirement is particularly relevant when considering services that involve communications between end-users. When considering other types of services (such as carriage services that are inputs to an end-to-end service or

distribution services such as the carriage of pay television), the Commission generally considers that this matter will be given less weight compared to the other two matters.

Efficient use of, and investment in, infrastructure

Subsections 152AB(6) and (7A) of the Act provide that, in interpreting this objective, regard must be had to, but is not limited to, the following:

- whether it is, or is likely to become, technically feasible for the services to be supplied and charged for, having regard to:
 - the technology that is in use, available or likely to become available
 - whether the costs that would be involved in supplying, and charging for, the services are reasonable, or likely to become reasonable
 - 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 to exploit economies of scale and scope, and
- the incentives for investment in:
 - infrastructure by which the services are supplied, and
 - any other infrastructure by which the services are, or are likely to become, capable of being supplied.

In considering incentives for investment in infrastructure, the Commission must have regard to the risks involved in making the investment.

Economic efficiency has three components.

- Productive efficiency refers to the efficient use of resources within each firm such that all goods and services are produced using the least cost combination of inputs.
- Allocative efficiency refers to the efficient allocation of resources across the economy such that the goods and services that are produced in the economy are the ones most valued by consumers. It also refers to the distribution of production costs amongst firms within an industry to minimise industry-wide costs.
- Dynamic efficiency refers to the efficient deployment of resources between present and future uses such that the welfare of society is maximised over time. Dynamic efficiency incorporates efficiencies flowing from innovation leading to the development of new services, or improvements in production techniques.

The Commission will need to ensure that the access regime does not discourage investment in networks or network elements where such investment is efficient. The access regime also plays an important role in ensuring that existing infrastructure is used efficiently where it is inefficient to duplicate investment in existing networks or network elements.

The technical feasibility of supplying and charging for particular services

This incorporates a number of elements, including the technology that is in use or available, the costs of supplying, and charging for, the services and the effects on the operation of telecommunications networks.

In many cases, the technical feasibility of supplying and charging for particular services given the current state of technology may be clear, particularly where (as in the present case) the service is already declared and there is a history of providing access. The question may be more difficult where there is no prior access, or where conditions have changed. Experience in other jurisdictions, taking account of relevant differences in technology or network configuration, will be helpful. Generally the Commission will look to an access provider to demonstrate that supply is not technically feasible.

The legitimate commercial interests of the supplier, including the ability of the supplier to exploit economies of scale and scope

A supplier's legitimate commercial interests encompass its obligations to the owners of the firm, including the need to recover the cost of providing services and to earn a normal commercial return on the investment in infrastructure. The Commission considers that allowing for a normal commercial return on investment will provide an appropriate incentive for the access provider to maintain, improve and invest in the efficient provision of the service.

A significant issue relates to whether or not capacity should be made available to an access seeker. Where there is spare capacity within the network, not assigned to current or planned services, allocative efficiency would be promoted by obliging the owner to release capacity for competitors.

Paragraph 152AB(6)(b) of the Act also requires the Commission to have regard to whether the access arrangement may affect the owner's ability to realise economies of scale or scope. Economies of scale arise from a production process in which the average (or per unit) cost of production decreases as the firm's output increases. Economies of scope arise from a production process in which it is less costly in total for one firm to produce two (or more) products than it is for two (or more) firms to each separately produce each of the products.

Potential effects from access on economies of scope are likely to be greater than on economies of scale. A limit in the capacity available to the owner may constrain the

number of services that the owner is able to provide using the infrastructure and thus prevent the realisation of economies of scope associated with the production of multiple services. In contrast, economies of scale may simply result from the use of the capacity of the network and be able to be realised regardless of whether that capacity is being used by the owner or by other carriers or carriage service providers. Nonetheless, the Commission will assess the effects on the supplier's ability to exploit both economies of scale and scope on a case-by-case basis.

The impact on incentives for investment in infrastructure

Firms should have the incentive to invest efficiently in infrastructure. Various aspects of efficiency have been discussed already. It is also important to note that while access regulation may have the potential to diminish incentives for some businesses to invest in infrastructure, it may also ensure that investment is efficient and reduce the barriers to entry for other (competing) businesses or the barriers to expansion by competing businesses.

There is also a need to consider the effects of any expected disincentive to investment from anticipated increases in competition to determine the overall effect on the LTIE. The Commission is careful to ensure that services are not declared where there is a risk that incentives to invest may be dampened, such that there is little subsequent benefit to end-users from the access arrangements.

Appendix 4 - List of submissions received by the ACCC

Submissions on the Discussion paper

AAPT Limited, *Submission by AAPT Limited to the Australian Competition and Consumer Commission in response to Domestic Transmission Capacity Service, a discussion paper reviewing the declaration for the domestic transmission capacity service*, November 2009.

Herbert Geer, *Submissions from Chime Communications Pty Ltd, Primus Telecommunications Pty Ltd, Agile Pty Ltd and Wideband Networks Pty Ltd (the Access Seekers) in response to the ACCC's discussion paper reviewing the declaration for the Domestic Transmission Capacity Service (DTCS)*, 1 February 2010.

Macquarie Telecom Pty Limited, *Letter - Review of Domestic Transmission Capacity Service Declaration*, 18 December 2009.

Singtel Optus Pty Limited, *Optus submission to ACCC in response to the DTCS service description*, January 2010 (public and confidential version).

Vodafone Hutchison Australia Limited, *Domestic Transmission Capacity Service – Scope of the Definition – Submission to the Australian Competition and Consumer Commission*, January 2010 (public and confidential version).

Telstra Corporation Limited, *Ethernet briefing – Proposed DTCS variation*, 15 December 2009.

Telstra Corporation Limited, *Response to the ACCC discussion paper reviewing the declaration for the domestic transmission capacity service*, 25 January 2010 (public and confidential version).

Letter sent as part of Telstra's submissions from Eur Ing Peter Ingram (Ingenios Consulting) dated 20 January 2010.

Telstra Corporation Limited, *Declaration of Ethernet– technology issues*, 20 April 2010 (public and confidential version).

Submissions on the Draft final report

Austar Entertainment Pty Limited, *Comments on the ACCC Final Draft Report on reviewing the Domestic Transmission Capacity Service*, 20 August 2010 (public and confidential version).

Macquarie Telecom Pty Limited, *Letter - Domestic Transmission Capacity Service Declaration*, 30 July 2010.

Singtel Optus Pty Ltd, Optus submission to Australian Competition and Consumer Commission in response to the Draft Report on the DTCS Service Description, August 2010 (public version)

Vodafone Hutchison Australia Limited, *Letter - Domestic Transmission Capacity Service – proposed variation to the Declaration*, 23 August 2010.

Telstra Corporation Ltd, *Response to the ACCC Draft Final Report on review of the declaration of the domestic transmission capacity service*, 20 August 2010 (public version).