



DOMESTIC TRANSMISSION CAPACITY SERVICE

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

July 2010



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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 (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, 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 2009 DTCS declaration took into account the routes and exchange service areas (ESAs) due to be exempted (in accordance with the Final Exemption Decision) from 25 November 2009 (when the Commission's exemption orders commenced). 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 is conducting a public inquiry to review the existing DTCS declaration (and if necessary vary the existing 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 Commission is reviewing the DTCS declaration in order to clarify the DTCS service description and assess whether the current DTCS service description covers all commonly used interface protocols on transmission networks in Australia such as the PDH (Plesiochronous Digital Hierarchy), SDH (Synchronous Digital Hierarchy) and Ethernet interface protocols.

1.4 Summary of findings of the inquiry

The Commission's view is that the declaration of the DTCS should be varied so that it covers all commonly used interface protocols 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 interface protocol 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 interface protocols to the other commonly used interface protocols referred to in the service description.

The Commission notes that the standard access obligations only apply to active declared services which are declared services supplied by access providers to themselves or others (subsection 152AR(2) of the Act). The Commission considers that access providers need only provide access to the DTCS via an interface protocol and data rate which the access provider uses to provide the service to itself or others within a particular ESA. The Commission is of the view that it is reasonable for access seekers to have the right to request access via a particular interface protocol and data rate where there is more than one being used by the access provider in the deployment of the DTCS at an exchange service area (ESA).

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.

The Commission finds that the proposed variation is in the long term interests of end-users (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, where the market would otherwise not be competitive, without being limited by the interface protocol used to deliver the service.
- Any-to-any connectivity – the Commission considers that any-to-any connectivity will be encouraged by the variation to the declaration as it clarifies the interface protocols through which any-to-any connectivity may be achieved.
- Economically efficient use of and investment in infrastructure – the Commission considers that efficient use of infrastructure used to provide the DTCS will be promoted where the Ethernet interface protocol is deployed as it 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 interface protocols are used given the prevalence of Ethernet in the market. The Commission considers that the use of Ethernet interface protocols is likely therefore to be more cost effective than other interface protocols. 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 Timetable and Inquiry Process

2.1 Timetable for the Inquiry

Under Part 25 of the Telecommunications Act, the Commission must provide a reasonable opportunity for any member of the public to make a written submission to a public inquiry.

In November 2009, the Commission released the Discussion paper. The Commission received a number of submissions and briefings from interested parties between January and April 2010. AAPT, VHA, Macquarie Telecom, Telstra, Gilbert and Tobin and Optus representatives also attended a roundtable meeting with ACCC staff on 10 March 2010. The public submissions and briefings that were lodged are available on the Commission's website at www.accc.gov.au. A list can also be found in Appendix 4 of this Draft final report.

After reviewing submissions the Commission sets out its preliminary findings in this Draft final report for public comment. Interested parties must make submissions in response to the Commission's findings in this Draft Report by **5 pm, on 20 August 2010**.

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.

2.2 Making submissions

The Commission encourages industry participants, other stakeholders and the public more generally to consider the matters set out in this Draft report.

All submissions will be considered as public submissions and will be posted on the Commission's website. If interested parties wish to submit commercial-in-confidence material as part of their submission to the Commission, parties should submit both a public and commercial-in-confidence version of their submission. The public version of the submission should clearly identify the commercial-in-confidence material by replacing the confidential material with an appropriate symbol or 'c-i-c'. Interested parties submitting a c-i-c version of their submission must also provide details of a contact person to whom enquiries regarding the c-i-c material can be directed.

Submissions are to be sent by email, in Microsoft word or other text searchable document form to:

Contact Officer:

A copy of correspondence should be sent to:

Elsbeth Philpott

Grahame O'Leary

Senior Project Officer
Communications Group
Australian Competition & Consumer
Commission
GPO Box 3648
Sydney NSW 2001

Director
Communications Group
Australian Competition & Consumer
Commission
GPO Box 3648
Sydney NSW 2001

Phone: (02) 9230 9168
Facsimile: (02) 9231 5652
Email: elsbeth.philpott@acc.gov.au

Phone: (02) 9230 3832
Facsimile: (02) 9231 5652
Email: grahame.oleary@acc.gov.au

3 Is varying the DTCS service description to include Ethernet interface protocols necessary and in the long term interests of end users?

The Commission is of the view that the DTCS declaration should apply to all transmission services regardless of the interface protocol used to provide the service so that regulation may effectively encourage competition in downstream markets which would otherwise not be competitive, promote any-to-any connectivity between end-users and encourage efficient use, and investment in, infrastructure used to provide the service.

The current DTCS service description (detailed in [Appendix 1](#)) refers to transmission over network interfaces at a ‘designated rate’. 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 interface protocols known in the industry as PDH (Plesiochronous Digital Hierarchy) and SDH (Synchronous Digital Hierarchy).

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.

Ethernet interface protocols use data rates such as:

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).

⁸ ACCC, 2009 DTCS Final Report, p.41.

- 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

Submissions against variation

Telstra submitted that it is not necessary or appropriate to vary the service description to include Ethernet interface protocols 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
- 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

⁹ ACCC, Discussion paper, p.7.

- 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’.¹⁰

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

- there is no undeclared network bottleneck in Ethernet markets, or any evidence of enduring or unregulated bottlenecks
- competition is already effective in downstream markets
- ‘Ethernet over fibre’ normally coincides with routes where there already exists infrastructure-based competition. 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.¹¹

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.¹²

Finally, Telstra argues that the variation is unnecessary because it is premature, potentially harmful and has adverse ramifications for the future supply of 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

¹⁰ Telstra Corporation Ltd *Response to the ACCC Discussion Paper reviewing the Declaration for the Domestic Transmission Capacity Service*, 26 January 2010 (Telstra submission), pp.3-8 (in Executive Summary and Section A).

¹¹ Telstra submission, pp. 3-4 (in Executive Summary and Section A), 9-12, 14.

¹² Telstra submission, pp.3-4 (in Executive Summary), 15.

regulated (if at all) until the markets have matured and to do otherwise would adversely influence technology choice and impede its adoption.¹³

AAPT Limited (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 agreement 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.¹⁴

However Telstra and AAPT agree on the importance of Ethernet interface protocols in the delivery of telecommunication services. Telstra describes Ethernet as:

- a common ‘interface protocol’ with a wide range of services and devices interconnecting, and
- used in a multitude of services and have, in effect, become ubiquitous.¹⁵

Submissions supporting variation because Ethernet interface protocols are used in transmission services

Singtel Optus Pty Ltd (Optus), Macquarie Telecom Pty Limited (Macquarie Telecom), Vodafone Hutchison Australia Limited (VHA) and a joint submission from Chime Communications Pty Ltd, Primus Telecommunications Pty Ltd, Agile Pty Ltd and Wideband Networks Pty Ltd (Access seeker submission) agree that Ethernet interface protocols are widely used in transmission capacity services and should be included in the DTCS service description.¹⁶ Submitters describe Ethernet interface protocols 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 interface protocols¹⁷

¹³ Telstra submission, pp.2-3 (in Executive Summary), 10, 15.

¹⁴ 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), pp.2-4.

¹⁵ Telstra submission, pp.19-20.

¹⁶ Singtel Optus Pty Ltd, *Optus submission to ACCC in response to the DTCS service description*, January 2010 (Optus submission), p.9. Macquarie Telecom Pty Ltd, *Letter - Review of Domestic Transmission Capacity Service Declaration*, 18 December 2009 (Macquarie Telecom submission), 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), p.5. 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), p.3.

¹⁷ Optus submission, p.6.

- the preferred interface protocol of the developing broadband network environment¹⁸
- the preferred interface for providing cost effective and scalable interfaces. Macquarie Telecom notes that it, and many other carriers, is replacing many of the SDH lines used in its core network to Ethernet¹⁹
- the interface protocol 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 markets²⁰
- the default standard for telecoms equipment vendors²¹
- an interface protocol which is rapidly replacing earlier standards.²² Access seekers consider Ethernet layer services (as opposed to internet protocol (IP)) as essential for connecting IP DSLAMs back to core networks²³
- an interface protocol which is consistent with the future technology path for mobile and fixed services²⁴ and the inclusion of which supports the principle that regulation should be technology neutral.²⁵

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 interface protocols commonly used over the Australian network. To do otherwise would risk divorcing the DTCS from the guiding principle of contestability applied by the ACCC²⁶.

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.²⁷

Similarly Macquarie Telecom and Optus note that Telstra has refused to supply wholesale transmission services using Ethernet interface protocols in the past, particularly in non-CBD areas, and that the proposed variation is likely to change Telstra’s policy on the supply of transmission services and thereby enable them to offer competitive services to end-users.²⁸

¹⁸ Macquarie Telecom submission, p.-2.

¹⁹ Macquarie Telecom submission, p.1.

²⁰ Optus submission, p.9.

²¹ Macquarie Telecom submission, p.1.

²² Optus submission, p.6. Access seeker submission, p.4.

²³ Access seeker submission, p. 3.

²⁴ VHA submission, pp. 1, 7.

²⁵ Macquarie Telecom submission, p.2.

²⁶ *Domestic Transmission Capacity Service - An ACCC Final Report on reviewing the declaration of the domestic transmission capacity service, March 2009*

²⁷ Access seeker submission, pp. 2-4.

²⁸ Optus submission, p.9. Macquarie Telecom submission, p.1.

Submissions supporting variation because the service description is unclear

Optus, Macquarie Telecom, VHA and access seeker submission agree that the proposed variation will clarify the scope of the existing DTCS service description and should be varied to specifically refer to Ethernet interface protocols as well as PDH and SDH.²⁹

Macquarie Telecom submits that Ethernet interface protocols 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 interface protocols. Macquarie Telecom suggests that, at best, Ethernet interface protocols could be considered as partly included in the service description as data rates of one Gigabit (1000 Megabits 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.³⁰ Optus notes that it could be argued that Ethernet interface protocols 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.³¹

The Commission’s view

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

The Commission notes that most submitters also agree that there exists a level of ambiguity surrounding the particular interface protocols which are covered by the DTCS service description. The Commission considers that variation of the DTCS is therefore necessary in order to remove this ambiguity and to ensure that the service description covers all commonly used interface protocols in the Australian network.

The Commission also considers that such a variation 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 irrespective of interface protocol used.

Maintaining the DTCS service description in its current form would fail to address the ambiguity over the interface protocol which may be used to supply the DTCS and risks excluding from regulation transmission services which use Ethernet interface protocols in markets which lack competition.

²⁹ Optus submission, p. 7. Macquarie Telecom submission, pp.2-3. VHA submission, pp. 1, 5. Access seeker submission, p.3.

³⁰ Macquarie Telecom submission, p.2.

³¹ Optus submission, p.7.

The Commission is of the view that it is not in the LTIE to limit the interface protocols in the DTCS service description based on whether access seekers can access Ethernet over SDH. The Commission does not accept that Ethernet over fibre is an emerging technology because it has been used for the past 4-5 years in Telstra's network and is prevalent in the current Australian transmission network.

The Commission also does not consider it necessary to separately define DTCS markets on the basis of interface protocols used to provide the service or conduct 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 declaration would promote competition rather than in the context of developing 'all purpose' market definitions.³²

In its March 2009 Final Report reviewing the declaration of the DTCS³³, the ACCC conducted competition analysis on DTCS markets which found a range of downstream markets for the purposes of evaluating whether the declaration would promote competition. These downstream markets included national, long distance, international call, data and IP-related markets, mobile and local call markets.³⁴ In 2009, the ACCC also exempted particular routes from regulation based on the existence of competition and irrespective of the interface protocols used.³⁵

The Commission reaffirms its competition analysis in the 2009 DTCS Final Report that the declared DTCS is largely characterised by significant barriers to entry, limited supply or demand side substitutability and a dominant incumbent.³⁶ Little is likely to have changed in the state of competition in relevant DTCS markets since 2009 and the Commission does not consider that downstream markets for transmission services using Ethernet interface protocols will be any different to those which use PDH and SDH interface protocols. The Commission is of the view therefore that conducting further market analysis on transmission services using Ethernet interface protocols is not necessary.

The Commission also notes that access providers are not under any obligation to supply access seekers with an active declared service which they do not provide to themselves or others within a particular ESA. The Commission considers, however, that access seekers should have the right to request a particular data rate where there is more than one available from an access provider within an ESA. The Commission also notes that exemptions from declaration may be sought under section 152AT of the Act.

³² ACCC, *Fixed Services Review, A second position paper – public version*, April 2007 p.33.

³³ *Domestic Transmission Capacity Service - An ACCC Final Report on reviewing the declaration of the domestic transmission capacity service*, March 2009

³⁴ ACCC, 2009 DTCS Final Report, p.10. The ACCC confirmed the markets identified in the 2004 DTCS Final Report at page 22.

³⁵ ACCC, 2009 DTCS Final Report, pp.27, 38-40.

³⁶ ACCC, 2009 DTCS Final Report, p. 26.

4 Proposed variations to the DTCS service description in submissions

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 interface protocols based on international standards, such as the ITU-T and IEEE
- correct grammatical errors in relation to the IEEE and ITU-T
- include the commonly used PDH transmission speed of 45 Mbit/s in the definition of the 'designated rate'

Clarify the calculation of the bandwidth

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

Telstra raises the possibility of access seekers requesting transmission services at speeds outside current bandwidth increments and in a manner inconsistent with international standards.³⁷ Telstra refers to the approach in the UK, which limits regulation of Ethernet to low bandwidth (i.e. less than 1 Gbp/s) transmission services³⁸ 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

³⁷ Telstra submission, pp.4 (in Executive Summary), 15, 33.

³⁸ Telstra submission, pp.27, 32

Telstra submits that the words ‘where neither transmission point is a customer transmission point’ ensures that the service description applies to inter-exchange services only.³⁹

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

Optus submits 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).⁴⁰

Telstra submitted that the current proposed variation is 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:

- extend regulation to 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 proposes that the Commission limit the scope of its variation as described in point 1 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.⁴¹

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’, the proposed variation should apply to wholesale carrier grade services in Telstra’s network and not to the business grade services (i.e. Ethernet over fibre).

³⁹ Telstra submission, pp.33-34.

⁴⁰ Optus submission, pp.7- 8.

⁴¹ Telstra submission, pp. 4 (in Executive Summary), 7-8, 13, 18, 31. Telstra Corporation Limited, *Ethernet Briefing – Proposed DTCS variation*, 15 December 2009 (Telstra Ethernet Briefing), p.2.

Telstra proposed the following draft:

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 submits that the words ‘circuit switched’ 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).⁴²

Telstra also submits that the proposed variation 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.⁴³

In Telstra’s opinion, any regulation of emerging national broadband network (NBN) services is 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 submits 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.⁴⁴

Access seekers making a combined submission submit that due to the nature of transmission services it is not possible to regulate a transmission service on a ‘generic’ basis without creating, at least in theory, the possibility of ‘double regulation’. Access seekers submit that double regulation is possible with PDH and SDH interface protocols 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’.⁴⁵

⁴² Telstra submission, pp.32-33.

⁴³ Telstra submission, pp.2, 4 (in Executive Summary), 14, 18, 24, 27, 32.

⁴⁴ Telstra submission, p.15, 25, 34.

⁴⁵ Access seeker submission, p.3.

Include an ‘automatic exemptions’ clause

Telstra notes the removal of access providers ability to seek ordinary exemptions under the proposed legislation and as a consequence wants the Commission to adopt a new methodology for service descriptions, involving an in-built mechanism that adjusts the level of regulation to match the level of competition.⁴⁶

Telstra submits 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.⁴⁷

Define interface protocols based on international standards, such as the ITU-T and IEEE⁴⁸

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

VHA suggests that the Commission determine that including additional interface protocols is a variation of a minor nature for the purpose of s. 152AO(3) of the Act and expressly state that, notwithstanding the reference to particular interface protocols, the service description is intended to be technology neutral. Alternatively, the definition of the expression ‘designated rate’ could be drafted non-exhaustively to include SDH, PDH, Ethernet or any other protocol which provides similar functionality.⁵⁰

Correct grammatical errors⁵¹ and include 45 Mbit/s in a definition of the ‘designated rate’⁵²

The Commission is aware of minor grammatical errors in the declaration. The Commission also understands that the reference to ‘35’ Megabits per second in the current definition of ‘designated rate’ is a typographical error which should be interpreted as ‘45’ and notes that this is reflected in industry practice.

⁴⁶ Telstra submission, p.34.

⁴⁷ Telstra submission, p.34.

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

⁴⁹ VHA submission, p. 5.

⁵⁰ Optus submission, p. 8. VHA submission, p. 5.

⁵¹ Macquarie Telecom, p.3.

⁵² Access seeker submission, p.4.

The Commission's view

The Commission is of the view that the DTCS declaration should apply to all transmission services regardless of the interface protocol used to provide the service. However, the Commission has carefully considered all submissions and recognises there is a level of ambiguity about the network interface protocols 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.

The revised opening description of the DTCS would read:

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 particular access seekers and are not shared with others.

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

The new definition of 'network interfaces' would also specify 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). It also reflects that access providers are not obliged to supply access seekers with a declared service they do not provide themselves 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.

The Commission has also corrected minor grammatical errors in the service description.

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

5 Will varying the declaration promote competition?

5.1 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.⁵³

5.2 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 submits that the proposed variation will extend the market definition for transmission services well beyond what is normally considered a 'transmission service'. They argue 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 argues 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 is that declarations should not simultaneously apply to multiple product markets and regulate products that are inherently not substitutable given they exist in different markets. Telstra is also concerned that under the proposed variation in the Discussion

⁵³ 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.

paper, asymmetric services such as DSL might be captured within the same markets as Ethernet.⁵⁴

Telstra further argues 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 United Kingdom (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.⁵⁵

VHA and Macquarie Telecom submit that they do not expect the proposed variation will have any effect on the market definition for transmission services.⁵⁶ Macquarie Telecom reasons that while Ethernet interface protocols, in addition to other existing protocols, may change the style of delivering services to end-users it will not change the services delivered to end-users *per se* on the basis that no new services will be created nor will any existing services be withdrawn as a result of the proposed variation.⁵⁷

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.⁵⁸ 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.⁵⁹

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 submits that the geographic scope for regulation will 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 argues that, currently, there is no geographical impediment in Ethernet markets and that the

⁵⁴ Telstra submission, p. 35.

⁵⁵ Telstra submission, pp.27-28.

⁵⁶ VHA submission, p.9. Macquarie Telecom submission, p.3.

⁵⁷ Macquarie Telecom submission, p.3.

⁵⁸ ACCC, *Merger Guidelines*, November 2008, pp. 16-17.

⁵⁹ 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.⁶⁰

VHA and Macquarie Telecom submit that they do not consider that the proposed variation will impact the geographic dimensions for the declared DTCS.⁶¹ Macquarie Telecom reasons that this is because Ethernet interface protocols (in addition to other existing protocols) will apply equally across the geographic markets and that no new geographic markets will be created nor will any existing geographic markets be closed as a result of the proposed variation.⁶²

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.⁶³

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

Telstra submits that the proposed regulation will adversely influence technology choice and impede its adoption. Furthermore, Telstra argues that the proposed regulation of Ethernet will impede the long-term development of effective infrastructure competition.⁶⁴

VHA submits that SDH, PDH and Ethernet are the technologies almost universally used to deliver the DTCS by optical fibre and that the proposed variation to the service description to include Ethernet interface protocols will not affect the use of optical fibre for the provision of transmission services.⁶⁵ Macquarie Telecom agrees that the proposed variation will have no impact on the use of optical fibre because the use of Ethernet interface protocols will apply equally to optical fibre as the existing interface protocols and no new technology will be required for the use the Ethernet interface protocols.⁶⁶

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

⁶⁰ Telstra submission, pp. 3 (in Section A), 36.

⁶¹ VHA submission, p.9. Macquarie Telecom submission, p.4.

⁶² Macquarie Telecom submission, p.4.

⁶³ ACCC, 2009 DTCS Final Report, pp.14-15.

⁶⁴ Telstra submission, p.36.

⁶⁵ VHA submission, p. 9.

⁶⁶ Macquarie Telecom submission, p.4.

by the ACCC in 2009 DTCS Final Report. The inclusion of Ethernet interface protocols 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 interface protocols use optical fibre as do SDH and PDH interface protocols 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 also unable to match optical fibre in terms of capacity or customer acceptance for the full range of transmission requirements.⁶⁷

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

Finally, the Commission considers automatic exclusions in the service description is unnecessary as the routes which were exempted from regulation in the 2009 DTCS Final Report adequately address Telstra's concerns over regulation of transmission markets with effective competition or contestability.

5.3 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

⁶⁷ ACCC, 2009 DTCS Final Report, pp.14-15.

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.⁶⁸

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

Telstra submits that the proposed variation of the service description in the Discussion paper risks catching a wide range of new wholesale and retail markets, that it may 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 argues that the declaration itself becomes a barrier to entry in transmission markets by deterring potential infrastructure-based competitors. As a result, Telstra submits that the proposed variation could lead to regulation of a range of services at multiple layers of the supply chain.⁶⁹

Macquarie Telecom reasons that while the use of the Ethernet interface protocols (in addition to other existing protocols) will affect the style of delivering services to end-users, it will not materially alter the height of entry barriers *per se* as they apply to transmission markets. The outcome of the proposed variation will therefore be to create the potential for variation to the style of service delivery. There will be no change to the optical fibre delivery platform, nor any material change in the cost structure of end user service delivery as a result. As such, Macquarie Telecom does not expect the proposed variation to change existing incentives for potential entrants to the market for transmission services.⁷⁰

Macquarie Telecom predicts that the proposed variation will have a positive (and likely minor) effect on competition in downstream markets on the basis that the proposed variation will ensure that Telstra will supply DTCS using Ethernet interface protocols which in turn will create opportunities for retail operators to offer competitive services to end-users.⁷¹

VHA agrees that the proposed variation will not affect the barriers to entry. To the extent Ethernet interface protocols are not covered by the current service description, VHA submits that the proposed variation promotes competition in downstream markets for the reasons set out by the Commission in the 2009 DTCS Final Report.

To the extent Ethernet interface protocols are covered by the current service description, VHA submits that the variation promotes the LTIE as it removes any

⁶⁸ ACCC, 2009 DTCS Final Report, p.20.

⁶⁹ Telstra submission, pp.16, 27-37.

⁷⁰ VHA submission, p.10. Macquarie Telecom submission, p.5.

⁷¹ Macquarie Telecom submission, p.5.

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.⁷²

The Commission's view

The Commission considers that the proposed variation to the DTCS declaration would not alter the ACCC's market analysis or affect the ACCC's findings in the 2009 DTCS Final Report that competition in the market for the DTCS is not effective, except for the routes which have been exempted, and that the declared DTCS is largely characterised by significant barriers to entry, limited supply or demand side substitutability and a dominant incumbent.

Furthermore, the Commission does not consider that the inclusion of Ethernet interface protocols in the DTCS service description will 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.

5.4 Conclusion on whether the proposed variation will promote competition

The Commission considers that the proposed variation to the service description in the current declaration will promote competition by ensuring that access seekers continue to be provided with the DTCS, where the market would otherwise not be competitive, notwithstanding the interface protocol used to provide the service.

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

In addition to gaining access to DTCS services which use Ethernet interface protocols, the Commission is also 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 interface protocols, innovation and competition will be further encouraged.

The Commission notes that access must also be balanced against providing incentives for efficient investment in the market to ensure the long-term interests of end-users are also addressed. To achieve this, 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.

⁷² VHA submission, p.10.

6 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 interface protocols and a minimum data rate is likely to affect the achievement of any-to-any connectivity between end-users.

Telstra submits that the proposed variation is 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.⁷³

Macquarie Telecom submits that the proposed variation will not impinge on any-to-any connectivity as Ethernet interface protocols (in addition to other existing protocols) may change the style of delivering services to end-users but not the ability of any end user to connect with another end user.⁷⁴

VHA does not expect there to be any impact on any-to-any connectivity.⁷⁵

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 interface protocols in the past.⁷⁶

The Commission is of the view 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 transmission services delivered via Ethernet interface protocols. 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.

⁷³ Telstra submission, pp.16, 36

⁷⁴ Macquarie Telecom submission, p.5.

⁷⁵ VHA submission, p.10.

⁷⁶ Optus submission, p.9. Macquarie Telecom submission, p.1.

7 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 interface protocols and a minimum data rate would encourage or discourage the efficient use of, and investment in, infrastructure.

Telstra submits that the proposed variation of the DTCS will 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 submits that this will result in reliance on regulated access products and reduce investment in key infrastructure and alternative infrastructure.⁷⁷

Telstra also argues that introducing regulation at multiple layers will:

- distort investment decisions and increase the likelihood of inefficient outcomes
- distort build/buy signals and create scope for significantly regulatory arbitrage, and
- distort and deter new investment and impede the long-term development of effective infrastructure competition, particular backhaul services.⁷⁸

⁷⁷ Telstra submission, pp.16-17.

⁷⁸ Telstra submission, pp. 4 (in Executive Summary), 14, 16, 36.

Telstra also notes that double regulation of substitute products can lead to inefficient investment decisions since the risk of error in relative pricing is greatly increased. Access providers will 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.⁷⁹

Telstra submits that the proposed variation has the potential to deter and delay investment in, and the roll out of, new wholesale Ethernet services 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.⁸⁰

Macquarie Telecom, Optus, VHA and access seekers making a combined submission find that the proposed variation will encourage efficient use, and efficient investment in, infrastructure.⁸¹ Macquarie Telecom is of the view that the proposed variation ensures that Ethernet interface protocols are integral to the DTCS and this supports investor confidence in investments which are dependent on the DTCS. Macquarie Telecom considers investment in a service or infrastructure which includes Ethernet to be preferable to an investment which excludes Ethernet.⁸²

Optus considers that the inclusion of Ethernet interface protocols in the service description is likely to facilitate more widespread adoption of and investment in modern transmission technologies. The availability of wholesale Ethernet will 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 will also enable a greater number of entrants to build a retail customer base and this in turn will encourage such carriers to invest in their own infrastructure in the future.⁸³

VHA submits 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 does not consider at this stage that viable alternatives to the interface protocols proposed by the Commission exist or that the newly created incentive would be sufficient for an access provider to change their technology choice. VHA submits that the risk of the service description distorting investment decisions will be minimised if it expressly states that it is intended to be technology neutral and if the Commission determines that including additional interface protocols 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.

⁷⁹ Telstra submission, pp. 17, 36.

⁸⁰ Telstra submission, pp.2 (in the Executive Summary), 36.

⁸¹ Macquarie Telecom submission, p. 5. Optus submissions, p.9. VHA submission, p.10. Access seeker submission, pp.3-4.

⁸² Macquarie Telecom submission, p. 5.

⁸³ Optus submissions, p.9.

To the extent Ethernet interface protocols are not covered by the current service description, VHA submits that the variation promotes the efficient investment in infrastructure for the reasons in the 2009 DTCS Final Report. To the extent Ethernet interface protocols are covered by the current service description, VHA expects the proposed variation will 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 supports the Commission's move to improve business certainty with respect to declared services.⁸⁴

Access seekers making a combined submission submit 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 has 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 regard 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.⁸⁵

The Commission's view

The Commission notes that the purpose of the current declaration 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 interface protocols in a way which is able to adapt to new interface standards as they emerge.

The Commission has had regard to the submissions on the cost effectiveness and efficiencies of Ethernet technologies as well as those from Optus and Macquarie Telecom on their experience of restricted access to non-metropolitan Ethernet DTCS services. The Commission considers that the efficiencies which can be gained from using Ethernet interface protocols in the delivery of transmission services to end-users will be enhanced by the revised service description and that efficient use of the infrastructure used to deliver the DTCS will thereby be encouraged.

The Commission considers that it is technically feasible for access providers to provide the DTCS using Ethernet interface protocols given the prevalence of Ethernet interface protocols in the current transmission market.

⁸⁴ VHA submission, p.10.

⁸⁵ Access seeker submission, p.3.

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 interface protocols were unreasonable or whether the supply of the DTCS using Ethernet interface protocols would have particular effects on the operation or performance of the 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.⁸⁶

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 interface protocols, the default standard for vendors of telecommunication equipment and preferred interface protocol 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 a DTCS service description which covers all relevant interface protocols used to provide the service will also serve to cover transmission services where there is a lack of effective competition irrespective of interface protocol. The Commission is of the view that this is likely to encourage efficient investment by CSPs once they secure a retail customer base of a certain threshold and have greater certainty of a return of investment.

⁸⁶ Macquarie Telecom submission, p.1.

8 Other issues

8.1 National broadband network products and the DTCS

A number of submitters considered the likely impact of the DTCS declaration variation on NBN services. AAPT submits that the DTCS declaration should 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. AAPT also considers 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.⁸⁷

Telstra submits that if the proposed variation is implemented and Ethernet is regulated, that regulation should not apply to any transmission routes where an NBN corporation has overbuilt existing transmission of any carrier.⁸⁸

VHA considers that it is too early to assess how NBN Co's (potential) transmission services will impact various markets for the declared DTCS.⁸⁹

The Commission's view

The Commission agrees with submitters that there is a level of ambiguity 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 be able to assess the impact of the NBN on DTCS markets whilst noting that the scope of tail-end and inter-exchange DTCS services are likely to be substantially reduced once NBN services are fully rolled-out.

The Commission nevertheless considers that until details of NBN final service offerings are made available, regulation of the DTCS is in the LTIE regardless of whether it is supplied over Ethernet, PDH or SDH interface protocols and regardless of the access provider supplying it. NBN services which fall within the scope of the DTCS service description will either be regulated under the current access regime like any other transmission service provided by any other carrier or be regulated under an NBN corporation specific access regime if 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)⁹⁰ is passed into law.

⁸⁷ AAPT submission, p.4.

⁸⁸ Telstra submission, p.34.

⁸⁹ VHA submission, p.10.

⁹⁰ Currently, an exposure draft.

The Commission notes that under the proposed legislation a service similar to DTCS which is supplied by an NBN corporation may be subject of an:

- NBN corporation specific declaration (see proposed subsections 152AL(8A) and 152AL(8F))
- standard form of access agreement (see proposed subsection 152AL(8D))
- special access undertaking (SAU)⁹¹ (see proposed subsection 152AL(8E))⁹²
- access determination (see proposed subsection 152BC(4A))⁹³
- binding rules of conduct (see proposed subsection 152BD(4A)).⁹⁴

The Commission does not consider that the variation to the DTCS service description will necessarily determine the nature or scope of an NBN corporation specific declaration, access determination, access agreement, binding rules of conduct or SAU under the proposed legislation. The Commission therefore does not consider it necessary to delay the proposed variation to the DTCS service description in order to receive more clarity over the nature of NBN services.

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.

⁹¹ Provided that the service is not a declared service under s. 152AL(8A) and there is no relevant access determination—see proposed section 152CBA(1)(b) inserted by item 63 of the Access Bill.

⁹² Proposed sections inserted by item 33 of the Access Bill.

⁹³ Proposed section inserted by item 49 of the Access Bill.

⁹⁴ Proposed section inserted by item 56 of the Access Bill.

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 - Proposed 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 the 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 Weymouth.
 - (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 the 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) interface protocols 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.⁹⁵

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.

⁹⁵ 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.⁹⁶

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

⁹⁶ *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 in response to 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).