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Limited

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Statement of Michael Smart of CRA International on the economic considerations for Metro and CBD domestic transmission capacity service exemptions

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EXECUTIVE SUMMARY

- 1 The Commission's April 2004 report on transmission capacity service¹ (the 2004 report) exempted the domestic transmission capacity service (DTCS) on fourteen capital city – regional centre routes on the grounds that they were served at that time by three or more different providers of transmission service based on fibre-optic cable. It is my view that in light of industry and market developments since 2004, exemption of the DTCS for the following additional services would be in the long-term interest of end-users (LTIE):
- CBD inter-exchange transmission services and tail transmission services of bandwidths up to 155 Mbps or higher orders for the capital cities Sydney, Melbourne, Brisbane, Adelaide and Perth;
 - Metropolitan inter-exchange transmission services of bandwidths up to 155 Mbps or higher orders for a group of nominated exchange service areas listed below; and
 - Metropolitan tail transmission services of 2 Mbps bandwidth for the same group of nominated exchange service areas.
- 2 I have reached this view adopting the conservative assumption that only competition from other fibre-optic cable facility owners is relevant to the exemption question for inter-exchange transmission and tail transmission services at bandwidths higher than 2 Mbps. It is by no means clear, in my view, that other transmission technologies could not represent viable substitution threats. However, I recognise that to date the ACCC has not accepted the proposition that other transmission technologies, such as microwave for example, are close substitutes for fibre-optic transmission. For the sake of minimising controversy in this report, I therefore restrict my attention to fibre-optic transmission technology for bandwidths higher than 2 Mbps.

1.1. THE LTIE TEST

- 3 I am instructed that the Commission may grant an exemption to the current service declaration only if it is satisfied that such a decision "*will promote the long-term interests of end-users of carriage services or of services provided by means of carriage services.*"²
- 4 To determine what is in the LTIE, regard must be had to the extent to which any decision about the transmission capacity service declaration is likely to result in the achievement of the following objectives as set out in section 152AB of the Act:
- promoting competition;

1 Transmission Capacity Service – Review of the declaration of the domestic transmission capacity service. Final Report. ACCC, April 2004.

2 The TPA, sub-section 152AT(4).

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- achieving any-to-any connectivity; and
 - encouraging the economically efficient use of, and investment in, telecommunications infrastructure.
- 5 It is my view that exemption would have no adverse impact on any-to-any connectivity.³ In light of the empirical results noted in this report, I believe that exemption of CBD inter-exchange and tail end transmission would promote competition for Sydney, Melbourne, Brisbane, Adelaide, and Perth. Further, I believe that exemption of Metropolitan inter-exchange transmission for bandwidths up to 155 Mbps or higher orders and tail end transmission for 2 Mbps services in exchange service areas with three or more fibre competitors would promote competition.
- 6 I concur with the Commission's observation that continued declaration may be harmful to efficient investment when the market is effectively competitive:⁴
- "The Commission considers that where a service remains declared when there is effective competition in the provision of that service declaration can reduce efficient investment more broadly in the market. This is on the basis that it can maintain reliance on the main supplier in the market, thus reducing efficient investment by access seekers in utilising alternative suppliers or services and hence the ongoing investment in infrastructure by these alternative suppliers. This in turn can be deleterious to maintaining competition and in delivering service diversity to end users in the longer term."*
- 7 Therefore I conclude that exemption of the services discussed in this report is in the LTIE. Relative to the counterfactual situation of continued declaration of those market areas, exemption would encourage the economically efficient use of, and investment in telecommunications infrastructure, thereby promoting facilities-based competition while doing no harm to any-to-any connectivity.

1.2. EMPIRICAL SUPPORT FOR CONCLUSIONS ON COMPETITION

- 8 In coming to that view, I have had regard to several new sources of evidence which I set out in this report, which examines the case for exemption for the domestic transmission capacity service in the following four broad market areas:
- CBD inter-exchange transmission;
 - CBD tail transmission;
 - Metropolitan inter-exchange transmission;

³ This point was noted in the Commission's 2004 report, s7, p. 47. The Commission's reasoning remains valid in current market conditions, and for CBD and Metro inter-exchange and tail transmission services, in my view.

⁴ 2004 report, p. 45.

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- Metropolitan tail transmission.

9 Exemption must be in the LTIE, which is usually interpreted as meaning that competition in relevant markets, and efficient infrastructure investment and use, would be enhanced by exemption. In practice, what must be demonstrated is that there now exists viable competition in relevant markets that would not be compromised by exemption, and that exemption would further improve the conditions for competition and efficiency in the future. My approach is to examine the strength of current competition, and the lack of dependence of this competition on transmission declaration, by considering evidence of competing infrastructure and market dynamics conducive to competition.

10 There are currently close substitutes to the declared transmission service in each of the four market areas considered here. The relevant substitute in each market area is indicated in the table below.

Substitutes for Telstra declared service	CBD	Metro
Inter-exchange	Competitor fibre connecting own equipment in Telstra exchange to competitor own fibre network	Competitor fibre connecting own equipment in Telstra exchange to competitor own fibre network
Tail end	Competitor fibre loops in addition to 2 Mbps tails via ULLS and microwave links to customers	2 Mbps tail via ULLS (higher bandwidth tail not widely available)

11 Market dynamics since the ACCC's 2004 report are consistent with vigorous competition based on competitor facilities investment. The ACCC found in its April 2004 Final Report on the Transmission Capacity Service that (p. 8):

“CBD inter-exchange transmission – There is a concern that there are economies of scope between this service and the CBD tail service that would be undermined by removal of this service from declaration. Therefore, removal of this service from declaration would be damaging to competition and the LTIE. There are also concerns that there is not effective competition and/or sufficient contestability across the full breadth of these markets to promote the competitive supply of these services. As such, they should not be removed from the scope of declaration.

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“Tail-end transmission — There is not presently effective competition and/or sufficient contestability across the entirety of each CBD to promote the competitive supply of these services. As such, they should not be removed from the scope of declaration.”

- 12 A current review of the available empirical evidence concerning competitor build and marketplace dynamics leads to a different set of conclusions for 2007. In brief, these conclusions are as follows.

1.2.1. Competitor build:

CBD

- In 2007, [c-i-c]% of all Telstra’s “0 km” x163 (tail end transmission) SIOs in Metro or CBD areas are 2 Mbps services. [c-i-c]% of all Telstra’s 0 km x163 capacity (that is the number of SIOs weighted by the bandwidth of each SIO) in Metro or CBD areas is provided in the form of 2 Mbps services.
- In 2007, [c-i-c]% of all Telstra’s x163 (bundled tail end and inter-exchange transmission) SIOs in Metro or CBD areas are 2 Mbps services. [c-i-c]% of all Telstra’s x163 capacity (that is the number of SIOs weighted by the bandwidth of each SIO) in Metro or CBD areas is provided in the form of 2 Mbps services.
- Tail end transmission providers competing with Telstra could provide 2 Mbps bandwidth service using declared ULLS for [c-i-c]% of all band 1 (CBD) end customers that have a copper-based SIO of any kind provided by Telstra.
- In each of the CBD areas of Sydney, Melbourne, Brisbane, and Perth there are more fibre connections to buildings that are made by Telstra competitors than there are Telstra fibre connections to buildings.
- This relativity between Telstra and non-Telstra fibre connections represents a marked shift from the 2001 BIS Shrapnel study cited by the ACCC.⁵ At that point in time there were more Telstra buildings fibred than there were non-Telstra fibre connections to buildings.

⁵ Table 5.4 (Buildings wired to fibre optic infrastructure of various carriers) in the ACCC July 2002 Final Decision on Future Scope of LCS (p. 25).

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- Independent analysis of the cost of making new fibre connection to CBD buildings in Sydney, Melbourne, Brisbane, Perth and Adelaide, when combined with market pricing data for transmission services, permits a calculation of the likely payback period for such a tail transmission investment. The payback period would be less than 2 years in the majority of cases where entrants lease existing CBD ducts to provide 34, 35, and 155 Mbps services. The payback period would be less than 2 years for 155 Mbps services, even when new conduit and fibre installation is required, for Sydney, Melbourne, and Brisbane, less than 3 years for Adelaide, and less than 4 years for Perth.
- Telstra has 17 CBD exchanges altogether in Melbourne, Brisbane, Sydney, Adelaide, and Perth. Fourteen of these exchange service areas have two or more fibre owners that compete with Telstra. Given the short payback periods for new CBD fibre installation, it is not plausible that there is any material barrier to entry in the three remaining CBD exchange service areas (Charlotte and Roma Street in Brisbane, and Pier in East Perth).
- The ACCC appeared minded to exempt CBD inter-exchange transmission from declaration in April 2004, but decided ultimately not to exempt this service because of concerns about economies of scope with tail end transmission. For reasons explained later in this report, these concerns are not justified for CBD inter-exchange transmission for bandwidths up to 155 Gbps or higher orders, or for metropolitan inter-exchange transmission for bandwidths up to and including 2 Mbps.

Metro

- Tail end transmission providers competing with Telstra could provide 2 Mbps bandwidth service using declared ULLS for more than half ([c-i-c]%) of all band 2 (Metro) end customers that have a copper-based SIO of any kind provided by Telstra.
- There are a substantial number of Metro ESAs in which 2 or more competitors to Telstra own fibre.

1.2.2. Market dynamics:

- Transmission market prices have fallen significantly since 2003 in all capital cities.
- Over the period 2004 – 2007, Telstra has experienced [c-i-c]% annual compound growth rate in tail end transmission SIOs (greater than [c-i-c]% growth since 2004), and a [c-i-c]% growth in inter-exchange transmission capacity sold.
- The ACCC industry reports indicate a continued pattern of declining yields in all categories of downstream service (such as domestic long distance, international long distance, fixed to mobile calls, mobile calls, etc.) over the period 2001 – 2006, which suggests that pricing, terms and conditions for transmission services are not impeding competition in downstream services.

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- The historical record of access disputes regarding transmission indicates that disputes have been remarkably few, and a significant number of those were resolved commercially without the use of the ACCC's arbitration powers under declaration. The fact that the arbitration provisions associated with declaration have not so far needed to be used, suggests perhaps that declaration is not required for metro and CBD transmission.

1.2.3. Conclusions:

- Exemption of CBD inter-exchange transmission would promote the LTIE, in my view.
 - Competitor fibre build is now ubiquitous in Australian capital city CBDs. Telstra's main CBD exchanges host large numbers of competitors with their own fibre connections between these Telstra exchanges and their own fibre networks.
 - Tail end transmission is not the impediment in 2007 that the ACCC believed it to be in 2004.
 - Given the strength of competitive discipline evident already, and the fact that this competition does not rely on the availability of declared transmission, exemption would promote the LTIE by reducing the burdens of regulation, which include a chilling effect on new facilities investment by both Telstra (whose returns will be truncated) and competitors (who will elect to buy services from the incumbent rather than invest in their own facilities when regulatory pricing errors favour them).
- Exemption of CBD tail end transmission for the 2 Mbps bandwidth would promote the LTIE, partly as a result of the near universal availability of declared ULLS capable of supporting 2 Mbps transmission tails, and as a result of removal of the unnecessary burden of regulation.
- Exemption of CBD tail end transmission for higher bandwidth services would also promote the LTIE. Information considered in this report on the count of buildings fibred by competitors in CBD areas of the main capital cities demonstrates that competitor fibre connections to CBD buildings represent a large and growing proportion of total connections.
- The comparison of costs of installing new fibre connections to CBD buildings and current CBD tail transmission prices (which reflect the significant extent of entry that has occurred already since 2001) demonstrates, in my view, the lack of material barriers to entry to CBD tail end transmission over fibre optic cable. These factors make continued declaration unnecessary to promote competitive entry in transmission or downstream markets. By removing the unnecessary burden of regulation, exemption of CBD tail end transmission would promote the LTIE.

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- For metropolitan transmission markets, it is my view that the following inclusion rule for exchange service areas would capture those exchange service areas in which transmission competition is sufficient to warrant exemption. A metropolitan exchange service area associated with a capital city should be included in the exemption application if and only if:
 - the exchange service area has 3 or more access fibre owners; and either
 - it adjoins a cluster of exchange service areas, each having 3 or more access fibre owners, that includes at least one CBD exchange service area for that capital city; or
 - it adjoins or is part of a cluster of one or more regional exchange service areas, each having 3 or more access fibre owners, that includes at least one exchange service area that is connected to the nearest CBD by a regional transmission route that is either:
 - exempt; or
 - the subject of Telstra's exemption application dated 24 August 2007 concerning regional transmission routes.
- Exemption of Metro inter-exchange transmission would promote the LTIE for those exchange service areas that meet the inclusion rule explained above. Declaration is unnecessary to promote competition among transmission providers or in downstream markets in that inter-exchange transmission service area. The fact that the inclusion rule is satisfied means that end customers have at least three alternative inter-exchange transmission service providers who can provide transmission between any two exchanges in the entire area. The LTIE would be promoted by the removal of unnecessary regulation.
- Exemption of Metro tail end transmission for the 2 Mbps bandwidth would promote the LTIE for those exchange service areas that meet the inclusion rule explained above. The inclusion rule ensures that IEN transmission would be available from three or more carriers⁶ so that, to the extent IEN transmission is a necessary complement to tail transmission service, it would be available on competitive terms.
- Declaration is unnecessary to promote competition among transmission providers or in downstream markets in those exchange service areas because declared ULLS overcomes the barrier to entry that would otherwise be posed by the need to provide an end customer connection over copper. The LTIE would be promoted by the removal of unnecessary regulation.

⁶ In paragraph 53 below I explain why the presence of 3 or more access fibre owners suggests that 3 or more IEN fibre owners would be able to exert competitive discipline.

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- For those end customers that cannot receive a 2 Mbps transmission tail over copper, both entrants and Telstra would face a similar cost hurdle in installing a fibre tail, although to the extent that Telstra may have an installed base of fibre tails in these metro areas the relevant sunk costs could potentially pose a barrier to entry. I do not have sufficient information about the incidence or importance of fibre tails in these metro exchange service areas to form a view on the materiality of any such barrier.
- If microwave is not taken into account, then the case for exempting Metro tail end transmission for higher bandwidth is not strong, as the availability of fibre to the premises for competing carriers in Metro areas is poor outside of CBDs. This conclusion might be altered for exchange service areas that already have competitor fibre as some customers located close to the exchange may be able to use higher deployment classes of ULLS to achieve higher bandwidths.

2. INTRODUCTION

- 13 My name is Michael Smart. I am a Vice President of the economics consulting firm CRA International. I have been asked by Mallesons Stephen Jaques ("MSJ") solicitors, who act for Telstra, to prepare an expert report on the economic basis for exemption of the declared Domestic Transmission Capacity Service ("DTCS") for CBD and Metropolitan inter-exchange and tail end transmission services.
- 14 My curriculum vitae, including relevant qualifications and experience, is included in Annexure 1.
- 15 I have read the Federal Court's practice direction 'Guidelines for Expert Witnesses and Proceedings in the Federal Court of Australia' and prepared this report accordingly, making all inquiries I consider to be appropriate, having regard to the instructions from MSJ.
- 16 The current DTCS declaration took effect from 7 April 2004 and expires on 31 March 2009. The DTCS declaration applies to all transmission services except:
- i) intercapital transmission between Adelaide, Brisbane, Canberra, Melbourne, Perth and Sydney; and
 - ii) 14 capital-regional routes.
- Once a service is declared, carriage service providers ("CSPs") are required to comply with standard access obligations ("SAOs") in relation to the declared service.
- 17 Exemptions from the SAOs may be sought from the Commission under sections 152AT of Part XIC the *Trade Practices Act 1974* ("the TPA"). Under sub-section 152AT(4) the Commission may make an exemption order if it is satisfied that the making of the exemption order "*will promote the long-term interests of end-users of carriage services or of services provided by means of carriage services.*"

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18 I have been asked by Mallesons Stephen Jaques to consider whether further exemptions would be in the long-term interest of end-users ("LTIE") under the economic criteria set out in the TPA.⁷ I have also been asked to give my view on the appropriate scope of these additional exemptions.

19 The report is structured as follows:

- In **Section 3** I define the domestic transmission capacity service;
- In **Section 4** I consider market definitions relevant to the present exemption application;
- In **Section 5** I consider the likely impact on competition of these further exemptions;
- In **Section 6** I consider whether these exemptions would promote the economically efficient use of, and investment in, infrastructure; and
- In **Section 7** I present my conclusions.

3. BACKGROUND

20 The service description for the current transmission capacity declaration is as follows.⁸

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; and

b) a transmission point in an exempt capital city and a transmission point in another exempt capital city;

c) a transmission point in Sydney and a transmission point in any of the following regional centres; Albury, Lismore, Newcastle, Grafton, Wollongong, Taree and Dubbo;

d) a transmission point in Melbourne and a transmission point in any of the following regional centres; Ballarat, Bendigo, Geelong and Shepparton.

e) a transmission point in Brisbane and a transmission point in any of the following regional centres; Toowoomba and Gold Coast;

7 A copy of Mallesons Stephen Jaques Exemption Instructions is provided in Annexure 4.

8 ACCC 2004 Report, Appendix 3.

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f) a transmission point in Adelaide and a transmission point in Murray Bridge; and,

g) one access seeker network location and another access seeker network location.

21 In addition, the declaration⁹

provides for transmission at the designated rates of 2.048 Megabits per second, 4.096 Megabits per second, 6.144 Megabits per second, 8.192 Megabits per second, 34 to 45 Megabits per second, 140/155 Megabits per second, or higher orders as agreed between a carrier/ CSP and another service provider.

22 More generally, the Commission describes transmission capacity as¹⁰

a generic service that can be used for the carriage of voice, data or other communications using wideband or broadband carriage (the minimum bandwidth in the current declaration is 2 Mbps). Carriers/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).

23 The Commission also distinguishes between the following types of transmission service:¹¹

- intercapital transmission;
- 'other' transmission;
- inter-exchange local transmission; and
- tail-end transmission.

24 My focus in this statement is on inter-exchange local transmission and tail-end transmission in certain nominated CBD and metropolitan areas.¹²

9 Ibid, page 8.

10 ACCC, *Transmission Capacity Service: Review of the declaration for the domestic transmission capacity service, Final Report*, April 2004, page 7.

11 Ibid.

12 A full list of these CBD and metropolitan exchange service areas is attached to Telstra's submission.

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4. MARKET DEFINITION

25 In this section, I set out my views on the definition of markets for the purpose of analysing the likely effect on competition of the proposed exemptions. I follow the standard approach of examining the functional, geographic, product, and temporal dimensions of markets.

4.1. FUNCTIONAL DIMENSIONS OF THE MARKET

26 For the purpose of this analysis I adopt the Commission's finding that functionally there is a wholesale transmission market.¹³

4.2. GEOGRAPHIC DIMENSIONS OF THE MARKET

27 The focus in this report is on the DTCS for inter-exchange and tail-end transmission in certain nominated CBD and metropolitan areas associated with Australian capital cities. More precisely, tail transmission represents a means of connecting an end-customer's premises with a wider inter-exchange transmission network.

28 With respect to tail transmission, it is most appropriate to treat each CBD or metropolitan exchange service area as a distinct geographic market. Tail transmission service in a different exchange service area is not a substitute for tail transmission in the exchange service area in which an end customer is located, from either the demand or supply side.

29 With respect to inter-exchange transmission, it is my view that the CBD of each capital city: Sydney, Melbourne, Brisbane, Adelaide, and Perth, possesses a single inter-exchange transmission market. The geographic scope of each CBD inter-exchange transmission market is the combination of the designated CBD exchange service areas for that capital city.

30 Similarly, it is my view that the broader metropolitan area of each capital city: Sydney, Melbourne, Brisbane, Adelaide, and Perth, possesses a single inter-exchange transmission market. It is not necessary to precisely define the geographic extent of each metropolitan inter-exchange transmission market, however the exchange service areas that are included should form either:

- i) a cluster of contiguous exchange service areas, each of which contains inter-exchange fibre transmission infrastructure that includes a CBD exchange service area for that capital city; or
- ii) an exchange service area containing inter-exchange fibre transmission infrastructure that is, or is contiguous with, an exchange service area

13 See 2004 report, s4.1.3.

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that is connected to the CBD of the closest capital city by a fibre-optic regional transmission route.

31 The metropolitan citywide inter-exchange transmission market is defined in this way because the contiguity and connectivity requirements set out in the previous paragraph ensure that fibre-based inter-exchange transmission can take place between any two exchanges situated within the geographic scope. This condition should be both necessary and sufficient for demand and supply-side substitution within the geographic extent of the market.

4.3. PRODUCT DIMENSIONS OF THE MARKET

32 I believe it is important to distinguish two aspects of the product dimension for inter-exchange and trail transmission services: the transmission technology and the bandwidth provided by the service. Each is discussed under separate head below.

4.3.1. Transmission technology

33 In its latest decision regarding the DTCS declaration,¹⁴ the Commission chose to limit the product dimension of the transmission capacity market to terrestrial optical fibre cables despite the fact that there are other technologies used in the supply of DTCS.

34 The technologies mentioned by the Commission are:

- Satellite;
- Digital microwave; and
- Submarine cable.

35 In this report I adopt the conservative assumption that only fibre-optic cable (including submarine cable) is part of the product dimension of these transmission markets. As I noted earlier, it is not clear that this product market delineation is the most appropriate one from an antitrust perspective (i.e. transmission services provided using satellite, digital microwave or submarine cable may well be close substitutes for transmission service provided using optical fibre cable). Nevertheless, in the interest of minimising the points of controversy, I adopt this assumption for the present purpose.

¹⁴ ACCC, *Transmission Capacity Service: Review of the declaration for the domestic transmission capacity service, Final Report*, April 2004.

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4.3.2. Bandwidth of service

36 The market definition question surrounding the bandwidth of transmission services comes down to whether services of different bandwidth sit within separate antitrust markets. Prima facie, it appears to me that different bandwidths would constitute different markets. Low bandwidth services are not demand side substitutes for high bandwidth services, but high bandwidth services can be broken down into lower bandwidth channels, so there is a degree of substitution in that direction. Furthermore, the chart below indicates that 2 Mbps transmission tail services account for the vast majority of SIOs, and also the majority of tail transmission capacity that is provided by Telstra. While inter-exchange transmission SIOs are predominantly 2 Mbps services, the 155 Mbps inter-exchange transmission services actually account for the majority of inter-exchange transmission capacity provided.

[Table is c-i-c]

The information in this chart was derived from tables estimating the number of wholesale transmission SIOs in metropolitan areas attached to the statement of [c-i-c], dated 20 December 2007

37 Summarising my conclusions from this table:

- 2 Mbps services represented [c-i-c]% of all Metro/CBD x163 wholesale transmission SIOs sold by Telstra in 2007. [c-i-c]% in 2004.
- Weighting x163 transmission SIOs by the bandwidth, 2 Mbps services represented [c-i-c]% of all Metro/CBD x163 capacity sold by Telstra in 2007. [c-i-c]% in 2004.
- On a bandwidth-weighted basis, 155 Mbps x162 services accounted for [c-i-c]% of x162 capacity in 2007. 155 Mbps x162 services accounted for [c-i-c]% in 2004. The reason for this change is that the most rapid growth occurred in 2 Mbps x162 SIOs.
- Between 2004 and 2007, Telstra experienced growth of [c-i-c]% in x163 SIOs of all bandwidths; and growth of [c-i-c]% in x163 capacity sold (number of SIOs weighted by bandwidth).
- Between 2004 and 2007, Telstra experienced growth of [c-i-c]% in x162 SIOs of all bandwidths; and growth of [c-i-c]% in x162 capacity sold (number of SIOs weighted by bandwidth).
- In 2007 there were [c-i-c] times as many x163 SIOs sold by Telstra as there were x162 SIOs. In 2004 the ratio was [c-i-c] times as many x163 SIOs.
- The majority of demand for Metro/CBD tail transmission is for 2 Mbps services (on both a SIO and capacity basis). The great majority of these were x163, rather than x162 services.

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- The compound growth rate of demand for Telstra x163 services is greater than [c-i-c]% per annum over the period 2004 – 2007. ([c-i-c]% X [c-i-c]% X [c-i-c]% = [c-i-c]%)
- Most of the growth in x162 SIOs has occurred in 2 Mbps services.
- Most of the capacity in x162 services is accounted for by 155 Mbps services.

38 These facts suggest the existence of a distinct and significant component of demand for 2 Mbps services in both tail transmission and inter-exchange transmission. Tail transmission services for the 2 Mbps market segment account for the vast majority of tail transmission capacity that is sold by Telstra. This observation has remained valid between 2004 and 2007. Consequently, an entrant that adopted a strategy of focusing on winning custom in the 2 Mbps market segment would be able to address the part of the tail transmission market that is largest and most rapidly growing at current prices and demand conditions. Put another way, any difficulty that entrants might have in providing transmission tail services in metro areas of higher than 2 Mbps bandwidth would be unlikely to impede entry or access to the largest pool of potential customers.

39 I note that the information available to me, as presented in the table above, does not permit me to distinguish between metropolitan and CBD services. The focus on 2 Mbps services is more important for metropolitan areas, however, as the lower availability of fibre there places greater emphasis on copper-based tail ends, which are bandwidth limited.

4.4. TEMPORAL DIMENSION OF THE MARKET

40 If a very short time period is taken as the temporal dimension of the market, then only firms that already have transmission infrastructure in place would be considered realistic substitutes for the service in question. If a longer temporal dimension is adopted, then some firms that do not presently have infrastructure but could construct it within that timeframe would also be considered substitution threats, broadening the potential field of rivalry. There may well be a continuum of investment increments with associated time-scales.

41 The Commission did not explicitly articulate its viewpoint on the temporal dimension of the market for DTCS in s 4.1.4 of its 2004 report. Implicitly, though, the Commission's temporal dimension is not so short as to preclude a firm with fibre running within 1 km or less of the GPO of a regional centre from inclusion in the market even if it does not have a point of presence in that regional centre.¹⁵

¹⁵ See 2004 report, p. 27.

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- 42 In my view, for purposes of market definition, the temporal dimension of the DTCS market should be sufficiently long to include in the market new entrants who could construct alternative optic fibre infrastructure within a period of one year or less. It is likely that entrants begin to exert downward pressure on transmission prices as soon as they signal their intention to enter a particular geographic market, even if actual entry depends on construction projects with lead times of a year or more.

4.5. RELEVANT DOWNSTREAM MARKETS

- 43 For the purposes of this analysis, I concur with the Commission's statement that it is not vital to this inquiry that the boundaries of downstream markets be defined categorically. Broadly speaking, I adopt the assumption that the relevant downstream markets are those for the retail products and services for which transmission capacity is used as an input.

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5. COMPETITION IN TRANSMISSION MARKETS

44 In discussing competition in transmission markets, I follow the structure of the comparable section 5 of the Commission's 2004 report. In turn, I examine the following factors:¹⁶

- Concentration levels;
- Barriers to entry;
- Prices and costs;
- Competition in downstream markets; and
- Arbitration disputes brought before the Commission.

45 I devote a subsection to each of these topics.

46 In summary, I conclude that there is at present substantial competitor facilities investment and a lack of material entry barriers in the CBD transmission markets of Sydney, Melbourne, Brisbane, Adelaide and Perth. This competitor activity and these low entry barriers do not rely in any way on the continuation of the declaration of the DTCS in those areas. Further, there is no material barrier to entry or expansion facing competitors in the nominated metropolitan exchange service areas for transmission services up to and including 2 Mbps bandwidth that would require a continuation of the declaration of the DTCS in those areas. My conclusions are based on the analysis of new empirical data concerning competitor facilities, the economics of constructing new CBD fibre, the suitability of declared ULLS for 2 Mbps transmission tails, trends in transmission pricing, and in the price and availability of services that rely on transmission as an input.

¹⁶ These dot points mimic those listed in the 2004 report at p. 23.

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5.1. CONCENTRATION LEVELS

5.1.1. Methodology issues

- 47 Before examining factual evidence on concentration levels it is necessary to settle a methodological point. In most circumstances, one would evaluate concentration levels with reference to the actual capacity held by each participant in a market. For transmission services generally, it is difficult to assess the quantum of capacity held by each market participant, not least because this information is considered commercially sensitive. For optical fibre, however, the transmission capacity of each strand of fibre is considerable. A minimum feasible deployment of fibre optic cable would involve multiple strands. For this reason, along with the unavailability of actual capacity data, I believe it is feasible and appropriate to gauge concentration levels with reference to a simple count of competitors in each CBD or metro area.
- 48 The Commission's 2004 report adopted the three fibre competitor benchmark for assessing the sufficiency of competition in the closely related regional transmission markets. That is, where a transmission market was served by three or more fibre-based competitors, the Commission judged that competition in that market was sufficient to justify exemption. While there is more that could be said about that rule, in the interest of minimising controversy and focusing on the ramifications of the new empirical evidence available since 2004, I adopt the three fibre competitor benchmark for the remainder of this report. An equivalent formulation is that two or more fibre owners compete with Telstra in a given market.

5.1.2. Competitor inter-exchange network fibre in metro and CBD areas

- 49 Market Clarity has produced two data sets and one report which present a count of the number of distinct carriers that own fibre-optic transmission links within each of a set of Telstra exchange service areas: "Research Report Access Fibre Availability, Transmission Services, and Inter-Exchange Network Connectivity (19 December 2007)" and "the 16 November 2007 data".¹⁷ The Market Clarity counts include Telstra. The 16 November 2007 Market Clarity data presented the number of carriers that own "access fibre" in each of the exchange service areas across the country. It is my understanding that Market Clarity's "access fibre" classification includes facilities that could be used to provide tail transmission or inter-exchange transmission (or both).

¹⁷ I understand that Market Clarity was asked, for its 16 November 2007 data, to consider all band 1 and band 2 ESAs that had two or more non-Telstra DSLAMs at the exchange. Market Clarity's 19 December 2007 report considered only those ESAs that were within NSW.

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- 50 As my interest was primarily in carriers that own fibre that they use for their own inter-exchange networks, it was necessary to clarify the ambiguity surrounding the count of access fibre owners. Consequently, Market Clarity provided a second report on 19 December 2007 that updated the counts of access fibre owners, and also provided a count of carriers that, in Market Clarity's view, were either known or likely to own inter-exchange network fibre. This 19 December report examined only NSW.
- 51 I have compared the counts of access fibre owners for NSW exchange service areas in both Market Clarity reports. In some instances the 19 December 2007 report had a different count than the 16 November 2007 data. In those instances I have adopted the access fibre owner count from the later report.
- 52 I have also compared the counts of access fibre owners and of known IEN fibre owners for the NSW exchange service areas contained in the 19 December 2007 report. The results of this comparison are as follows:
- Each of the five band 1 Sydney exchange service areas had four or more known IEN fibre owners (including Telstra).
 - Of the 92 exchange service areas in NSW with three or more access fibre owners, 80 had three or more known IEN fibre owners (including Telstra).
- 53 This comparison shows a very high degree of overlap between metro exchange service areas that have three or more access fibre owners and those that have three or more IEN fibre owners. In light of this finding, it is my view that there would not be any material barrier to entry for IEN fibre ownership in a given exchange service area by a competitor that already owned access fibre in that exchange service area. The existence of access fibre indicates that carrier's ability to surmount entry barriers in that exchange service areas which should be, if anything, lower for IEN fibre. One would expect that IEN fibre would carry more traffic than tail transmission fibre because of the concentrating effect nearer the network core, while IEN fibre would likely not be any more expensive to install than tail transmission fibre on average.¹⁸
- 54 All exchanges in an inter-exchange transmission network must be connected to each other. For this reason, an exchange service area that is physically isolated from the citywide IEN would not logically form part of that IEN. Of course a regional transmission service could provide the required physical connection between a remote exchange service area and the citywide IEN.

¹⁸ Tail transmission fibre is constrained to connect to a particular end-customer's premises, which may be difficult to access, whereas IEN fibre has potentially more flexibility in the choice of routes. The carrier's POPs, which represent the endpoints of the IEN fibre link, are generally chosen or designed so that cable access is easy.

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- 55 Therefore, I adopt the approach that the ACCC's rule of three or more inter-exchange transmission competitors is met for each exchange service area for which Market Clarity reported three or more access fibre owners in its 16 November 2007 data, subject to the following inclusion rule. A metropolitan exchange service area associated with a capital city should be included in the exemption application if and only if:
- i) the exchange service area has 3 or more access fibre owners; and either
 - ii) it adjoins a cluster of exchange service areas, each having 3 or more access fibre owners, that includes at least one CBD exchange service area for that capital city; or
 - iii) it adjoins or is part of a cluster of one or more regional exchange service areas, each having 3 or more access fibre owners, that includes at least one exchange service area that is connected to the nearest CBD by a regional transmission route that is either:
 - exempt; or
 - the subject of Telstra's current exemption application concerning regional transmission routes.

56 While this direct observation of in-place competing transmission infrastructure is in my view the best way to assess the competitiveness of the local inter-exchange transmission market, for tails transmission I find it more useful to consider barriers to entry. It is to this I now turn.

5.2. BARRIERS TO ENTRY

57 It has been noted that the capital costs, the sunk nature of investments, and the existence of spare capacity may serve as barriers to entry in optical fibre transmission.¹⁹ Other potential barriers to entry for the transmission tails market are mentioned in the 2004 report. I consider these barriers below, first for CBD areas, and then for metro areas.

5.2.1. Competitor fibre tails in CBD areas

Number of buildings connected to fibre by Telstra competitors

58 Market Clarity performed a survey of transmission service providers in November and December 2007. The results of that survey are reported in "CBD Fibre Deployment Confidential Report (19 December 2007)". The questions posed by Market Clarity are as follows:

¹⁹ See, for example, s 5.2 of the 2004 report.

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- i) How many buildings in the CBD areas of Australian capital cities (i.e., Sydney, Melbourne, Brisbane, Perth, Adelaide, Canberra, Hobart and Darwin) are directly connected to your optical fibre network (in aggregate)?
- ii) How many buildings in each CBD area of Australian capital cities are directly connected to your optical fibre network?

59 The resulting building count for each fibre owner in each capital city was summed to produce the table below, which separately identifies the count for Telstra. This summing process will result in buildings that are connected by more than one carrier being counted more than once. Unfortunately Market Clarity did not provide the carrier-specific breakdown of connected buildings by city because of confidentiality constraints. Market Clarity's report notes that [c-i-c] did not participate in the survey, so the count of non-Telstra carrier connections understates the true count, probably substantially given the fact that [c-i-c].

[Table is c-i-c]

- 60 This table shows that in December 2007 there were more CBD building fibre connections made by carriers other than Telstra than there were by Telstra in Sydney, Melbourne, Brisbane, and Perth. While Telstra accounted for slightly more than half the total number of building connections in Adelaide (noting that the [c-i-c] building connections were not included in the non-Telstra total there), the competitor presence is also strong there.
- 61 This situation represents a marked change from that reported in Table 5.4 (Buildings wired to fibre optic infrastructure of various carriers) in the ACCC July 2002 Final Decision on Future Scope of LCS (p. 25). The original source for that building count, which appears to embrace a larger footprint than the designated CBD areas referred to in the Market Clarity study, was a BIS Shrapnel report from 2001. The BIS Shrapnel-derived Table 5.4 is reproduced below:

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Table 5.4: Buildings wired to fibre optic infrastructure of various carriers

Company	Buildings wired	% of buildings wired
Telstra	5500	100%
Optus	1230	22%
PowerTel	400	7.3%
UECom	300	5%
Amcom	270	4.9%
AAPT	250	4.5%
Swiftel	30	0.5%
Primus	na	na
Others	na	na

Source: BIS Shrapnel 2001, na = not available.

62 If the buildings wired in the reproduced Table 5.4 above are summed, the numbers will be comparable to the numbers in the earlier table showing Market Clarity's 2007 survey results.²⁰ Comparability issues arising from differences in the totals can be surmounted by comparing the ratio of non-Telstra building connections to the sum across all carriers of buildings wired between Market Clarity and BIS Shrapnel. Based on these ratios, it is evident that a significant shift toward CBD buildings being wired by non-Telstra carriers has taken place since 2001. At the time of the BIS Shrapnel investigation in 2001, this ratio was only [c-i-c]% of total connections, including [c-i-c]. If [c-i-c] was excluded (as it was in Market Clarity's 2007 report) then the ratio would be [c-i-c]%. In 2007, this ratio has increased to [c-i-c]% of total connections (noting that [c-i-c] buildings wired are not included in the non-Telstra total). The fibre tail deployments of non-Telstra carriers have grown from the minority to the majority of CBD fibre tails over the past 6 years.

²⁰ In summing the number of buildings wired across carriers, buildings wired by more than one carrier will be counted more than once. This issue affects both the Market Clarity and BIS Shrapnel tables equally. I note that the total buildings wired reported by BIS Shrapnel is higher than the total reported by Market Clarity. This difference is likely to be explained by two factors. First, the Market Clarity table presented here explicitly canvasses only Sydney, Melbourne, Brisbane, Adelaide, and Perth as these cities are the focus of the present application. Second, it is likely that the BIS Shrapnel study is not limited to the band 1 exchange service areas of cities, as the Market Clarity table is.

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Cost and commercial feasibility of connecting CBD buildings to fibre

63 I have read the report “Estimated optic fibre cable installation costs within CBD areas (20 December 2007),” by Craig Lordan of Evans & Peck (the “Lordan report”) concerning the costs of constructing new fibre tails in each of five capital city CBD areas in Australia. I have combined this information with data from Telsyte on the distribution of transmission prices in the same CBD areas for the 2007 year to determine approximate payback periods for investment in new fibre tails under a range of scenarios. The results of my analysis are tabulated below:

Assumed cost of capital =

15% Payback periods in years

highest cost (HC) or 75th percentile (75) which ESA used in CBD price point build or lease

	HC				75							
	highest cost ESA				average of ESA costs				average of ESA costs			
	median				median				upper quartile			
	build		lease		build		lease		build		lease	
build cap/price	lease cap/(price-rent)	Payback period years	Payback period years	build cap/price	lease cap/(price-rent)	Payback period years	Payback period years	build cap/price	lease cap/(price-rent)	Payback period years	Payback period years	
Sydney CBD 0-5 Km: E3 (34 Mbps)	6.0	1.5	14.7	1.6	2.7	0.6	3.3	0.5	2.2	0.5	2.6	0.4
Sydney CBD 0-5 Km: DS3 (45 Mbps)	6.0	1.6	15.0	1.7	2.8	0.6	3.4	0.5	2.3	0.5	2.6	0.4
Sydney CBD 0-5 Km: STM-1 (155 Mbps)	2.3	0.5	2.7	0.4	1.1	0.2	1.0	0.1	0.8	0.2	0.8	0.1
Melbourne CBD 0-5 Km: E3 (34 Mbps)	9.9	2.9	█	3.8	3.4	0.7	4.5	0.7	2.8	0.6	3.4	0.5
Melbourne CBD 0-5 Km: DS3 (45 Mbps)	9.8	2.9	█	3.7	3.3	0.7	4.4	0.7	2.7	0.6	3.3	0.5
Melbourne CBD 0-5 Km: STM-1 (155 Mbps)	3.7	0.8	5.3	0.7	1.3	0.3	1.3	0.2	1.0	0.2	1.0	0.1
Brisbane CBD 0-5 Km: E3 (34 Mbps)	7.6	2.1	█	2.4	2.9	0.7	3.6	0.6	2.3	0.5	2.8	0.4
Brisbane CBD 0-5 Km: DS3 (45 Mbps)	7.5	2.1	█	2.4	2.8	0.7	3.5	0.6	2.3	0.5	2.7	0.4
Brisbane CBD 0-5 Km: STM-1 (155 Mbps)	2.8	0.6	3.5	0.5	1.1	0.2	1.0	0.1	0.8	0.2	0.8	0.1
Adelaide CBD 0-5 Km: E3 (34 Mbps)	10.6	4.2	█	6.3	4.8	1.1	8.3	1.1	4.0	0.9	5.8	0.8
Adelaide CBD 0-5 Km: DS3 (45 Mbps)	10.6	4.1	█	6.2	4.8	1.1	8.3	1.1	3.9	0.9	5.8	0.8
Adelaide CBD 0-5 Km: STM-1 (155 Mbps)	4.1	0.9	6.2	0.9	1.9	0.4	2.1	0.3	1.5	0.3	1.6	0.2
Perth CBD 0-5 Km: E3 (34 Mbps)	8.8	2.3	█	2.7	6.5	1.4	█	1.4	5.2	1.0	9.8	1.0
Perth CBD 0-5 Km: DS3 (45 Mbps)	8.5	2.2	█	2.6	6.3	1.3	18.0	1.3	5.0	1.0	9.1	0.9
Perth CBD 0-5 Km: STM-1 (155 Mbps)	3.3	0.7	4.4	0.6	2.5	0.4	2.9	0.3	2.0	0.3	2.2	0.3

64 This table presents estimates of the payback period in years for investments in new CBD fibre construction for a range of cost estimates and transmission price points. Calculations are presented for each of the CBD areas: Sydney, Melbourne, Brisbane, Adelaide, and Perth. For each city, three different bandwidths are considered: 34 Mbps, 45 Mbps, and 155 Mbps.

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- 65 The cost data was derived from the Lordan report.²¹ Mr Lordan considered two scenarios for each city: construction of new duct infrastructure into which cable was installed ("build" scenario), or leasing existing duct infrastructure into which a new conduit and cable was installed ("lease" scenario). The build scenario involved a capital cost only. The lease scenario involved a somewhat lower capital cost and an annual rental charge. For each CBD exchange service area in each of these five capital cities, Mr Lordan estimated the cost of connecting the most expensive building in the exchange service area to the Telstra exchange ("HC" scenario). For each of these exchange service areas, Mr Lordan also estimated the cost of connecting the 75th percentile building in the exchange service area to the Telstra exchange ("75" scenario). The 75th percentile building in an exchange service area is the building that has a cost to connect that is higher than that for 75% of the buildings in that exchange service area.
- 66 The first four numerical columns report results for the connection costs in the HC scenario for the most expensive of the CBD exchange service areas in the capital city. The last eight numerical columns report results for the connection costs taking the average of the 75th percentile costs across all exchange service areas in the relevant CBD.
- 67 The price points were derived from Telsyte analysis of transmission market prices for 2007.²² The median price (for each bandwidth for each city in the 0 – 5 km distance range) was used for each of the first eight columns, and the upper quartile price was used for the last four columns. The last four columns represent a "likely" case based on the logic that it is likely that the upper quartile price would be applied to the building with the upper quartile (75th percentile) cost to connect.
- 68 Noting that transmission prices generally have decreased substantially (as explained in section 5.3.2 of this report below) between 2003 and 2007, while fibre tail entry has increased substantially between 2001 and 2007 (as explained earlier in section 5.2.1 of this report above), it is my view that the 2007 Telsyte prices approximate the prices that would likely prevail under post-entry conditions.
- 69 In each group of four columns, the first is the ratio of the capital cost of the build scenario to the annual transmission revenue. The second is the ratio of the capital cost of the lease scenario to the difference between the annual transmission revenue and the annual lease cost. These ratios are related to payback periods, but they do not take into account the time value of money. The third column is the payback period, taking into account the time value of money at a 15% assumed cost of capital, for the build scenario. The fourth column of the group of four is the payback period, taking account of the time value of money, for the lease scenario.

21 Other costs, such as POP establishment and transmission termination equipment at both ends, are not included in this payback calculation. These costs would likely be spread over a number of transmission tail services, and the impact on any one fibre transmission tail would depend, among other things, upon the utilisation of the POP or termination equipment.

22 Telsyte (Nov 2007), "Current Wholesale Metro Leased Line Prices 2007".

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- 70 In brief, the conclusions that emerge from this analysis are as follows:
- 1) In the worst case scenario for 34 Mbps or 45 Mbps services, being the highest cost building in the highest cost ESA for each CBD, if the median transmission price for 2007 applies to the service, a leased duct approach would have a payback period of less than 2.5 years for Sydney, and less than 3.5 years for Brisbane and Perth. The new build payback periods are relatively long (in excess of 15 years) for 34 and 45 Mbps services in the worst case scenario for all cities.
 - 2) In the same worst case scenario for 155 Mbps services, a leased duct approach would have a payback period of one year or less for each of the four CBDs: Sydney, Melbourne, Brisbane, Perth, and 1.1 years for Adelaide. A new build duct approach would have a payback period of less than 3 years for Sydney, less than 4 years for Brisbane, less than 5 years for Perth.
 - 3) In a more typical scenario for 34 Mbps or 45 Mbps services, involving the 75th percentile cost building in the average cost ESA for each CBD, if the upper quartile transmission price for 2007 is applied (to reflect the 75th percentile cost building), a leased duct approach would have a payback period of less than 1.4 years for all five cities. A new build duct approach would have a payback period of less than 3.5 years for Sydney and Brisbane, and less than 4 years for Melbourne.
 - 4) In the same more typical scenario for 155 Mbps services, a new build duct approach would have a payback period of less than one year for Sydney and Brisbane, less than two years for Melbourne and Adelaide, and 2.4 years for Perth.
- 71 All these payback period calculations assume a WACC of 15%. This figure is significantly in excess of Telstra's regulatory WACC. The choice of a high WACC for this calculation is conservative in the sense that it tends to overstate the payback periods, and hence to understate the commercial attractiveness of building competitive fibre.
- 72 Payback period analysis is a typical means of evaluating the commercial attractiveness of a contemplated investment. The shorter the payback period, the better. Payback periods that are similar in length to the duration of contracts typically available in the marketplace would indicate that the investment costs in question should not pose a barrier to entry to any competent service provider, with the important proviso that the prices used to calculate the payback period should reflect competitive conditions post-entry.
- 73 As many of the payback periods, except in the worst case scenario, are less than or approximately equal to two years, and as two years is a relatively common contract term, I believe that these results demonstrate the commercial feasibility of installing new fibre tails within these CBD areas on the basis of the Lordan report's costings and Telsyte pricing. Consequently, it is my view that, based on an analysis of the Lordan statement's cost estimates above, it is economical to construct fibre transmission tails in the CBD areas of at least Sydney, Melbourne, Brisbane, Perth and Adelaide.

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5.2.2. 2 Mbps tails over ULLS in metro areas

74 Assuming that the ULLS would continue to be a declared service even if CBD and metro transmission services were exempted, the ULLS declaration provides a guaranteed mechanism for competing transmission service providers to access the end user premises of potential customers. Depending on a number of factors, of which the most important is the length of the copper loop, I am instructed that ULLS would enable a symmetric 2 Mbps transmission tail service to be provided by an access seeker, independent of the declared transmission tail service provided by Telstra.

75 I have read the report of [c-i-c] dated 18 December 2007. The table reproduced below is derived from that report.

[Table is c-i-c]

76 In brief, this table shows that nearly all CBD end users that have a copper loop connection to a Telstra exchange would be capable of having a 2 Mbps transmission tail service delivered to them over ULLS deployment class 9f. Just on half of all metro end users that have a copper loop connection to a Telstra exchange would be capable of receiving a 2 Mbps transmission tail service delivered to them over ULLS deployment class 9f. More specifically,

- This table prepared by Telstra shows the percentage of band 1 and band 2 copper SIOs that would be capable of supporting various deployment classes of ULLS as defined by the Comms Alliance Code C559.
- ULLS deployment class 9f would be capable of supporting a 2 Mbps symmetric transmission tail.
- [c-i-c]% of band 1 (CBD) copper SIOs would be capable of being used for a 2 Mbps transmission tail. [c-i-c]% of band 2 (Metro) copper SIOs would be capable of supporting a 2 Mbps transmission tail.
- The consequence of this finding is that virtually all CBD customer premises served over copper pairs would be accessible to competing 2 Mbps transmission providers over the declared ULLS service. Just on [c-i-c]% of all Metro customer premises would be accessible to competing 2 Mbps transmission providers over declared ULLS.
- These figures represent lower bounds because:
 - a) The Comms Alliance Code adopts a conservative approach to attenuation limits;
 - b) This does not take account of the possibility of bonding two pairs together and running ULLS deployment class 9d over each to obtain 2 Mbps symmetric service overall.

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- 77 [c-i-c] has provided me with a table identifying the percentage of all copper SIOs in each exchange service area that would satisfy ULLS deployment class 9f—that is the percentage of SIOs that would be technically capable of supporting a 2 Mbps transmission tail service over ULLS. Using this information, it is possible to be more precise about the average percentage of SIOs capable of supporting 2 Mbps transmission tails in the specific exchange service areas for which exemption is sought. This average is [c-i-c]% for the 17 band 1 exchange service areas, and [c-i-c]% for the nominated band 2 exchange service areas. In those nominated band 2 exchange service areas, [c-i-c]% of SIOs are capable of satisfying ULLS deployment class 9d. The significance of ULLS deployment class 9d is that two copper pairs of this deployment class may be bonded together to supply a symmetric 2 Mbps transmission tail service, as long as two pairs are available. Subject to availability of two or more copper pairs, [c-i-c]% of SIOs in the nominated band 2 exchange service areas would be capable of supporting 2 Mbps transmission tails.
- 78 One interpretation of this information is that a new entrant to the transmission markets in CBD areas would find that [c-i-c]% of all customer premises would be addressable via ULLS tail transmission service of 2 Mbps. A new entrant to the transmission markets in metro areas would find that a group comprising [c-i-c]% of all customer premises on average would be addressable via ULLS for tail transmission of 2 Mbps. Subject to the availability of two or more copper pairs, this group could represent as many as [c-i-c]% of SIOs.
- 79 Those premises that are not within that group would not be addressable via copper transmission tails for new entrants or Telstra, as the limiting factor is signal attenuation in the copper loop, which affects all carriers equally. In my view, this information demonstrates that an inability to run transmission tails to a significant proportion of customers in these exchange service areas would not pose a barrier to entry or expansion for competitors. However, for the group of end-customers that is unable to access 2 Mbps tail services over ULLS, both entrants and Telstra would face a similar cost hurdle in installing a fibre tail, although to the extent that Telstra may have an installed base of fibre tails in these metro areas the relevant sunk costs could potentially pose a barrier to entry. I do not have sufficient information about the incidence or importance of fibre tails in these metro exchange service areas to form a view on the materiality of any such barrier.

5.3. TRANSMISSION PRICES AND COSTS

- 80 The Commission's 2004 report places some weight on the fact that transmission prices had declined on most routes between 2001 and 2004. Pricing behaviour is indeed an important indicator of the effectiveness of competition, particularly in markets where the characteristics of the product or service are highly standardised (as they are for DTCS). The analytical difficulty lies in deciding how much price movement to expect as a result of competitive forces.

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5.3.1. Cost benchmarks

- 81 If there were a valid cost benchmark against which prices could be judged, then meaningful comparisons could perhaps be made between profit margins or returns on assets. However, costing of transmission services for regulatory purposes is far from straightforward. The lumpiness of capacity increments and the high cost of retrofitting additional capacity to an existing fibre route mean that pre-provisioning is prudent. Unfortunately, the optimal level of pre-provisioning depends on several highly uncertain factors, such as the forecast rate of demand growth over a relatively long period, and the probability of emergence of alternative transmission technologies (possibly including WiMax, for example).
- 82 A further costing challenge that is particular to fibre optic transmission systems is the high degree of commonality in costs across different services. For reliability reasons, optical fibre transmission tends to be provided by means of multiple interlinked SDH rings. An indication of the potential complexity of such systems is given by the Gibson Quai transmission cost model found on the Commission's web site. While that model has some shortcomings, the diagrammatic representation it provides for certain types of transmission links begins to illustrate some of the complex interrelationships between network links and point-to-point transmission markets. It is a many to many relationship that poses great challenges to anyone wishing to propose a single, objectively valid allocation of costs to services.
- 83 In light of these matters of principle, a reliable basis for a unique costing of a particular transmission service appears unobtainable. By way of further explanation, it is my understanding that pure tail transmission (referred to by Telstra as "0 km" x163 services) is usually sold bundled with inter-exchange transmission. It is also my understanding that the market prices provided by Telsyte refer to such bundled tail and inter-exchange services. While the costing of a pure tail service may be straightforward, costing the inter-exchange elements of such a bundled service suffers from the various problems I have noted. Thus the comparison between costs and prices is rendered impractical by these problems.

5.3.2. Industry price trends

- 84 Telstra has provided me with its list prices for CBD and metropolitan transmission by bandwidth and by radial distance at various points in time between 1998 and 2006. These list prices are the same for all capital cities. I would have preferred to analyse actual yield data (i.e., prices that reflect customer discounts from list price), but I was instructed that this information would not be made available to me due to the high level of commercial sensitivity surrounding it. As a result I have relied instead on market pricing information provided by Telsyte, as described below. The documents I refer to are Telsyte (November 2007), "Historic Wholesale Metro Leased Line Prices 2003-2004", and Telsyte (November 2007), "Current Wholesale Metro Leased Line Prices 2007."

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85 The “box and whiskers plot” below show how the distribution of market prices for CBD/Metro 2 Mbps wholesale transmission has changed between 2003 and 2007 for the distance band 0 – 5 km. For brevity, only Sydney is shown in detail here, but the comparable analysis for the other capital cities is presented in Annexure 2. In each diagram, the blue rectangle (“the box”) shows the range between the lower quartile and upper quartile of the distribution. The median value is depicted with a red diamond. The narrow lines (“the whiskers”) extend down to the minimum price and up to the maximum price for each city. This information was provided by Telsyte, who asserts copyright over it.

86 Telstra’s list prices for x163 services (bundled tail and inter-exchange transmission) are shown as the last plot on the right hand side. The blue rectangle shows the range of Telstra prices for distances between 0 and 5 km in the diagram (depicting 2003, 2004, then 2007, over which time Telstra list prices have not changed).

[Table is c-i-c]

87 The narrowing of price ranges over time can be seen in this comparison of 2003 prices across most of the capital cities (immediately below) with 2007 prices in the same cities (second diagram below).

[Table is c-i-c]

[Table is c-i-c]

88 This chart (and the others included in Annexure 2) show the following trends in industry transmission prices:

- Industry maximum prices have declined strongly over the 2003 – 2007 period, as have upper quartile prices. The result is that the range of prices has narrowed over time for each city, tending to cluster much more closely around the minimum prices.
- Price differentials between cities have narrowed significantly over time.
- Telstra list prices for bundled tail and inter-exchange transmission were initially, in 2003, in the low-middle range of industry prices. By 2007, they were in the middle-high range of industry prices. I have not been provided with information on Telstra’s yields or transaction prices.

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5.4. COMPETITION IN DOWNSTREAM MARKETS

89 The Commission's 2004 report also placed some weight on the fact that downstream services that rely on transmission service as an input have experienced steadily declining prices and, apart from services that are themselves under threat from new types of service (such as PSTN long distance services being displaced by mobile services, for example), increasing volumes.

90 Since 2004, these trends have continued strongly, as the data summarised below indicates.

Source: ACCC (2007)
Telecommunications Market Indicator Report 2005-06

	2001-02	2002-03	2003-04	2004-05	2005-06
Domestic long distance					
Rev (\$m)			1,686	1,477	1,327
minutes (m)			12,133	10,999	10,178
yield (\$/minute)			0.139	0.134	0.130
International long distance					
Rev (\$m)			462	395	329
minutes (m)			1,294	1,158	1,040
yield (\$/minute)			0.357	0.341	0.316
Fixed to mobile calls					
Rev (\$m)			2,178	2,117	1,978
minutes (m)			5,947	6,010	6,076
yield (\$/minute)			0.366	0.352	0.326
Mobile services					
Rev (\$m)	5,998	6,467	6,866	7,465	7,803
minutes (m)	11,083	12,963	14,571	15,207	19,107
yield (\$/minute)	0.54	0.50	0.47	0.49	0.41
GSM OT					
Rev (\$m)	1,985	1,896	1,968	2,050	2,163
minutes (m)	6,531	6,838	7,422	8,188	8,311
yield (\$/minute)	0.30	0.28	0.27	0.25	0.26

91 These services, which are all dependent to some significant degree on metro/CBD transmission services, have exhibited steadily declining average yields over the past five years.

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92 This trend information is suggestive, at least, that the pricing and availability of transmission services have not inhibited competition among providers of these downstream services.

5.5. ARBITRATIONS

93 I am instructed of the following:

- Between the 1997 declaration of the domestic transmission capacity service and April 2004 (the date of the relevant ACCC Final Report), there had been two disputes notified to the Commission: AAPT v Telstra, and Primus v Telstra. Both were settled commercially, circumventing the need for arbitration by the ACCC.
- According to the ACCC's website (at http://www.accc.gov.au/content/index.phtml/itemId/635059/fromItemId/356715#h3_70), as at 18 December 2007 there were three access disputes relating to wholesale transmission: Macquarie, Chime and Netspace. [c-i-c].

94 While it is difficult to draw conclusions from facts such as these, it is notable that the level of disputation concerning declared wholesale transmission services is remarkably low compared to other declared telecommunications services.

95 The relative absence of access disputes over DTCS is suggestive that seekers of DTCS access are able to obtain reasonable commercial terms without relying on arbitration mechanisms. This number of disputes is small compared to the number of disputes that have been notified in respect of other declared telecommunications services. I note that the Commission itself considered this factor a relevant consideration in its 2004 decision to exempt 14 capital-regional routes.²³

96 The Commission noted five possible explanations of the limited number of arbitrations over the DTCS:

- Effectiveness of the threat of arbitration in constraining prices;
- Cost and uncertainty of commencing arbitration;
- Limited financial wherewithal of smaller access seekers;
- Sufficient competition in the market; and
- Transmission capacity prices are considered reasonable by access seekers.

97 Without further information, I am unable to determine which of these explanations appear more plausible. Nonetheless low levels of arbitration activity is consistent with sufficient competition in the market.

23 See 2004 Report, s5.4, especially p. 39.

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6. EXEMPTION AND THE PROMOTION OF THE LTIE

98 In the previous section I presented empirical results supporting my view that continued declaration of CBD inter-exchange and tail-end transmission, and of metropolitan inter-exchange and tail-end transmission for bandwidths up to and including 2 Mbps for exchange service areas meeting the inclusion criteria is unnecessary to promote competition for transmission services or competition in downstream services that rely on transmission. Here I explain my opinion that granting exemptions on the identified market areas will promote efficient competition and the efficient use of, and investment in, infrastructure because exemption will reduce the burdens of regulation, which include a chilling effect on new facilities investment by both Telstra (whose returns will be truncated) and competitors (who will elect to buy services from the incumbent rather than invest in their own facilities when regulatory pricing errors favour them).

99 It is my view that:

- Facilities-based competition is the form of competition that best promotes efficiency, since it allows for greater innovation and more robust price competition. Exemption would further incent a movement that is already evident away from access-based competition towards facilities-based competition when it is efficient.
- Access regulation hinders the efficient investment in infrastructure by truncating returns on investment and creating the potential for regulatory dependence on the part of inefficient competitors. Exemption would reduce these negative effects and thus promote efficient investment.
- Competition is a better stimulant for efficient investment than access regulation. In a market where there is robust competition across the supply chain, the desire for a competitive edge incents investment and innovation.

6.1. PROMOTING COMPETITION

100 Section 152AB of the Trade Practices Act sets out the object of the telecommunications access regime in Part XIC, which is to promote the long-term interests of end-users of carriage services or of services provided by means of carriage services (LTIE). I am instructed that s152AB(2)(c) requires that in determining whether a particular thing promotes the LTIE, regard must be had to the extent to which the thing is likely to result in the achievement of the objective of promoting competition in markets for listed services.

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- 101 Facilities-based competition may be contrasted with resale-based or access-based competition. In the former, a number of competitors each own and invest in their own network infrastructure. In the latter, competitors purchase key infrastructure inputs from a smaller number of firms (often a single firm) and compete in a downstream market for value-added services based on that input. I agree with the Commission that the former, facilities-based competition presents a more secure foundation for long-term rivalry as each competitor would have a greater degree of control over its own product characteristics, and would be better able to tailor its product offerings to the evolving needs of the marketplace. The Commission has stated that facilities-based competition will be more likely to promote the LTIE:²⁴

The Commission's approach is based on the principle that where it is economically efficient, facilities-based competition is more likely to promote the LTIE. This is because this form of competition allows rivals to differentiate their services and compete more vigorously across greater elements of the supply chain.

- 102 Facilities-based competition is superior to access-based competition for the following reasons.
- It can lead to greater price competition as entrants have greater control over costs and have an incentive to use efficient means of provision to compete with incumbents through lower prices. In contrast, access-based competition limits price competition because access seekers' costs are directly related to regulated access prices which are in turn related to the incumbent's costs (where access prices are determined using cost-based methodologies) instead of their own costs.
 - It enables greater service innovation, as noted by the Commission in the quote above. This is especially true when entrants are vertically integrated (as they will generally be) and thus have control over more points of the supply chain, allowing them to differentiate their product(s) in non-price characteristics (e.g. service quality or functionality).
- 103 Compared to the counterfactual of continued declaration, exemption would encourage facilities-based competition, where it is economically efficient, because exemption would give the incumbent network owner more certainty of returns to new infrastructure investment. Exemption would also give potential new entrants to network ownership a greater incentive to invest in their own facilities, because they would be less able to exploit regulatory errors in access pricing for incumbent infrastructure. Entrants would also face greater certainty over their own future returns because, under exemption, they would face a diminished risk that their own facilities might one day be declared.

24 ACCC, *Fixed Services Review*, April 2007, page iii.

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104 In sum, exemption would favour the development of facilities-based competition, which relies on competitive investments, so long as the exempted services are not bottlenecks. Facilities-based competition promotes the LTIE more than access-based competition. It does so through stronger price competition in the longer term and by conferring greater consumer choice and quality benefits.

6.2. EFFICIENT USE OF AND INVESTMENT IN INFRASTRUCTURE

105 I am instructed that s152AB(2)(e) requires that in determining whether a particular thing promotes the LTIE, regard must be had to the extent to which the thing is likely to result in the achievement of the objective of 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.

106 In my view exemption would promote the economically efficient use of and investment in infrastructure. Competition, and not regulation, drives efficient investment and provides better incentives for such investment. I am instructed that, under sub-section 152AB(6) of the Act, regard must be had to the extent to which a particular thing (i.e., declaration or exemption, for example) would encourage the economically efficient use of, and economically efficient investment in, the infrastructure used for the supply of carriage services. In assessing this requirement the Commission recognised that a declaration “*may distort the access-provider’s maintenance, improvement and expansion decisions leading to inefficient investment that harms the long-term interests of end-users.*”²⁵ I agree with the Commission’s own view that regulation can harm the LTIE through distorting efficient investment incentives.

Exemption promotes the economically efficient use of and investment in infrastructure

107 Access regulation can influence “build/buy” decisions. Where competition is workable already, access regulation may influence these decisions away from the outcomes that would arise otherwise—that is, away from the efficient outcomes.

108 In particular, access regulation carries a number of potential risks that include:

1. Truncation of returns by cost-based access pricing; and
2. Regulatory dependence.

These points are explained below.

²⁵ ACCC, *A strategic review of the regulation of fixed network services: An ACCC Discussion Paper*, December 2005, page 18.

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Truncation of returns by cost-based access pricing

- 109 Cost-based access pricing truncates the rewards (that is, profits above a portfolio average) from successful investment but does not reduce the losses from unsuccessful investment.²⁶ This truncation reduces the incentives to invest and take risks. Further, if the loss of expected returns is sufficiently large, as is more likely in a rapidly developing and changing environment such as CBD or metro transmission services, the access provider will face inefficient disincentives to expand or modernise its infrastructure.
- 110 In short, the rewards from investment are socialised (shared with access seekers) or quickly bid away, while losses are internalised (only borne by the investor), inefficiently reducing the incentives to invest.

Potential regulatory dependence

- 111 When access prices are set below the competitive level, access seekers may find it profitable to use the network owner's infrastructure rather than investing in their own infrastructure. Under these conditions, some access seekers may become dependent on regulation for survival. This form of dependency will distort the incentives to invest and will adversely impact the progression to facilities-based competition by placing pressure on the regulator to protect the dependent firms. This risk can be avoided by removing regulated access where workable competition exists.

Conclusion on efficient use of and investment in infrastructure

- 112 Many of the issues noted above concern the possibility that regulators will make pricing errors that would be avoided by a process of market competition. What is of most interest, in my view, is the effect of the risk of error on the incentive for investment. It is not necessary to demonstrate that error has occurred, or even that the probability of regulatory error exceeds some threshold. Even if regulatory pricing errors are unbiased, that is that the likelihood of regulatory overpricing is equal to the likelihood of regulatory underpricing, there will be a detrimental effect on investment incentives because incumbents and entrants will each face greater uncertainty of returns. Regulation, in the form of continued declaration, makes it more likely than not that regulatory pricing errors will occur. The probability of error will raise the cost of investing for all parties, and therefore will reduce the amount of investment overall.

²⁶ Unless prices are calculated on the basis of average costs, where the average includes the successful and the unsuccessful transmission services or routes. As there have been no transmission price arbitrations to date, as far as I know, it is difficult to predict what costing basis the Commission might apply.

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6.3. ANY-TO-ANY CONNECTIVITY

113 I am instructed that s152AB(2)(c) requires that in determining whether a particular thing promotes the LTIE, regard must be had to the extent to which the thing is likely to result in the achievement of the objective of achieving any-to-any connectivity in relation to carriage services that involve communication between end-users.

114 In its last decision, the Commission stated that it²⁷

does not believe that a variation to remove certain transmission routes from the declaration will have an impact on the achievement of any-to-any connectivity between end-users. This is on that basis that key criteria for removal of any component of the transmission capacity service is that there are a sufficient number of alternative suppliers of the services or alternative services in question, thus ensuring that any-to-any connectivity should be able to continue to be achieved.

115 Likewise, I do not consider that exemption of the nominated transmission services will have any impact on any-to-any connectivity.

7. CONCLUSIONS

116 It is my view that regulation is inherently risky and has significant downsides. When regulation is not required to promote competition in upstream or downstream markets, markets should be allowed to operate with as little regulation as possible to achieve optimal outcomes in pricing, investment and the provision of services.

117 I have shown that exemption of CBD inter-exchange and tail transmission will not harm competition. I have also shown that exemption of metropolitan inter-exchange transmission of up to 155 Mbps or higher orders and tail transmission of 2 Mbps bandwidth for a significant number of identified exchange service areas will not harm competition, with the possible exception of competition for 2 Mbps tail transmission services in metro areas to premises that are unable to receive this service over ULLS due to signal attenuation. I do not know how important, or even whether this group of potential customers is important to the state of competition in metro transmission markets more broadly. By removing sources of regulatory distortions, exemption will actually promote competition. It follows that the enhanced level of competition will drive efficient investment in infrastructure, thus promoting the LTIE.

118 To that end, I believe that exemption of the CBD and metro transmission services identified in this report would promote the LTIE.

²⁷ ACCC, *Transmission Capacity Service: Review of the declaration for the domestic transmission capacity service, Final Report*, April 2004, page 47.

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ANNEXURE 1 Mike Smart CV**MIKE SMART**

Vice President

BA, Magna Cum Laude
Astrophysics degree
(High Honours)
Harvard University, 1979

- 119 Mike Smart is a Vice President at CRA International. Mike's principal expertise is in the application of empirical economics to pricing, corporate strategy, regulatory and competition policy issues. He has advised the Australian industry leaders in rail, logistics, gas, mining, telecommunications and aviation, among other private and public sector organisations.
- 120 Mike is advising NSW competition regulator IPART on its inquiry into Port Botany's landside interface—draft report was published in October 2007. He briefed counsel in the Australian Pipeline Trust's successful High Court challenge to the Full Federal Court ruling regarding the access arrangement for the Moomba-Sydney Pipeline. He assisted FOXTEL in obtaining ACCC approval for its special access undertaking with respect to digital set top units. The Australian Pipeline Trust asked him to provide economic reports in support of the asset valuation for the Roma-Brisbane Pipeline. He led a team analysing the regulatory test hurdles for a proposed reinforcement investment in the electricity transmission network for WesternPower. Mike assisted AGL to obtain regulatory approval for the acquisition of certain Queensland retail energy business assets.
- 121 Mike led a team preparing economic reports on behalf of BHP Billiton Iron Ore concerning a Part IIIA access application by FMG for the Mt Newman rail line. He provided competition modelling support to Toll in the ACCC approval process over the hostile merger with Patrick Corporation. He assisted in the preparation of expert testimony in a Federal Court case brought by Pacific National against Queensland Rail concerning the Acacia Ridge terminal. On behalf of a New Zealand firm, Mike assessed potential liability for damages arising from alleged collusive pricing. Mike provided expert economic reports in a merits review conducted by the Australian Competition Tribunal concerning the regulatory valuation of the Moomba-Sydney Pipeline. He led a small team that advised the Australian Stock Exchange on commercial and competition issues surrounding the December 2005 strategic review of trading, clearing and settlement prices.
- 122 Mike was an expert witness in Virgin Blue's successful appeal to the Australian Competition Tribunal to have Sydney Airport's airside service declared. While with NECG, he assisted in the preparation of expert testimony in the 2004 ACCC v. Baxter case before the Federal Court in NSW. He also assisted Pacific National to achieve merger approval from the ACCC for its 2003 acquisition of Freight Australia, and provided subsequent advice on access pricing strategies during the post-merger integration phase.

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- 123 In 2003 Mike was an expert witness in the AGL Loy Yang case before the Federal Court in Victoria. He assisted in the preparation of expert testimony in a 2002 case before the Coal Compensation Tribunal, and in the successful appeal in the Australian Competition Tribunal by the Eastern Gas Pipeline against regulatory coverage. In 2002 Mike provided due diligence reports including revenue forecasts for Toll Holdings and Patrick Corporation in their successful bid to acquire Pacific National.
- 124 Before commencing his current role, which began with a directorship of CRA predecessor NECG in 2000, Mike was the Manager of Corporate Strategy for the Rail Access Corporation of NSW during its corporatisation and first three years of operation. That role encompassed commercial and regulatory challenges including development of an access pricing strategy and negotiating access contracts, as well as a significant contribution to the development of the NSW Rail Access Regime.
- 125 Prior to that role, Mike advised the Public Accounts Committee of the NSW Parliament, worked as engineering manager in a data acquisition and machine vision firm, and consulted, in California, to the airline and electric power industries.

EXPERT WITNESS EXPERIENCE

- Filed an expert report in the matter of an application by East Australian Pipeline Limited [2005] ACompT 1, heard by the Australian Competition Tribunal, Sydney.
- Testified before the Australian Competition Tribunal in the matter of an Application by Virgin Blue Airlines Pty Limited, No 1 of 2004, Sydney.
- Testified before the Federal Court of Australia in the matter of Australian Gas Light Company v. Australian Competition & Consumer Commission (No 3) [2003] FCA 1525, Melbourne.

PROFESSIONAL HISTORY

- 2004 – Vice President, CRAI, Australia
- 2000 – 2004 Executive Director and Principal, NECG, Australia
- 1996 – 2000 Manager, Corporate Strategy, Rail Access Corporation of NSW, and
Manager of Systems, Telecommunications Division, Australia
- 1993 – 1996 Director, Smart & Kay Pty Ltd, Australia
- 1989 – 1993 Independent Consultant, Australia
- 1986 – 1989 Engineering Manager, Science & Computing Applications P/L, Australia

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1984 – 1985 Associate, Decision Focus Inc, Los Altos, CA (USA)

1980 – 1983 Professional Officer, University of NSW, Australia

SELECTED CONSULTING ASSIGNMENTS

- Currently assisting NSW competition regulator IPART in its inquiry into the Port Botany land transport interface.
- Co-authored, with Professor George Hay, an expert report concerning competition impacts of a merger in the plastic bottle industry.
- Provided an expert statement to the ACCC regarding Telstra's application for exemption to declaration for the domestic transmission capacity service on certain routes.
- Assisted FOXTEL in obtaining ACCC approval (granted March 2007) for its special access undertaking for its digital set top units.
- Advised IPART on its review of actual coal rail access revenues against the statutory ceiling.
- Provided economic reports in support of the asset valuation for the Roma-Brisbane Pipeline in the 2006-2007 Access Arrangement round.
- Led a team analysing the regulatory test hurdles for a proposed reinforcement investment in the electricity transmission network for WesternPower.
- Assisted AGL to obtain regulatory approval for the acquisition of certain Queensland retail energy business assets.
- Prepared reports submitted to the National Competition Council on behalf of BHP Billiton Iron Ore concerning the Part IIIA application by Fortescue Metals Group to have the Mt Newman railway line declared.
- Assisted in the preparation of expert testimony called by Pacific National in a Federal Court case concerning disputed management and occupancy of the Acacia Ridge rail terminal in Brisbane.
- Worked in a team led by Serge Moresi of CRA's Washington D.C. office modelling the competition impacts of the proposed merger between Toll Limited and Patrick Corporation.
- Advised a New Zealand firm on potential damages arising from alleged collusive pricing.

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- Prepared expert reports submitted to the Australian Competition Tribunal in the merits review of the ACCC's Final Decision on the Moomba-Sydney Pipeline Access Arrangements.
- Worked closely with the Australian Stock Exchange to develop and test options for the strategic review of trading, clearing and settlement prices, culminating in the December 2005 announcement of significant restructuring of prices.
- Expert witness called by Qantas in Virgin's appeal to the Australian Competition Tribunal to have Sydney Airport's airside service declared.
- Conducted a series of imputation tests used in expert testimony in the s46 case brought against Baxter by the ACCC in the Federal Court in Sydney.
- Expert witness called by AGL in its successful court action against the ACCC regarding the purchase of the Loy Yang A power station.
- Assisted the Australian Pipeline Trust in its long-running campaign to have regulatory coverage of the Moomba-Sydney Pipeline revoked.
- Provided a detailed avoidable cost analysis for an Australian firm responding to allegations of predatory pricing. The ACCC ultimately did not proceed with the case.
- Prepared revenue forecasts and other due diligence reports for Toll Holdings and Patrick Corporation on access prices in their successful bid to acquire Pacific National.
- Assisted in the preparation of expert testimony on behalf of the Coal Compensation Board with respect to a disputed compensation claim in the Coal Compensation Tribunal.
- Prepared a data pricing strategy for Airservices Australia.
- Helped the Australian Stock Exchange to design and establish pricing for a new data service.
- Prepared due diligence report on regulatory risk for one of the underbidders for Sydney Airport in 2002.
- Assisted in the preparation of expert testimony on behalf of Duke Energy with respect to their successful action before the Australian Competition Tribunal to have the Eastern Gas Pipeline unregulated.
- Advised the ACCC on a method for valuing the land under Sydney Airport. The recommendations were adopted by the ACCC in the 2000 Sydney Airport decision on aeronautical charges.

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- 126 Additionally, Mike has prepared a number of economic reports regarding merger authorisations, declarations under Part IIIA of the Trade Practices Act, matters involving misuse of market power, commercial pricing strategies, and regulatory pricing decisions.

PUBLICATIONS

Courses, Seminars and Other Presentations

"The Prime Minister's Export Infrastructure Task Force: Two years on—has anything changed?", AusIntermodal conference, Sydney, 28 November 2007.

"The role of economic regulation in reducing bottlenecks", conference on economic regulation in transport and logistics, Lloyds List DCN, Melbourne, 6 June 2007.

"The economic value created by the emergence of a national gas pipeline network", paper presented at the Australian Pipeline Industry Association's Annual Pipeline Convention 2006, Alice Springs, 16 October 2006.

"Track access and regulation", presented to a course organised by the Australasian Railway Association in Melbourne, August 30-31, 2006.

"The relative competitiveness of road and rail haulage", presentation to a conference at the National Library on challenges in achieving efficient pricing in freight infrastructure, Canberra, April 28, 2006.

Seminar on the Economics of Rail Access Regulation, ACORE course, ANU, August 2004.

NECG Short Course Presentations on economic tools and techniques that underpin many of the regulatory and policy decisions affecting Australia's network industries, Canberra, 16 - 17 September 2002; Perth, 17 - 18 October 2002.

NECG Seminar Presentations on the range of economic, policy and legal issues involved in access regulation, Hobart, 4 June 2002.

NECG Short Course Presentations on access pricing, Sydney 18 – 20 February 2002, Melbourne 6 – 8 March 2002.

NECG Course Lectures on access pricing lecture at this course organised by NECG at the Australian National University for managers of utility corporations from several South East Asian and Pacific nations in 2000.

Publications

"Transport demand and spatial equilibria", Mike Smart, accepted for publication in the **Journal of Transport Economics and Policy**, August 2007.

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"*Two case studies on road vs rail freight costs*", Mike Smart and Simon Game, submission to the Productivity Commission inquiry into freight infrastructure pricing, May 25, 2006.

"*Safety fears could derail years of reform*," Sydney Morning Herald, 23 April 2003, p. 13.

Sydney Airport Revised Draft Aeronautical Pricing Proposal. Final report prepared for the ACCC, December 2000.

"*Land and Easement Valuation in Pricing for Networked Businesses – A Critical Appraisal*." Henry Ergas and Mike Smart, Conference on Asset Valuation, ACCC, Melbourne, 16 June 2000.

"*Practical Aspects of Rail Access Implementation*." Published in the Proceedings: Current Issues in Access. Business Law Education Centre, Sydney, 29 October 1999.

"*Solving the Riddle of Combinatorial Logic*." Published in the Proceedings 23rd Australian Transport Research Forum, Perth, 30 September 1999. pp. 789-803.

"*Understanding Life Cycle Costing and Applying Life Cycle Analysis*." Published in the Proceedings: Advanced Asset Management. IIR Conference, Sydney, 28 September 1998.

"*Application of Valuation Policies for Infrastructure Assets*". Published in the Proceedings: Strategic Asset Management in the Public Sector. IIR Conference, Sydney, 24 November 1997.

"*ASYST Applications*." The First Australian Forth Symposium: University of Technology, Sydney, May 1988.

"*Measuring Solar and Electric Heating Contributions in Occupied Houses*." Smart and Ballinger. **Energy and Buildings** 9. 213-219 (1986).

"*Fourier-synthesized Weather Data for Building Energy Use Estimation*." Smart and Ballinger. **Building and Environment Vol.19 No.1**. 41-48 (1984).

"*A Frequency Domain Optimising Design Tool*." Smart and Ballinger. Published in the Proceedings: Solar World Congress, Perth, August 1983.

"*Empirical Values for Building Envelope Characteristics*." Smart and Ballinger. Published in the Proceedings: Solar World Congress, Perth, August 1983.

"*The Bonnyrigg Solar Village*." Ballinger and Smart. Published in the Proceedings: Solar World Congress, Perth, August 1983.

"*SOLARCH Passive Design Test Facility*." Ballinger and Smart. Published in the Proceedings: Solar World Congress, Perth, August 1983.

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"*An Economic View of Passive Solar Design in an Australian Context.*" Ballinger and Smart. Published in the Proceedings: Solar World Congress, Perth, August 1983.

"*Tracking Mirror Beam Sunlighting for Deep Interior Spaces.*" Smart and Ballinger. **Solar Energy Vol.30 No.6.** 527-536 (1983).

"*An Empirical Study of Problem Heat Flow Paths in Simulation Models.*" Smart and Ballinger. Chapter 6 in **Predictive Methods for the Energy-Conserving Design of Buildings.** H.J. Cowan Ed. Pergamon, Sydney (1983).

"*The Auxiliary Heating Requirements of Six House Types in Sydney.*" Ballinger and Smart. Published in the Proceedings: ANZ Architectural Science Association, Sydney, 1983.

"*An Interactive Design Method Using Sensitivity Curves.*" Published in the Proceedings: International Solar Energy Society (ANZ Section), Brisbane, November 1982.

"*SOLARCH Passive Solar Test Facility.*" Ballinger, Smart, and Shotbolt. Published in the Proceedings: International Solar Energy Society (ANZ Section), Brisbane, November 1982.

"*A Comparative Study of Lightweight and Heavyweight Construction.*" Ballinger and Smart. Published in the Proceedings: International Solar Energy Society (ANZ Section), Brisbane, November 1982.

"*Spectral Analysis of Weather Data.*" Published in the Proceedings: ANZ Architectural Science Association, Melbourne, August 1982.

"*Propagation of Magnetically Guided Acoustic Shocks in the Solar Chromosphere.*" Foukal and Smart. **Solar Physics 69.** 15-25 (1981).

Consultant Responsible For Drafting Parliamentary Reports

Inquiry into Financing of Urban Infrastructure -- Report on European Inspection Tour. Public Accounts Committee, Parliament of New South Wales. Report No. 67. December, 1992. ISBN 0 7240 9554 3.

Report on the National Parks and Wildlife Service. Public Accounts Committee, Parliament of New South Wales. Report No. 59. December, 1991. ISBN 0 7240 8806 7.

Report on Payment Performance. Public Accounts Committee, Parliament of New South Wales. Report No. 55. April, 1991. ISBN 0 7240 8797 4.

Report on the Forestry Commission. Public Accounts Committee, Parliament of New South Wales. Report No. 52. December, 1990. ISBN 0 7240 8786 9.

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ANNEXURE 2: transmission prices over time

The progression of 2 Mbps transmission prices for distances of between 0 – 5 km over the years 2003, 2004 and 2007 are shown for each of the capital cities below. These charts are based on data contained in the following documents: Telsyte (November 2007), "Historic Wholesale Metro Leased Line Prices 2003-2004", and Telsyte (November 2007), "Current Wholesale Metro Leased Line Prices 2007."

[Tables are c-i-c]

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ANNEXURE 3: my instructions