



DOMESTIC TRANSMISSION CAPACITY SERVICE

***An ACCC Discussion Paper reviewing pricing of the domestic
transmission capacity service***

April 2010



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1 Introduction

1.1 Background

The domestic transmission capacity service (DTCS) was deemed to be a declared service in June 1997.¹ The current DTCS Declaration is due to expire on 31 March 2014.

Transmission is a generic service that can be used for the carriage of voice, data or other communications using wideband or broadband carriage. Transmission services are a critical input to the supply of broadband and voice services to end-users across Australia. Wholesale transmission services essentially allow access seekers to connect customers in places where they do not own their own transmission networks.

In 2004 the Australian Competition and Consumer Commission (ACCC) released its pricing principles for the DTCS: *Pricing Principles for Declared Transmission Capacity Services—Final Report* (2004 DTCS Pricing Principles Determination). The 2004 DTCS Pricing Principles Determination outlined the total service long run incremental cost plus common costs (TSLRIC+) as the relevant pricing principle.² The ACCC has yet to release indicative prices and has not yet had to set a price in any access dispute for the DTCS. The current public inquiry has been set up by the ACCC to canvass in broad terms different pricing approaches to the DTCS.

1.2 Purpose

The purpose of this Discussion Paper is to seek submissions on different approaches for pricing the DTCS in a manner that is flexible enough to be consistent with both the current access regime under Part XIC of the *Trade Practices Act 1974* (Act) and proposed regulatory regimes in the Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009. The ACCC seeks comment from industry participants, other stakeholders (including end-users) and the public more generally.

This discussion paper should be read in conjunction with the accompanying report by Frontier Economics - *Economics of transmission capacity services: A report prepared for the Australian Competition and Consumer Commission (June 2009)*. The report is available on the ACCC website.

¹ ACCC, *Deeming of Telecommunications Services: a statement pursuant to section 39 of the Telecommunications (Transitional Provisions and Consequential Amendments) Act 1997*, June 1997.

² ACCC, *Pricing Principles for Declared Transmission Capacity Services—Final Report*, September 2004, pp. 23-24.

2 Timetable and Inquiry Process

2.1 Timetable for the Inquiry

The ACCC requests written submissions to this discussion paper from interested parties before 5.00 pm on **11 June 2010**. After consideration of the submissions from interested parties, the ACCC intends to issue a draft report before publishing a final report with the ACCC's findings.

2.2 Making submissions

The ACCC encourages industry participants, other stakeholders and the public more generally to make submissions to the ACCC to assist it in determining an appropriate pricing approach for the DTCS.

To foster an open, informed and consultative process, all submissions will be considered as public submissions and will be posted on the ACCC's website. If interested parties wish to submit commercial-in-confidence material as part of their submission to the ACCC, 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'.

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3 Background

3.1 The access regime

Part XIC of the Act establishes a regime for regulated access to carriage services and services which facilitate the supply of carriage services. Access obligations in relation to a particular service are established following the declaration of that service by the ACCC. Once a service is declared, there is an obligation on any access provider supplying, or proposing to supply, those services to any person (including to themselves) to supply a declared service if requested to do so by a service provider. The access regime thus enables access seekers to supply carriage or content services to their customers without the (potentially anti-competitive) restriction of key services by access providers.

The terms and conditions of supply can be agreed through commercial negotiations. If an access provider or access seeker cannot agree on the terms and conditions of supply, either party can seek arbitration of the dispute by the ACCC. Where a relevant access undertaking (accepted by the ACCC) exists, an arbitration determination made by the ACCC on access by the access seeker to the declared service must not be inconsistent with that undertaking.

3.2 Background to the DTCS declaration

The DTCS was deemed to be a declared service in June 1997.³ The declaration was subsequently varied in November 1998, May 2001 and April 2004. The current DTCS declaration took effect on 1 April 2009 and is due to expire on 31 March 2014. The DTCS declaration divides the DTCS into the following geographic categories:

- **inter-capital transmission** – transmission between transmission points located in different capital cities (Melbourne, Sydney, Perth, Brisbane, Adelaide and Canberra)
- **‘other’ transmission** (e.g. capital–regional routes) – transmission between transmission points located in different call charge areas, except for inter-capital transmission between the exempt capital cities
- **inter-exchange local transmission** – transmission between points of interconnection located at or virtually co-located with an access provider’s local exchange, and
- **tail-end transmission** – transmission between a point at a customer location and some point on the access seeker’s network.⁴

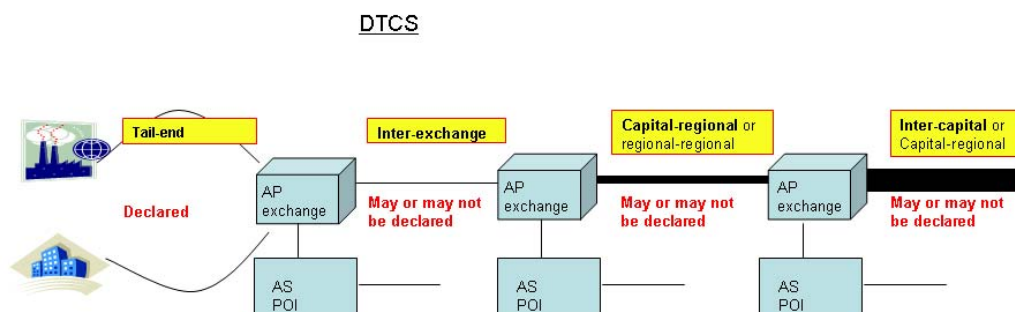
The DTCS service description (including the routes which are excluded from regulation) is set out in full in Appendix 1.

³ ACCC, *Deeming of Telecommunications Services: a statement pursuant to section 39 of the Telecommunications (Transitional Provisions and Consequential Amendments) Act 1997*, June 1997.

⁴ ACCC, *Domestic Transmission Capacity Service – An ACCC final report reviewing the declaration of the domestic transmission capacity service*, March 2009.

The figure below provides an illustration of typical transmission services that constitute the DTCS.

Figure 1: DTCS services



AP: Access Provider
AS: Access Seeker
POI: Point of Interconnection

Since the DTCS was first deemed a declared service in 1997, the ACCC has excluded transmission routes which it found to be competitive. The current declaration excludes (in addition to the inter-capital routes⁵) 23 nominated capital–regional routes and a number of routes between CBD and metropolitan exchanges that were granted exemptions in November 2008 as a part of the ACCC’s decision on Telstra’s DTCS exemption applications.⁶ The current declaration excludes the following routes which are considered competitive under the ACCC’s exemption criteria (see Table 1).

Table 1: DTCS - current routes exempt from the 2009 declaration

<i>Inter-capital routes</i>	
Between Sydney, Melbourne, Adelaide, Perth, Brisbane and Canberra	
<i>Capital–regional routes</i>	
Capital	Region
Sydney	Albury, Lismore, Newcastle, Grafton, Wollongong, Taree, Dubbo, Campbelltown, Gosford, Coffs Harbour and Goulburn
Melbourne	Ballarat, Bendigo, Geelong and Shepparton
Brisbane	Toowoomba, Gold Coast, Townsville, Rockhampton, Bundaberg and Maryborough
Adelaide	Murray Bridge and Port Augusta

⁵ Refers to transmission between the exempt capital cities of Adelaide, Brisbane, Canberra, Melbourne, Perth and Sydney only.

⁶ ACCC, *Telstra’s domestic transmission capacity service exemption applications – Final Decision*, November 2008 (Final Exemption Decision), p. 4.

<i>Inter-exchange routes in CBD and metropolitan areas</i>	
Sydney	CBD: City South, Dalley, Haymarket, Kent and Pitt. Metropolitan: 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.
Brisbane	CBD: Charlotte, Edison and Spring Hill Metropolitan: Paddington, South Brisbane, Toowong, Valley, Woolloongabba.
Adelaide	CBD: Flinders and Waymouth
Melbourne	CBD: Batman, Exhibition and Lonsdale Metropolitan: Ascot, Brunswick, Caulfield, Coburg, Elsternwick, Footscray, Heidelberg, Malvern, Moreland, North Melbourne, Port Melbourne, Preston, Richmond, South Melbourne, St Kilda, Toorak
Perth	CBD: Bulwer, Pier and Wellington Metropolitan: South Perth and Subiaco

3.3 DTCS Pricing Principle

Since conducting its latest declaration review in 2009 the ACCC has not formally set out pricing principles or indicative prices pursuant to section 152AQA of the Act.⁷ Nonetheless, the 2009 DTCS declaration review noted a variety of methods that can be used to derive estimates of the costs of a service. For example, the TSLRIC+ may be estimated by reviewing the historic and current costs (including sunk asset values) of operators, or through the application of an optimised cost model using forward-looking costs.

As part of the 2009 declaration review the ACCC also acknowledged that the rationale of promoting efficient build/buy decisions through the forward looking application of TSLRIC+ may be less relevant in a regulatory environment where the competitive state of telecommunications markets is changing, and/or where there are fewer prospects for efficient by-pass. The ACCC has stated that it was open to considering other approaches to pricing regulated services and/or different applications of the TSLRIC+ concept in different regulatory matters and that it would rely on a broad range of available evidence when determining access prices which may include cost models, international benchmarking and other data reported to the ACCC, depending on the nature of the declared service being considered.

⁷ ACCC, *Pricing Principles for Declared Transmission Capacity Services—Final Report*, September 2004, pp. 23-24.

3.4 The ACCC's approach to the LTIE test

The Act does not specify the matters the ACCC must consider in making pricing principles. However, the ACCC considers that in making pricing principles it should have regard to the object of Part XIC of the Act, being the promotion of the long term interests of end-users (LTIE). In determining whether something promotes the LTIE, regard must be had to the three primary objectives identified by section 152AB:

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

These objectives are relevant to determining the appropriate pricing methodology and subsequent pricing principles, and would also be relevant to making access determinations under proposed reforms to Part XIC (see further below).

3.5 Regulatory developments that may be relevant to responding to this discussion paper

3.5.1 Proposed reform to the access regime

A number of reform proposals to the access regime are presently before the Australian Federal Parliament in the Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009 (proposed legislation). The proposed legislation would replace the negotiate–arbitrate model with an ex-ante regulatory access framework. Under the proposed legislation the ACCC would be required to commence the process for making an Access Determination (AD) for the DTCS within 12 months of the commencement of the legislation. An AD made by the ACCC must include the terms and conditions relating to price or a method of ascertaining price. In addition the AD may:

- deal with any matter relating to access to the declared service, including terms and conditions of access and compliance with the standard access obligations
- make different provision with respect to different industry participants (individually or by class)
- allow for exemptions from Standard Access Obligations (SAOs) for category A SAOs (however this does not apply for NBN Co)
- enable the ACCC to perform functions and exercise powers under the AD, and
- include fixed principles provisions which remain in place beyond the expiry date of an AD and must be included in any replacement AD. This will allow

certain matters, for example, inputs to determining access prices, to be 'locked in'.⁸

The ACCC considers there to be utility in determining an appropriate pricing methodology for the DTCS as soon as possible even though it is not known at this stage when or whether the proposed legislation will be enacted. As such, the ACCC is of the view that any pricing methodology adopted under the current legislative regime should be flexible enough to be implemented under the proposed legislation where price terms and conditions will be required to be determined up-front.

3.5.2 Regional Backbone Blackspots Program

The Federal Government of Australia (government) is investing up to \$250 million in competitive backhaul infrastructure in six priority 'blackspot' locations in regional Australia (Backhaul Blackspots Program).⁹ The objectives of this investment are to:

- encourage better service outcomes for consumers in regional communities by improving the supply of transmission services to regional communities
- facilitate competition, with the new transmission services to be provided on open and equivalent terms and conditions, and
- put in place key infrastructure that will contribute to the NBN.

In December 2009 the government announced Nextgen Networks, a subsidiary of Leighton Group, as the successful tender for the Backhaul Blackspots Program.¹⁰

The ACCC considers that the transmission links constructed as part of the Backhaul Blackspots Program may fall within the scope of the current and future DTCS regulatory arrangements and may therefore have an effect on the appropriate pricing methodology of the DTCS.

3.5.3 NBN pronouncements on backhaul

The NBNC Co has stated that:

- in providing its wholesale services (a layer 2 bitstream product) it will seek to occupy as small a footprint as possible
- the location of points of interconnect (POIs) (where access will connect to the NBN for carriage of transmission services) will align with contestable backhaul. The NBNC Co has announced that it currently plans to roll out over 200 POIs with the majority of its POIs located within 20 km of where two or more backhaul providers are present.¹¹
- it will aggregate demand in areas with low demand and limited backhaul to increase the likelihood of competitive backhaul emerging, and

⁸ *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009: Explanatory Memorandum*, September 2009, pp. 142 -146.

⁹ The Blackspot locations are Emerald and Longreach in Queensland, Geraldton in Western Australia, Darwin in the Northern Territory, Broken Hill in New South Wales, Victor Harbour in South Australia and South West Gippsland in Victoria.

¹⁰ http://www.dbcde.gov.au/_data/assets/pdf_file/0017/123605/RBBP_-_fast-facts.pdf

¹¹ NBN Co Presentation to ATUG, 12 March 2010 (pp. 5-6) available at: http://www.atug.com.au/ATUG2010/presentation/Mike_Quigley.pdf

- there will only be one POI for each fibre serving area (FSA).¹²

As the NBN is rolled out and NBNCo finalises the structure of its network, this will have an effect on the footprint of the DTCS. This in turn may also have an effect on the appropriate pricing methodology for the DTCS.

3.5.4 Review of Access Pricing Principles

The ACCC is also conducting a review of the 1997 Guide to Telecommunications Access Pricing Principles for fixed-line services (the APP Review).¹³ The 1997 Access Pricing Principles¹⁴ were developed under an expectation of potential infrastructure-based competition emerging in the telecommunications industry. This expectation influenced the ACCC's general view that TSLRIC was the appropriate cost based pricing approach to apply to telecommunications services to promote the legislative criteria. The APP Review has been prompted by a perceived failure of infrastructure-based competition to materialise for fixed line services and general industry discontent with the existing pricing principles for regulated fixed services.

The ACCC considers that, while the APP Review is likely to be influenced by similar factors discussed in this paper, transmission has sufficient differences that it should be treated separately to fixed services. The APP Review is, for example, predicated on the legacy nature of the fixed line services and in ensuring certainty in a transition period to next generation services under a NBN structure. In contrast, determination of an appropriate cost base and pricing methodology for DTCS is necessitated by factors including the expected long life of the underlying technology, its importance as a vital input into downstream services, its distinct product and geographic market characteristics and varying levels of prospective and realised contestability.

However, the ACCC notes that the APP Review for the fixed-line network will have some bearing and/or effect on the operation of the transmission pricing approach (and vice versa) as regulated services may use both customer access network (CAN) and core network assets. For example transmission services use CAN-related assets and therefore cost sharing in the cost pool for the CAN and for transmission services needs to be factored in.

¹² NBNCo Limited, *NBNCo consultation paper: proposed wholesale fibre bitstream products*, December 2009, pp. 15-16.

¹³ ACCC, *Review of 1997 Guide to Telecommunications Access Pricing Principles for Fixed Line Services, Discussion Paper*, December 2009.

¹⁴ ACCC, *Access Pricing Principles — Telecommunications, a guide*, July 1997.

4 Issues which affect DTCS pricing

The ACCC is of the view that a regulatory pricing approach to the DTCS should be flexible enough to provide prices in an access dispute over a particular transmission route in addition to providing upfront prices for all DTCS services as part of an AD in the event the proposed legislation is enacted. As a corollary, setting prices under either the current regime or under the proposed legislation is likely to provide access providers and access seekers with greater certainty.

The ACCC also considers that there are a number of general factors which will affect how the ACCC approaches the pricing of the DTCS. They include network structure and the level of resilience, the allocation of common costs and the pricing structure across different elements (declared and non-declared components) of the service. This chapter briefly outlines the issues that the ACCC considers relevant to developing an appropriate pricing methodology for the DTCS.

4.1 Current transmission market and products and Network structure

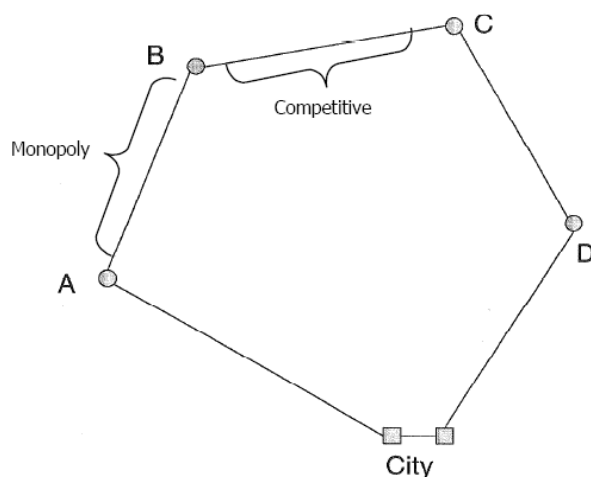
Telstra is the largest provider of declared transmission services and is the major provider of transmission capacity in the Australian network. Telstra's transmission network is made up of a series of interlocking/meshed rings which allows for increased aggregation of traffic (at points along a route) and ensures continuity and quality of service. It also has a number of 'tails' or 'spurs' which connect the core transmission network and particular (business) premises or towns. Telstra's transmission services are typically sold to access seekers on the basis of 'point-to-point' capacity with redundant paths to minimise the risk of network failure.

The network structures and designs of other significant wholesale providers of transmission services tend to be different to Telstra's. While some wholesale transmission providers offer redundancy on high traffic routes, these networks are not as extensive as Telstra's. Many providers of transmission capacity generally only provide point-to-point links in limited geographic regions as opposed to higher quality redundant links. Moreover, to achieve maximum coverage, many providers utilise Telstra's infrastructure or lease capacity from each other where required.

Transmission networks underlie virtually every telecommunications service. Consequently their reliability is very important. Should there be a failure it is strongly desirable that service is not lost, that an alternative pathway is available and that the fault is repaired quickly.

Routes that fall under the current DTCS declaration tend to be characterised by a 'ring structure'. This involves a 'worker' path (which carries the traffic) and a 'redundant' path (which provides protection) between two locations through the availability of at least two geographically distinct transmission paths.

Figure 2: simplified ring structure



The ring structure means that an access seeker purchasing an A–B service also purchases an A–City–D–C–B service for redundancy. As noted above, the ACCC understands that some transmission providers do not build their networks in a ring structure, but rather, build a series of single fibre links with limited redundancy capabilities. If a customer seeks a protected path, then these providers lease the additional path from another provider.

The DTCS declaration does not distinguish between worker and redundant paths. DTCS pricing can therefore either be based on either Telstra’s current DTCS network infrastructure or one which is a combination of point-to-point and ring based-links. Given that access seekers may need to purchase separate transmission links and will require switching in the event of a failure to promote network quality, reliability and resilience, the ACCC is of the preliminary view that efficient pricing of transmission services must provide for a resilient network structure including the availability of redundant paths, particularly on regional backhaul routes. As such, the ACCC considers a pricing mechanism that encourages investments in networks with ring structures to be desirable.

The ACCC also notes that network structure will have particular significance in any modelling exercise as each structure will produce significantly different cost estimates.

Questions to be addressed in submissions:

- *What grade of network do service providers and businesses require?*
- *Should the ACCC seek to cost and set regulatory prices for the DTCS based on ring structures, point-to-point links or some other network design?*

4.2 Transmission costs - allocation

Transmission services are provided across competitive, potentially competitive and uncompetitive routes. Efficient costs must therefore be allocated among these routes. Pricing will also need to account for potentially different pricing structures across different elements. That is, a point-to-point transmission service may contain a mix of competitive and uncompetitive routes or links. Although the ACCC does not regulate competitive routes such as most inter-capital routes, CBD and metropolitan inter-exchange and selected capital–regional routes, deriving prices for non-competitive services still involves the allocation of some common costs to competitive and prospectively competitive services, or determining the amount of common cost to be recovered from non-competitive services.

Assets and infrastructure are shared across routes and there is a high level of fixed and sunk costs (and low incremental costs). The ACCC understands the major cost categories for building a transmission network to include civil works (trenching and ducts), fibre cables, optical equipment, maintenance, accommodation and power, connection and financing costs. Prices also need to provide for allocation of common costs to other telecommunication services (such as fixed services and mobile backhaul) which use the same infrastructure.

Related to the above, the competitive conditions of tail-end and non-metropolitan inter-exchange transmission are fundamentally different from those of inter-capital and capital–regional transmission services. The difference is ostensibly recognised by the ACCC in its Final Exemption Decision referred to above. The ACCC also notes that the European Commission identifies ‘trunk’ and ‘terminating’ segments as separate markets and many European authorities have deregulated trunk markets or have reduced the regulatory obligations in these markets.

The above characteristics demonstrate that appropriate cost allocation is a major issue in efficient cost recovery and sending the correct build/buy market signals (where appropriate). The ACCC notes that the barrier to entry into the transmission services market is high and there is likely to be spare capacity in current networks. It is apparent, particularly in the tail-end transmission market, that there is little prospect of entry. The ACCC considers that where there is no prospect of entry, it is unnecessary to send a build/buy signal. Utility-style pricing based on the Regulatory Asset Base (RAB) approach may be more appropriate in these circumstances.

Questions to be addressed in submissions:

- *How should the ACCC allocate costs between competitive and non-competitive routes, declared and non-declared routes?*
- *How should the ACCC allocate costs that use the same infrastructure for mobile backhaul, fixed services and transmission services?*
- *Is it appropriate for the ACCC to adopt different regulatory pricing methodologies for “tail” segments and “trunk” segments of the transmission network?*
- *What level of spare capacity is available within current transmission network configurations? How should future capacity be accounted for in network cost calculations?*

The ACCC provides further guidance on pricing structures and how they might work under different pricing methodologies in Section 5.

5 Pricing methodologies

5.1 Setting prices for transmission services

The ACCC does not currently collect data on pricing of transmission services nor is transmission pricing information available from public sources. In addition, there have been few access disputes lodged with the ACCC from which the ACCC could assess pricing and price structure. Those that have been lodged have been withdrawn early in the arbitration process. As such, the ACCC has little information as to current pricing.

However, from the ACCC's experience, the following broad observations can be made about transmission prices:

- there are two main types of transmission charges - connection (including relocation, initial feasibility studies and other special charges) and annual charges
- prices are set either for specific designated routes while others are listed on the basis of radial distance
- services are generally priced on an end-to-end basis
- prices between POIs can be based on either radial distance or actual link distance
- prices do not generally accord with the ACCC's classification of transmission services (i.e., 'inter-capital', 'other', 'inter-exchange local' and 'tail-end') as specified in the DTCS declaration
- prices are set based on the capacity required i.e., 2, 8, 10, 34/45, 140/155, 622 Mbits/s and 2.5 Gbits/s services for both connection charges and annual charges, and
- the relationship between distance and price is less pronounced on both shorter and more competitive routes.

In summary, two key observations can be made:

- i) connection charges vary by capacity, but increase at a diminishing rate with respect to capacity, and
- ii) annual charges vary by both capacity and radial distance of the transmission link. Distance charges tend to increase at a diminishing rate with respect to radial distance for longer routes but display a more linear relationship with respect to very short routes.

Questions to be addressed in submissions:

- *Are capacity and distance the critical cost drivers for transmission services?*
- *Are fixed connection charges an appropriate method to recover costs?*

- *Are distance based charges appropriate? If so, on what basis should distance charges be calculated e.g., actual distance, radial distance or by geographic region?*
- *Should regulated prices vary between transmission service types e.g., tail end and inter-exchange transmission?*
- *Should regulated prices for transmission vary between different regions e.g., metropolitan and regional.*
- *What type of pricing relationship should exist between distance and capacity?*
- *Would prices set according to a trunk/terminating segment approach be more appropriate?*

Set out below are specific issues that the ACCC considers may be pertinent to a review of DTCS pricing. Submissions should where possible address all questions.

Access seekers will require access to transmission routes along both declared and non-declared routes. Non-declared routes will have at least three fibre providers. Declared routes may have one or two fibre providers. Any regulated pricing approach will have to be cognisant that some declared routes may be subject to some (although limited) competitive entry and pricing pressure.

Pricing structure

There are a number of pricing structures which could be adopted when pricing the DTCS depending on the approach taken to the abovementioned network elements. Pricing structures could, for example:

- price point-to-point transmission routes and ring routes with or without a redundant path
- price ring routes only
- retain the existing classifications of tail-end, inter-exchange, inter-capital and other transmission
- classify transmission as one end-to-end service and price by capacity
- aggregate routes or services with similar cost characteristics
- identify specific terminating (tail and intra-exchange) and trunk (inter-exchange/capital–regional and inter-capital) transmission segments
- disaggregate the current classification further by distinguishing between metropolitan, regional and remote services
- price capacity and distance within each service category, or
- impose a price or revenue cap on bundles of transmission services and in doing so, give access providers flexibility over how they price each service within the bundle.

As the ACCC does not currently collect data on DTCS pricing, the ACCC is interested in commercial arrangements which may affect regulatory price-setting.

Questions to be addressed in submissions:

- *What are the main types of transmission charges (e.g., are there connection/disconnection charges, special charges, monthly charges or annual charges)?*
- *Are transmission products typically purchased as specific point-to-point links or as part of a bundle? If the latter, then what products are typically included in the bundle(s)?*
- *Do transmission prices vary according to capacity, distance, some other factors (please specify), or a combination (please specify) of different factors? If so, how?*
- *Does transmission pricing differ among geographic categories (i.e., inter-capital, 'other', inter-exchange local and tail-end transmission)?*
- *Are the pricing structures for declared and non-declared routes different? If so, then what are the differences?*
- *Are there volume discounts based on the number of links purchased, capacity, distance, or other factors (please specify)? Are there term discounts based on contract length?*
- *Where a supplier other than Telstra is present, are commercially negotiated transmission charges substantially different for an equivalent or comparable service?*
- *If you are an access seeker, how important is the availability of redundancy in choosing a supplier for transmission services where two or more suppliers are present?*
- *If you are an access seeker who purchases/purchased transmission products from a supplier other than Telstra, is/was redundancy automatically included? If not, and you purchase/purchased redundancy separately, who performs/performed the switching in the event of a failure?*

Pricing methodologies

Any pricing methodology of the DTCS needs to allow for three general principles to ensure that:

- the service provider is adequately compensated (neither over- or under-compensated)
- the service is provided efficiently, and
- any regulated price is set efficiently.

In general, the ACCC has considered TSLRIC to be an appropriate methodology for services:

- that are well developed in a market and have established demand characteristics

- that are necessary for competition in dependent (upstream or downstream) markets
- where the forces of competition or the threat of competition work poorly in constraining prices to efficient levels, and
- where build/buy investment decisions are relevant.

TSLRIC in its pure form is an attributable cost concept as it refers only to those costs that can be attributed to the production of the service. However, costs common to more than one service cannot be attributed to a particular service and therefore do not form part of TSLRIC. In practice, the ACCC has taken the view that a contribution to common (or ‘indirect’) costs is appropriate when calculating cost-based prices. This is sometimes referred to as TSLRIC+.

There are also a number of contentious conceptual issues in determining the appropriate approach from which to derive transmission prices. A key consideration is what pricing methodology will create incentives for efficient investment in and use of, transmission network infrastructure and at the same time promote competition. Other considerations include:

- the relevant service and the level at which route aggregation occurs. To a large extent this will depend on the level of commonality between different transmission routes
- how the transmission network is configured and dimensioned
- the way in which costs are allocated either in the model or through attribution in the regulatory accounts
- the particular TSLRIC to be measured in markets/routes where there is more than one provider of transmission capacity services
- the level of efficient excess capacity to be allowed, and
- how to price the service either by service element, capacity, distance and geography or some combination of these.

The ACCC considers that the objective of promoting incentives for investment in infrastructure may be less relevant where the build/buy decision is less of a priority. For example, in the DTCS context access seekers utilising tail-end transmission (referred to as terminating segments in Europe) may be less responsive to pricing that promotes efficient build/buy signals.

The ACCC is interested in receiving submissions from interested parties on how they would approach these issues within the context of the following four cost based approaches:

1. bottom-up forward-looking long-run incremental cost
2. top-down forward-looking long-run incremental cost
3. fully allocated cost (FAC), and
4. benchmarking of prices — international and domestic
5. a combined approach that adopts a mix of the above pricing approaches.

5.2 Bottom-up long-run incremental cost

Under a bottom-up cost modelling approach, prices for particular routes within the modelled region would be established by developing a pricing structure that reflects a combination of cost characteristics such as connection, distance, capacity and/or other cost drivers. Modelling could be done by estimating costs across Australia or separately within states, or by types of service (i.e., inter-capital, capital–regional, inter-exchange local and tail-end) across the identified region.

The ACCC has previously engaged Gibson Quai AAS to develop a cost model to model representative transmission rings based on Telstra’s transmission network using a TSLRIC+ costing methodology (GQ-AAS model). The GQ-AAS model uses a mix of technologies to determine the ‘best-in-use’ configuration of Telstra’s network in order to estimate the cost of particular transmission routes including: link transmission capacity, inter-exchange transmission capacity, tail transmission capacity and undersea cable transmission capacity. The efficient costs of particular routes (such as undersea, metro, regional and remote transmission) or areas (such as NSW) generated by modelling (such as the GQ-AAS model) could be benchmarked as representative of national transmission costs.

The GQ-AAS model in its current form reflects the existing negotiate-arbitrate model in Part XIC which requires price modelling on a route by route basis as transmission disputes are lodged. However, if the proposed legislative reform is passed then the ACCC will need to be able to set prices upfront for all transmission routes simultaneously. The current GQ-AAS model could not perform this simultaneous pricing task easily. As such this requires either the adoption of a new bottom-up long-run incremental cost model or the modification of the GQ-AAS model to price a broader range of services rather than just individual routes.

Further aggregation of costing above the route level would be necessary to provide a more broadly applicable costing and pricing methodology as may be required under the proposed regime of ADs. The ACCC considers that the aggregation would also increase the reliability of the costing, particularly in relation to common costs.

Commissioning a new model or expanding the GQ-AAS model may also provide for aggregation of routes into ‘trunk’ and ‘terminating’ services with trunk services costed by routes or states, depending on the costs of supply, and terminating services costed into geographic bands. To this end, the ACCC considers that long-run incremental cost based pricing generated from a model could be enhanced with access to more disaggregated service usage and cost data obtained from improved Regulatory Accounting Framework (RAF) reports. For example, the transmission service column could be horizontally disaggregated into core segments such as ‘trunk’ and ‘terminating’. Potential improvements to the RAF record-keeping rules (RKR) are discussed in detail in section 5.2.

Questions to be addressed in submissions:

- *Is it appropriate to model a ring structure that provides for high levels of resilience or point-to-point links that better reflect how competitive entry has so far developed?*
- *What is the appropriate level of aggregation that would most accurately reflect costs? For example, the existing classification could be maintained, or horizontally aggregated into ‘trunk’ and ‘terminating’. Alternatively, services could be disaggregated into geographic bands and/or into different service capacities (e.g. bandwidths).*
- *What is the appropriate network size to model? For example, would a state be representative or would a more extensive model be necessary in order to increase the reliability of the costing?*
- *Would a TSLRIC+ model of this nature best promote ‘build’ or ‘buy’ signals across the entire DTCS network or is it better suited to particular categories of transmission?*
- *Is a price formula based on a linear relationship between price and transmission rates appropriate? Or should prices exhibit a diminishing relationship to increasing transmission rates?*
- *How appropriate is this methodology for promoting the objectives of both the current and proposed regulatory regimes?*

5.3 Top-down long-run incremental cost

The forward-looking costs of providing the DTCS may also be derived in a top-down fashion using historical accounting values for assets, and by making optimisation and efficiency adjustments where necessary. This is the common approach used in the UK and other parts of Europe.

The ACCC notes that a point-to-point transmission link may consist of declared components and non-declared components. Current RAF RKR do not require access providers to report the number of transmission links supplied in each category individually (e.g., inter-exchange or tail-end), nor do they require separate reporting of declared and non-declared transmission services.

Potential changes to the RAF

The ACCC considers that significant changes to access providers’ regulatory accounts would be necessary in order to apply a top-down forward-looking long-run incremental cost approach. The current cost account (CCA) information from the RAF currently includes historic costs indexed by various price indices (e.g., labour prices, material price index) rather than direct or Modern Equivalent Asset (MEA) valuations. The accounts may also exclude relevant assets and include redundant assets (including fully depreciated assets). Changes to the RAF to facilitate this approach could include:

- further horizontal disaggregation into separate service categories (such as ‘trunk’ and ‘terminating’, ‘undersea cable route’ or ‘capital–regional transmission’, ‘inter-exchange transmission’ and ‘tail-end transmission’) and different capacities (e.g. 2, 8, 34 Mbps etc.) in each service category, and
- further vertical disaggregation so that transmission cost line items (such as share of total capacity and/or share of total distance) can be more accurately assigned or assessed against each service.

The following tables compare the information currently collected under the RAF RKR with the sort of information the ACCC will likely collect in order to set transmission prices using a top-down long-run incremental cost approach.

Table 2: Comparative table of current and prospective RAF cost data

Current RAF data	Future RAF data
Direct and common costs incurred on declared and non-declared routes using Telstra’s own accounting rules	<ul style="list-style-type: none"> ▪ Separate reporting for declared and non-declared routes <ul style="list-style-type: none"> <i>Non-declared routes</i> <ul style="list-style-type: none"> - cost data on the different types of non-declared routes (inter-capital routes, capital–regional routes and inter-exchange local routes) <i>Declared routes</i> <ul style="list-style-type: none"> - cost data on the different types of declared routes (capital–regional routes, inter-exchange local routes and tail-end routes) - further geographic disaggregation (e.g., into ULLS bands or metro/regional) ▪ Rules for the allocation of common costs to be approved by the ACCC

Table 3: Comparative table of current and prospective service usage data

Current service usage report	Future service usage report
<p>Number of links for each category of capacity: 2Mbps, 8Mbps, 34Mbps and so on (declared and non-declared)</p>	<ul style="list-style-type: none"> ▪ Separate reporting for declared and non-declared routes <ul style="list-style-type: none"> <i>Non-declared routes</i> <ul style="list-style-type: none"> - number of links in each type of routes (inter-capital routes, capital–regional routes and inter-exchange local routes) <i>Declared routes</i> <ul style="list-style-type: none"> - number of links in each type of routes (capital–regional routes, inter-exchange local routes and tail-end routes) ▪ Location data <ul style="list-style-type: none"> - number of links in each type of routes that fall within a geographic band (e.g., into ULLS bands or metro/regional) ▪ Data on the length of transmission links <ul style="list-style-type: none"> - average length of each type of routes in a geographic band, or - number of links in each type of routes in a geographic region that fall within a specified distance range (e.g., 0–5 km, 5–10 km, 10–20 km and so on)

Adopting a top-down long-run incremental cost approach would require the ACCC to make adjustments to the Regulatory Accounting Procedures Manual (RAPM). The ACCC would need to consult further with industry to develop accounting policies that prescribe methods for the allocation of common costs across different types of transmission services and between competitive and uncompetitive segments, as well as rules for translating current and/or historical costs into long-run incremental costs. For example, maintenance costs would need to be allocated in relation to cables, line equipment and multiplexers by different technology types. The cost drivers for these could be the number of channels, cable length and the type of transmission path with a weighting factor applied to reflect both the transmission speed and the extent of multiplexing. Costs could then be segregated into those driven by the number of services (e.g., maintenance of multiplexing equipment) and those driven by the total length of the paths (e.g., maintenance of fibre) on the basis of type of equipment being maintained.

The ACCC notes that a top-down approach allows costs to be determined on the basis of Telstra’s accounting information, thereby reducing the discretionary nature of the costing exercise compared to a bottom-up method. It also readily produces a structure and level of prices that broadly reflect costs and could be widely applied to specify prices for individual routes based on service type, capacity and distance.

Questions to be addressed in submissions:

- *Is a top-down long-run incremental cost approach based on improved RAF reports appropriate for deriving prices for the DTCS?*
- *What is a realistic timeframe for access providers to implement major changes (such as those envisaged above) to their reporting obligations under the RAF RKR?*
- *Would it be useful to enhance pricing generated by a bottom-up long-run incremental cost model with other costing data, for example, disaggregated service usage and other data obtained from an extended RAF?*

5.4 Fully Allocated Costs (FAC)

A FAC approach involves using data from Telstra's regulatory accounts to calculate the actual costs incurred in providing transmission services. The approach requires allocating costs in the regulatory accounts to particular service categories. The costs include costs that can be directly identified or assigned to the services in question as well as costs that are shared with other services that require allocation between services. The allocations require the use of sharing factors that tend to be based on supply or demand usage factors.

Decisions would first have to be made about the appropriate areas or regions to cost and how the different transmission services should be disaggregated. To maximise efficiency and reduce incentives for inefficient bypass, it would be necessary to identify clusters of routes that have similar cost characteristics. For example, identifying similar geographic regions and deciding whether the existing four classifications should be retained or aggregated into 'trunk' and 'terminating.' Once the relevant services are determined then the structure of prices can be determined — generally prices based on distance and capacity.

As with top-town TSLRIC+, further work would need to be undertaken to disaggregate Telstra's regulatory accounts to pursue this approach. In particular, the RAF reports would require further horizontal disaggregation into different types of transmission services (e.g., inter-capital transmission, inter-exchange transmission, etc.) and further vertical disaggregation so that the transmission cost line items could be more accurately assigned or assessed against these services.

The ACCC notes that historical costs from the RAF reports could be more objective and less discretionary than any bottom-up cost modelling, allowing Telstra to recover its actual costs so as to provide incentives for further investment in the existing network. However, the ACCC acknowledges that incentives for cost minimisation are less strong under this approach than under any forward-looking approach, but considers price caps or other kinds of incentive regulation could address these deficiencies.

Questions to be addressed in submissions:

- *Is a FAC approach based on improved RAF reports appropriate for deriving prices for the DTCS?*
- *Should price caps or other kinds of incentive regulation be set in conjunction with a FAC pricing approach?*
- *What is a realistic timeframe for access providers to implement major changes (such as those envisaged above) to their reporting obligations under the RAF RKR?*

5.5 International and/or domestic benchmarking approaches

The ACCC is of the view that international benchmarking as well as domestic benchmarking of competitive routes may be useful in determining the regulated price of the DTCS.

International benchmarks

The ACCC notes that the New Zealand Commerce Commission (NZCC) has used a benchmarking approach as its initial pricing principle for transmission services. In implementing a benchmarking approach, the NZCC has selected countries which have similar backhaul services to New Zealand, and which use a forward-looking cost-based pricing method. The countries which the NZCC has benchmarked against include the UK, Canada, Italy, Holland and France.¹⁵

The NZCC determined that distance and bandwidth are the relevant cost drivers for the provision of unbundled copper local loop (UCLL) backhaul service¹⁶ (NZ's declared transmission service), and that backhaul costs are likely to increase with bandwidth at a diminishing rate.¹⁷ Under this pricing methodology, the NZCC used a regression-based approach to examine the relationship between backhaul price, bandwidth and distance.

Table 4 below sets out the relevant bandwidth and radial distances for pricing transmission.

¹⁵ NZCC, *Standard Terms Determination for the designated service Telecom's unbundled copper local loop network backhaul (telephone exchange to interconnect point)* Decision 626 (UCLLS STD), 27 June 2008.

¹⁶ The UCLL backhaul service provides transmission capacity in Telecom's network between Telecom's local telephone exchange (or equivalent facility) and the access seeker's nearest available point of interconnection.

¹⁷ NZCC, *Standard Terms Determination for the designated service Telecom's unbundled copper local loop network backhaul (telephone exchange to interconnect point)* Decision 626 (UCLLS STD), 27 June 2008, p. 58, p.66.

Table 4: NZ backhaul monthly rental rates (\$NZ month)

Distance step	Bandwidth	
	100 Mbps	1 Mbps
0 km < radial distance ≤ 5 km	\$964	\$2,344
5 km < radial distance ≤ 10 km	\$1,683	\$4,091
10 km < radial distance ≤ 15 km	\$2,181	\$5,301
15 km < radial distance ≤ 20 km	\$2,586	\$6,287
20 km < radial distance ≤ 25 km	\$2,938	\$7,142
radial distance ≥ 25 km	price set according to: $price = \exp\{4.6300 + (0.5071 \times \ln(\text{radial distance})) + (0.3858 \times \ln(\text{bandwidth}))\}^*$	

* ln is the natural log.

The NZCC has also determined a connection charge for the UCLL backhaul service by taking the median value of the connection charges of the benchmarked countries.¹⁸

Domestic Benchmarks

Domestic benchmarks could be derived from prevailing commercial prices on inter-capital and capital–regional routes that have been exempted from declaration as the ACCC has considered these routes to be competitive. DTCS pricing information available to the ACCC suggests that there is a significant difference between prices for competitive and uncompetitive routes.

Using information from competitive routes would provide a useful guide for prices and price structures to apply to non-competitive routes. However, obtaining this information may require extensive changes to be made to the RAF or the collection of pricing information by other means.

Conclusion on benchmarking

Information about existing domestic conditions would be a useful resource. The ACCC also notes the Australian Competition Tribunal’s comments on the Optus undertaking for the domestic GSM terminating access service that adjustments can be made to international benchmarks to enhance their application to pricing decisions in Australia.¹⁹ With appropriate adjustments, international benchmarking could provide a useful indication of a reasonable range of prices for Australian conditions when compared with international experience and practice. The ACCC therefore considers that appropriate domestic and international benchmarking could provide an effective and broadly applicable tool for setting the prices of transmission services in Australia.

¹⁸ UCLL STD, p.71

¹⁹ Australian Competition Tribunal, *Application by Optus Mobile Pty Limited & Optus Networks Pty Limited [2006] ACompT8*, 22 November 2006

Questions to be addressed in submissions:

- *Are international and domestic benchmarks an appropriate tool for deriving prices for the DTCS?*
- *Which are the appropriate benchmark countries from which transmission backhaul prices could be derived?*
- *Is the NZ regression-based benchmarking approach appropriate?*
- *What are the relevant cost drivers in determining prices based on a benchmarking approach?*
- *How should information on domestic benchmark prices be collected?*

5.6 A combined approach

The ACCC notes that different competitive forces affect the different services that comprise the DTCS. Therefore the ACCC considers that it may be appropriate to adopt a combination of different cost methodologies to reflect the varying levels of prospective and realised contestability that are generally exhibited across each service. This mix or combined approach is discussed in the Frontier Report, which notes that it would seem desirable to impose less intrusive regulation in areas that are prospectively competitive and to reserve cost-based methods for where there are discrete markets in which competition seems unlikely. Further, this approach is consistent with the ACCC's view that TSLRIC+ may not be appropriate in markets where build/buy decisions are not relevant.

In summary, the Frontier Report recommends using multiple sources of cost information to set prices for monopoly routes, which could include bottom-up TSLRIC modelling reconciled with top-down FAC or domestic and international benchmarks. Where competitive entry has occurred, the Frontier Report suggests a more light-handed pricing approach to reduce reliance on cost-modelling. Sections 5.3.5 and 5.4 of the Frontier Report examine in more depth the rationale for a combined approach.

Questions to be addressed in submissions:

- *Is it appropriate and/or preferable to use a combination of costing methodologies to price DTCS services?*
- *If it is appropriate to use a combination of costing methodologies, which combination of methodologies would be the most effective in terms of estimating costs accurately and in the most resource effective way (eg for different services)?*

Appendix 1: Service description for the DTCS²⁰

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.

²⁰ The ACCC is currently conducting an inquiry into a variation of the service description for DTCS. Details of the inquiry are available on the ACCC's website.

- (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:
 - (5) in Sydney between transmission points located at an Exchange in any of the following ESAs: City South, Dalley, Haymarket, Kent and Pitt.
 - (6) in Brisbane between transmission points located at an Exchange in any of the following ESAs: Charlotte, Edison and Spring Hill.
 - (7) in Adelaide between transmission points located at an Exchange in any of the following ESAs: Flinders and Waymouth.
 - (8) in Melbourne between transmission points located at an Exchange in any of the following ESAs: Batman, Exhibition and Lonsdale.
 - (9) in Perth between transmission points located at an Exchange in the ESAs Bulwer, Pier and Wellington.
 - (10) 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
 - (11) in Brisbane between transmission points located at an Exchange in
 - i. any of the following ESAs: Charlotte, Edison and Spring Hill; and
 - ii. any of the Brisbane Metro Exemption ESAs
 - (12) in Melbourne between transmission points located at an Exchange in
 - i. any of the following ESAs: Batman, Exhibition and Lonsdale; and
 - ii. any of the Melbourne Metro Exemption ESAs.
 - (13) in Perth between transmission points located at an Exchange in
 - i. any of the following ESAs: Bulwer, Pier and Wellington; and

- ii. 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 35²¹ 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.

²¹ The reference to '35' Megabits per second is a typographical error which should and has in practice been interpreted as 45 (refer to the service description in the 2004 DTCS Declaration review). This is being corrected in the current DTCS declaration inquiry reviewing the DTCS service description (see the ACCC's website for details).