



# **DOMESTIC TRANSMISSION CAPACITY SERVICE**

**A draft report examining possible variation of the service declaration  
for the domestic transmission capacity service**

March 2001

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## Abbreviations

ACA	Australian Communications Authority
Act	<i>Trade Practices Act 1974</i>
AIEAC	Australian Information Economy Advisory Council
bps	Bits per second
CAN	Customer access network
Commission	Australian Competition and Consumer Commission
CRU	Communications Research Unit
DWDM	Digital wave density multiplexing
Gbit	Gigabit
Gbps	Gigabits per second
Kbit	Kilobit
Kbps	Kilobits per second
LTIE	Long-term interests of end-users of carriage services or of services supplied by means of carriage services. This term is defined in s. 152AB of the Act.
Mbit	Megabit
Mbps	Megabits per second
Tbps	Terabits per second

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## Glossary

Access provider	Carrier or carriage service provider who supplies declared services to itself or other persons — see s. 152AR of the Act.
Access seeker	Service provider who makes, or proposes to make, a request for access to a declared service under s. 152AR of the Act.
Declared service	An eligible service declared by the Commission under s. 152AL of the Act. Once an eligible service is declared, access providers are required to supply the service to service providers (that is, access seekers) upon request — see s. 152AR of the Act.
Eligible service	This term is defined in s. 152AL of the Act. An eligible service is a carriage service between two or more points (at least one of which is in Australia), or a service that facilitates the supply of such a carriage service.
Service provider	Defined in s. 86 of the <i>Telecommunications Act 1997</i> . The term refers to a carriage service provider or a content service provider.

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## Section 1. Introduction

On 6 June 2000, the Australian Competition and Consumer Commission (the Commission) commenced a public inquiry into whether it should vary the service declaration for transmission capacity. In particular, the focus of the inquiry is whether the Commission should vary those elements of the declaration relating to intercapital transmission. The inquiry does not relate to other elements of the declared service.

Intercapital transmission capacity is used for the transmission of voice, data and other communications between a point of interconnection located in different capital cities. Intercapital refers to transmission between the sites specified in the Deeming Statement, which includes only Brisbane, Sydney, Canberra, Melbourne, Adelaide and Perth. The Commission varied the domestic transmission capacity declaration to include intercapital transmission, except on the Melbourne, Canberra and Sydney routes, on 4 November 1998 following a public inquiry process.<sup>1</sup> At present, therefore, all intercapital routes are declared with the exception of Melbourne-Canberra-Sydney.

Declaration means that an access provider supplying intercapital transmission capacity to itself or another person must also supply the service, upon request, to access seekers. Declaration ensures access seekers have access to the inputs they need to supply competitive communications services to end-users and that these inputs are supplied in accordance with the standard access obligations set out in s. 152AR of the *Trade Practices Act 1974* (the Act).

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

The Commission can declare certain services or vary/revoke an existing declaration, where it is satisfied that declaration, variation or revocation will promote the long-term interests of end-users (LTIE). In considering whether declaration, variation or revocation will promote the LTIE, the Commission must have regard to the likely impact of declaration, variation or revocation on competition, any-to-any connectivity and economic efficiency.

Significant rights and obligations flow from a decision to declare a particular service, and which exist while the declaration continues (subject to any variations to the service description and granted exemptions to the standard access obligations). It is, therefore, important for the Commission to maintain a scope of regulation consistent with the promotion of the LTIE. The Commission noted in its guide to the declaration provisions that:

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<sup>1</sup> See Chapter 4 of the Australian Competition and Consumer Commission's Inquiry Report *Competition in data markets – Inquiry Report*, November 1998.

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A foundation principle of competition policy is the need to continually reconsider the case for regulation. This is particularly important in a dynamic environment such as telecommunications. It ensures that the regulation continues to achieve its goals and does not lock the industry into particular technologies or modes of operation that may result in higher costs to market participants and detriment to end-users.<sup>2</sup>

The current inquiry was initiated upon consideration of results of the Commission's current monitoring of the intercapital transmission capacity service. When the Commission declared many of the intercapital routes, except the Melbourne, Canberra and Sydney routes, it announced that a monitoring program would be established to assess aspects of market structure and market conduct on both the declared and undeclared routes. The objectives of the monitoring program are:

1. to monitor whether the expected benefits from new entry and maturation of the market do, in fact, materialise; and
2. to obtain information that will assist the Commission in deciding whether to review the declaration decision where the structure of the market and the conduct of market participants change.

To fulfil both aims of the monitoring program, the Commission collected quarterly information initially from Telstra and Cable & Wireless Optus and, subsequently, from Macrocom, SPI Powernet (formerly known as GPU Powernet) and Transgrid regarding:

- the movement in wholesale intercapital transmission access prices over time;
- the margins available to suppliers of wholesale intercapital transmission services;
- capacity utilisation of intercapital transmission;
- the level of investment in intercapital transmission services;
- market shares;
- availability of substitutes; and
- the extent of market entry.

To stimulate discussion and assist its consideration of these matters during the inquiry, the Commission issued a discussion paper in June 2000 setting out a number of issues which it considered to be pertinent to the issue of declaration. In the course of this inquiry the Commission received a number of submissions from carriers and carriage service providers. The Commission also conducted market inquiries with industry participants. A list of submissions received is at **Appendix 1**.

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<sup>2</sup> Australian Competition and Consumer Commission, *Telecommunications services – Declaration provisions*, July 1999, p. 67.

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## 1.1. Summary of findings of the inquiry

Having regard to the information received to date, the Commission's draft view is that varying the service description to remove the remaining intercapital transmission routes will be in the LTIE. The reasons for this view are set-out in this report. In summary, the Commission has reached this draft view because:

- there are presently two new entrants competing with Telstra and Cable & Wireless Optus on the **Sydney to Brisbane** route, one potential new entrant currently constructing its infrastructure and two additional potential new entrants announcing plans to roll-out on this route. The Commission expects that the new entrants on this route should continue to lead to more competitive prices; and
- while, to date, Telstra and Cable & Wireless Optus are the only facilities-based suppliers of intercapital transmission capacity on the **Melbourne**, **Adelaide** and **Perth** routes, there are three potential new entrants with roll-out plans between Melbourne to Perth, and two potential new entrants currently rolling-out from Melbourne to Adelaide (Macrocom and Amcom). The Commission understands that Amcom will become operational on the Melbourne to Adelaide route shortly.

There is also evidence that prices are declining, with the extent of the price decrease smaller on the thinner routes. The fall in prices may partially reflect the decline in costs in addition to the increased competition provided by new entrants. The Commission expects that prices will continue to fall as the proposed new entry eventuates leading to significant benefits for end-user in terms of lower prices.

The Commission also notes that there is currently no on-going arbitrations involving this service. While there may be a variety of reasons for this, it raises an issue of the extent to which regulation is promoting competition.

This draft report sets out the information, analysis and reasons upon which the Commission's draft decision has been made. The draft report is structured as follows:

- **Section 2** briefly outlines the access regime and relevant provisions governing the declaration process.
- **Section 3** describes the part of the service declaration which is the focus of this inquiry, namely the domestic transmission capacity service between capital cities.
- **Section 4** identifies the markets that are the focus of the inquiry and the Commission's views on the effectiveness of competition in these markets.
- **Section 5** sets out the Commission's reasons and conclusions as to whether (and the extent to which) a variation of the service declaration for domestic transmission capacity would promote the long-term interests of end-users.

**Appendix 1** provides a list of submissions received.

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**Appendix 2** provides the current service description of the current domestic transmission capacity service declaration.

**Appendix 3** sets out the proposed service description of the varied domestic transmission capacity service declaration.

## **1.2. Making submissions on the draft report**

The Commission seeks comment from all industry participants and from the public more generally. It encourages industry participants, other stakeholders and the public more generally to consider the matters set out in the draft report, and make submissions to the Commission. Any submissions should be made to the Commission by **5:00pm, Thursday 12 April 2001**.

The Commission prefers that all written submissions be publicly available to foster an informed, robust and consultative process. Accordingly, submissions will be treated as public documents unless otherwise specified. It is preferred that where industry participants wish to submit confidential information they should provide confidential and non-confidential versions of their submission. In such circumstances, the confidential version will need to highlight any such information.

Submissions can be addressed to:

Ken Walliss  
Director – Regulatory  
Telecommunications  
Australian Competition and Consumer Commission  
GPO Box 520J  
Melbourne VIC 3001

In addition to a hard copy, people making submissions are encouraged to provide an electronic copy of the submission to: [ken.walliss@acc.gov.au](mailto:ken.walliss@acc.gov.au)

Copies of public submissions to the discussion paper can be obtained by contacting Ms Kha Yen Phan on (03) 9290 1953 or by email to [kha.phan@acc.gov.au](mailto:kha.phan@acc.gov.au). Enquiries can also be made to Ms Phan on the above phone number or email address.



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## Section 2. Legislative background and inquiry process

### 2.1. The access regime

Part XIC of the Act establishes a regime for regulated access to carriage services and services which facilitate the supply of carriage services. Access obligations in relation to a particular service are established following the declaration of that service by the Commission. Once a service is declared, access seekers must be provided with that service and specified ancillary services, on request, by any access provider supplying, or proposing to supply, those services to any person (including to themselves). The access regime thus enables access seekers to supply carriage or content services to their customers without the (potentially anti-competitive) restriction of key services by access providers.

In addition to the Commission's power to declare a service, it also has the power to vary or revoke an existing declaration. Subsection 152AO(1) of the Act stipulates that subs. 33(3) of the *Acts Interpretation Act 1901* applies to the Commission's declaration powers under s. 152AL of the Act. Subsection 33(3) of the *Acts Interpretation Act 1901* provides that the power to make, grant or issue an instrument shall be construed to include a power to repeal, rescind, revoke, amend or vary such an instrument.

Before the Commission can declare a service or vary/revoke an existing service declaration, however, s. 152AB of the Act provides that it must be satisfied that the proposed declaration, variation or revocation would promote the LTIE of carriage services, or of services supplied using carriage services.

Section 152AB(2) of the Act provides that, in determining whether a declaration, variation or revocation promotes the LTIE, regard must be had to the extent to which the declaration, variation or revocation is likely to result in the achievement of the following objectives:

- promoting competition in markets for listed (that is, telecommunications) services;
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and
- encouraging the economically efficient use of, and the economically efficient investment in, the infrastructure by which telecommunications services are supplied.

The Commission's approach to an inquiry on possible variation to the current declaration is to form a view about the likely result of a variation to the current service declaration on the achievement of each of these objectives. The Commission will then make an overall assessment of whether the variation will promote the LTIE, having regard to the impacts on the three objectives.

The Commission uses a 'with and without test' to assist in the above assessment. That is, the Commission considers the future without a variation and compares this to the future with the variation. The 'with and without test' is not a test in its own right, but is rather used to isolate the effects which are

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likely to occur as a result of the variation. Further detail and discussion of the Commission's approach to applying the LTIE test is in its *Telecommunications services – Declaration provisions* guidelines.<sup>3</sup>

## 2.2. The inquiry process

Following a request by any person, or on its own initiative, the Commission may hold a public inquiry into whether to declare a new service, revoke a declaration, or vary the definition of a service that is already declared. Although the Commission can declare a service on the recommendation of the Telecommunications Access Forum without the need to hold a public inquiry, any variation or revocation of an existing declared service, unless the variation/revocation is of a minor nature, can only be made after the Commission has first held a public inquiry. The proposed variation is clearly not of a minor nature.

The purpose of holding a public inquiry is to assist the Commission to determine whether it is satisfied that declaring a service, or varying/revoking an existing declared service would promote the LTIE of carriage services and services provided by means of carriage services. In this regard, the Commission must:

- hold a public inquiry in accordance with Part 25 of the *Telecommunications Act 1997* on whether to make the proposed declaration, or variation/revocation of an existing service declaration;
- prepare and publish a report setting out the Commission's findings as a result of that public inquiry; and
- be satisfied that varying/revoking the service declaration or declaring the service will promote the LTIE of carriage services or of services provided by means of carriage services.

The variation, revocation or declaration must be made within 180 days of the publication of the report.

Having regard to the information received during the monitoring program, the Commission decided to hold a public inquiry, in accordance with subsection 152AO(2) of the Act, to determine whether it should vary its service declaration for the domestic transmission capacity service. Under the *Telecommunications Act 1997*, the Commission must provide a reasonable opportunity for any member of the public to make a written submission to a public inquiry. Under s. 501 of the *Telecommunications Act 1997*, the Commission may hold a public hearing for the purposes of a public inquiry. In the discussion paper on the domestic transmission capacity service, which was released in June 2000, the Commission stated that it did not propose to hold a public hearing. The Commission is still of the view that a public hearing is not required.

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<sup>3</sup> Refer to pp. 34-37 of that guideline.

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## Section 3. Intercapital transmission capacity

Transmission capacity is a generic service that can be used for the carriage of voice, data or other communications using wide-band or broadband carriage. Carriage service providers can use transmission capacity to set up their own network for aggregated voice or data channels, or for integrated data traffic (such as voice, video, and data).

### 3.1. Overview

As the Commission noted in the Deeming Statement, pursuant to s. 39 of the *Telecommunications (Transitional Provisions and Consequential Amendments) Act 1997*:

Transmission is a service for the supply by an access provider of transmission capacity to the access seeker pursuant to a range of different requirements including transmission links to the access provider's network, transmission links within the access seeker's network and transmission links between an access seeker's point of presence and the access seeker's customer premises ... There are a number of types of transmission capacity, which have differing degrees of contestability. These are:

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

The current service description for the domestic transmission capacity declaration can be found in Appendix 2.

Tail-end transmission refers to transmission between a point at a customer location and some point on the access seeker's network (that is, a point of interconnection). For example, in the case of a customer whose premises are located near an access provider's local exchange where there is a transmission point of interconnection, the transmission of traffic from that customer premise to the access provider's local exchange, and hence to the transmission point of interconnection, would constitute tail-end transmission.

Inter-exchange local transmission refers to transmission between a point of interconnection located at or virtually co-located with an access provider's local exchange, both of which are within a single call charge area. In functional terms, these transmission links, together with switching and network management functions, constitute the inter-exchange network, which carries traffic within a call charge area, but where the transmission points are not linked to the same local exchange.

Intercapital transmission and other transmission refer to transmission between transmission point of interconnections, which are located in different call charge areas. Intercapital in this sense refers to transmission between the sites specified in the Deeming Statement, which are Brisbane, Sydney, Canberra, Melbourne, Adelaide and Perth. 'Other' refers to transmission to or from a transmission point of interconnection not being a 'capital' site.

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From this characterisation, it should be apparent that the ‘end-to-end’ provision of transmission capacity – that is, provision of transmission capacity between two sites being customer locations – may be broken down into the composite components of:

- a ‘tail-end’ from each site to the nearest local exchange;
- the provision of either inter-exchange transmission, inter-call charge area transmission or a combination of the two (dependent on whether the relevant exchange closest to the customer is the exchange from which inter-call charge traffic is routed on the access provider’s network); and
- functionality contributed by the access seeker (such as, switching or traffic management).

The current declared service does not include this end-to-end service. Rather, the current declared service require access providers to offer to access seekers the constituent service as an input to the provision of retail services, or who require transmission capacity to provide underlying network functionality (for example, transmission between points of presence on an access seeker’s network) with that constituent service.

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## Section 4. Competition in relevant markets

In considering how a variation of the service description might promote the LTIE, the Commission must consider whether the variation is likely to promote competition in markets for particular services; namely, markets for carriage service and services supplied by means of carriage services. Where competition in a market for the supply of intercapital transmission is effective, and is likely to remain so, continued declaration of the service in those markets is unlikely to lead to significant impacts on the supply of the service. If there is not effective competition, continued declaration could lead to significant impacts on supply, and therefore increased competition in markets for downstream services.

The Commission's assessment of competition in the market is outlined in this section of the report. This assessment assists in the Commission's analysis about whether varying the service description is in the LTIE in the following section.

### 4.1. Market definition principles

Market definition is an integral part of analysing competition in a market.<sup>4</sup> This provides the Commission with a field within which to analyse the extent of competition in that market, and therefore the effect on competition of varying/revoking the declaration. The process of market definition for revocations or variations is the same as for declaration, although the market itself may have changed since the time of declaration.

The market definition process begins by identifying the service under consideration and the firm(s) supplying that service. For instance, if the Commission wanted to identify the market in which the eligible service is (or would be) supplied, the market definition process would start with the access provider and its supply of the eligible service. If, instead, the Commission wanted to identify the downstream markets in which declaration may promote competition, the market definition process would start with access seekers and the downstream services that they supply using the eligible service.

Once the relevant service and source(s) of supply have been identified, they are then described in terms of the product, geographic and functional area of supply, and the temporal dimension considered. The market boundaries are then extended to include all other sources and potential sources of close substitutes with which the firm supplying the service would compete. Section 4E of the Act provides that:

... 'market' means a market in Australia and, when used in relation to any goods or services, includes a market for those goods or services and other goods or services that are substitutable for, or otherwise competitive with, the first-mentioned goods or services.

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<sup>4</sup> The Commission's approach to market definition is discussed in its *Merger guidelines*, June 1999 and is canvassed in its information paper, *Anti-competitive conduct in telecommunications markets*, August 1999.

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As noted by the High Court:

This process of defining a market by substitution involves both including products which compete with the defendant's and excluding those which because of differentiating characteristics do not compete.<sup>5</sup>

To identify services that are 'substitutable for, or otherwise competitive with' the services under consideration, the Commission uses the 'price elevation test'. The logic is simple: the availability of close substitutes (on both the demand and supply sides) constrains the ability of suppliers to profitably divert prices or quality of service from competitive levels. The resulting market is the smallest area over which a profit maximising monopolist could impose a small but significant and non-transitory price increase.

In addition, the Commission takes account of 'commercial reality' to ensure that the market which it identifies accurately reflects the arena of competition.<sup>6</sup> That is, firms' decision making in relation to demand and supply substitution is constrained by the practicalities of using such substitutes; in which case, the Commission would need to consider modifying the market definition to reflect how the firms operate.

In identifying relevant markets, it should be noted, however, that the Commission's approach to market definition in relation to service declaration, revocation or variation, does not require the determination of a definitive or determinative market definition as is the case in a Part IV or Part XIB investigation.<sup>7</sup> Accordingly, as noted by the Commission in previous inquiries, market analysis under Part XIC should be seen in the context of shedding light on how declaration would promote competition rather than in the context of developing 'all purpose' market definitions.

#### **4.1.1. Product dimension of the market**

The product dimension of a market refers to the good/service supplied in that market and the potential sources of substitutes.

The intercapital transmission capacity service is used as an input by access seekers to provide fixed line long-distance and international call services, mobile and data-related services and IP-based services to end-users. Telstra and Cable & Wireless Optus are the main suppliers of this service, but are now competing with new facilities-based entrants, Macrocom, Soul Pattinson and PowerTel.

There are a number of technologies that can potentially be used to carry capacity for intercapital transmission; namely:

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<sup>5</sup> *Queensland Wire Industries Pty Ltd v. BHP Ltd* (1989) ATPR ¶40-925, p. 50,008 per Mason CJ and Wilson J.

<sup>6</sup> See, for instance, paragraphs 5.49 and 5.66 of the Commission's *Merger guidelines*, June 1999.

<sup>7</sup> Australian Competition and Consumer Commission's *Telecommunications services – Declaration provisions*, July 1999.

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- terrestrial fibre optic cables (potentially using existing electricity utilities infrastructure);
  - satellite;
  - digital microwave; and
  - submarine cables.

While these technologies can all be used to provide the domestic transmission capacity service, they have different characteristics that influence how much they are utilised for intercapital transmission, and where they are used.

Terrestrial fibre optic cable is the main form of technology used in the provision of intercapital transmission capacity. A fibre optic cable is capable of carrying large amounts of capacity, depending on how many fibre pairs one cable is holding. The capacity of a fibre pair can also be upgraded by installing digital wave density multiplexing (DWDM) equipment, which allows different wavelengths of light to be combined onto the same fibre pairs thereby increasing the capacity each fibre pair can hold.

Terrestrial cable can be laid underground, in which case costs will depend inter alia on the level of rock in the soil. They can also be carried above ground on poles. The Commission was provided information, in the previous inquiry, that there were no major technical constraints on using the existing electricity network to carry telecommunications cables.<sup>8</sup> It is the Commission's understanding that, presently, no electricity utility infrastructure is used to provide intercapital transmission capacity.

Digital microwave does not have the high capacity availability of terrestrial cable. The Commission understands that digital microwave is generally more cost effective to install in many regional areas than fibre optic cables because the installation of towers to transmit digital microwave signals is more cost effective, given the level of traffic involved, than digging trenches to roll-out fibre optic cables.

The cost of constructing a digital microwave network will vary with the flatness of the terrain, as the towers must have direct 'line of sight'. In flatter areas, suppliers of transmission capacity using digital microwave require more stations. Further, the Commission understands, on the east-west Adelaide to Perth route, digital microwave stations may need to align in a non-direct route (that is, zig-zagged), to minimise or avoid "sun block-out" problems. This, combined with the flat geography and low population in the areas between the two capital cities, increase the relative cost of installing digital microwave links between Adelaide to Perth.

It was submitted that access seekers may prefer the use of fibre optic cable for intercapital transmission. Davnet submitted that there is a perception by industry that digital microwave is inferior to fibre and, consequently, they are reluctant to use "wireless for primary trunk transmission".<sup>9</sup> AAPT noted that

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<sup>8</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets – Inquiry Report*, November 1998, p. 69.

<sup>9</sup> Davnet submission, p. 5.

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digital microwave tends to play “a secondary role” for the provision of intercapital transmission, “providing geographic and media diversity”.<sup>10</sup>

In relation to other technologies, the Australian Information Economy Advisory Council (AIEAC) found, *inter alia*, that:<sup>11</sup>

- satellite technology is more cost effective when used mainly as a broadcast medium or in remote areas;
- the economic viability of satellite technology for intercapital transmission is only marginal because its capacity is small relative to fibre optic cables; and
- a disadvantage of using submarine cables is that it is not cost effective for capacity to be increased. For this reason, the capacity of submarine cables are determined at the time of installation and remain at this capacity level.<sup>12</sup>

These findings are consistent with those of the Commission in this inquiry.

### ***Geographic dimension of the market***

In the previous inquiry, the Commission stated that it considered the following geographic markets exist in the provision of transmission capacity greater than 2 megabits per second (Mbps):

- intercapital;
- regional to capital city;
- intra-regional;
- metropolitan; and
- the central business district.<sup>13</sup>

In its discussion paper for this inquiry, the Commission noted its preliminary view that each intercapital transmission route is a separate geographic market. Cable & Wireless Optus, however, suggested that the geographic dimension of the market “is best defined by reference to a national market for

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<sup>10</sup> AAPT submission, p. 1.

<sup>11</sup> National Bandwidth Inquiry report, pp. 50-51.

<sup>12</sup> *Ibid*, p. 64.

<sup>13</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, p. 33.



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intercapital city transmission” rather than a point-to-point approach adopted by the Commission in the discussion paper.<sup>14</sup>

According to Cable & Wireless Optus, the intercapital transmission network involves a high degree of diversity and interconnectivity, and is time insensitive. That is, transmission of capacity between two capital cities may follow multiple and diverse paths and still arrive simultaneously. For example, the transmission of capacity between Sydney and Perth can be carried either directly from Sydney to Perth or Sydney to Perth via Melbourne, and the time taken for the capacity to be transmitted on either route is essentially the same.<sup>15</sup>

Information gathered and received by the Commission for this inquiry does not support the view that the geographic market for intercapital transmission capacity is a national one. Rather, the information suggests that market characteristics of the routes are different such that the intercapital routes remain separate markets.

The Commission understands that routes on the eastern seaboard, Sydney to Brisbane and particularly Sydney to Melbourne, carry heavier traffic than the Melbourne to Adelaide and Adelaide to Perth routes. This follows from the greater population density of Sydney, Melbourne and Brisbane. Therefore, other things being equal, the eastern seaboard routes are more attractive to new entrants and are likely to be subject to greater competition than routes in other parts of Australia.

Evidence gathered during this inquiry suggests that most carriers focus their investment plans on particular routes, rather than on a national basis. The Commission notes that Nextgen is the only potential new facilities-based entrant planning to construct a network covering the five major capital cities and Canberra. Further, discussions with access seekers indicated that transmission capacity is often purchased on a route-by-route basis, and from different suppliers, which, in turn, appear to suggest that purchasers of transmission capacity do not view the market for transmission capacity as being national.

The Commission, therefore, believes that the level of competition in the transmission capacity market must be analysed on the basis of different intercapital routes. In doing so, the Commission will have regard to whether there are alternative avenues to communicate between two intercapital locations, consistent with the simultaneous transfer of traffic via alternative routes.

### ***Functional dimension of the market***

The functional dimension of a market refers to the activity, or group of activities, involved in the supply chain. To define the functional market, the vertical stages of production and/or distribution needs to be identified by considering whether there are efficiency gains from vertical integration and whether substitution possibilities at adjacent vertical stages can constrain the exercise of market power. Where

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<sup>14</sup> Cable & Wireless Optus submission, pp. 7-8.

<sup>15</sup> Ibid, p. 8.

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there are overwhelming efficiencies of vertical integration between two or more stages, it is inappropriate to define separate functional markets.

The intercapital transmission capacity service is provided at the wholesale level by vertically integrated suppliers, who provide the service to access seekers and other suppliers, as well as utilising the capacity as an input in the production of downstream retail services (such as, the transmission of data between capital cities using Telstra's Megalink product).

Access seekers purchase transmission capacity to resell to service providers (including Internet service providers), or to use as an input in providing downstream retail services to end-users. Access seekers who resell transmission capacity may purchase capacity provided by dark or conditioned fibre. Dark fibre allows the access seeker to configure the fibre to its requirements. The information available to the Commission indicated that most access seekers purchase capacity provided by already conditioned fibre optic cable.

The existence of non-vertically integrated access seekers (including on intercapital routes not covered by the existing declaration) suggests that there are not overwhelming efficiencies from vertical integration. Therefore, it appears there are separate wholesale and retail functional markets.

#### ***Temporal dimension of the market***

The temporal dimension of a market refers to the period over which demand and supply substitution possibilities should be considered. The Commission believes that this period should be sufficient to allow new entrants to construct their network and become operational. The temporal dimension of a market should also reflect the dynamic processes underlying competition. That is, a market may become more, or less, competitive as characteristics of that market change.

Consequently, as the market changes over time, and its characteristics alter, it would be expected that the product, geographic and functional dimensions of a market would need to be redefined to reflect any changes to the boundaries of the market. For instance, market conditions of the routes along the eastern seaboard appear to be developing increasingly similar characteristics over time. This may lead to a broader market definition than the one used by the Commission in this inquiry, encompassing multiple intercapital routes.

#### **4.1.2. Relevant downstream markets**

In the Commission's *Competition in data markets* inquiry report, the Commission stated that the relevant downstream markets from intercapital transmission capacity included long-distance and international call services, data-related services and IP-based services.<sup>16</sup>

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<sup>16</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, p. 58.

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Most of the submissions agreed with the Commission's definition of the relevant downstream market. Vodafone, however, submitted that mobile related services should also be included as a relevant downstream market since transmission capacity is required to link mobile switching centres, as well as linking the mobile switching centres to mobile base stations.<sup>17</sup>

In the previous inquiry and discussion paper for this inquiry, the Commission did not specify whether long-distance call services included mobile calls. To clarify, the relevant downstream markets which the Commission believes may be affected by a variation to exclude one or more routes from the service declaration includes fixed line long-distance and international call services, data-related services and IP-based services, in addition to mobile-related services.

### ***Redundant paths for intercapital transmission capacity***

The Commission understands that it is common for access seekers to purchase capacity from more than one access provider for a given route. The access seeker uses the capacity from one access provider and retains capacity from other access providers in the event of its main supplier's cable being cut. Access providers also purchase intercapital transmission capacity from each other for redundancy purposes, especially if the access provider has only one fibre optic cable on a particular route. This is also to ensure continuity of service for its customers. For example, Cable & Wireless Optus owns only one fibre optic cable between Melbourne and Perth, and it therefore purchases capacity from Telstra on that route for redundancy purposes.

#### **4.1.3. Conclusion – market definition**

The Commission does not believe there is a national market for the intercapital transmission capacity service. Rather, based on submissions to the inquiry, each intercapital route is a separate geographic market with differing characteristics. The relevant downstream market for intercapital transmission capacity includes fixed line long-distance and international call services, mobile and data-related services, and IP-based services.

## **4.2. Competition in intercapital transmission markets**

In this section, the competitive state of the market will be analysed to assess how the market is currently performing and how it is likely to develop in the future. In so doing, the Commission will examine the concentration level, barriers to entry, relevant behavioural features (for example, price changes over time) and the linkage between supply of the eligible service and the supply of downstream services. The characteristics of these factors may differ across the different routes. Where there are differences between routes, these factors have been discussed on a route-by-route basis to highlight any differences that may exist, consistent with the Commission's market definition.

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<sup>17</sup> Vodafone submission, p. 1.

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The next section will explore whether a variation to the existing declaration will promote competition for telecommunications services.

#### 4.2.1. Concentration levels

The market concentration level is an indicator of the level of competition. High concentration levels increase the scope for coordinated conduct, including both overt and tacit collusion. In some situations where one firm has a large market share, price leadership may be present. In other situations, a firm which supplies a sufficiently large percentage of a market may be in a position to engage in unilateral exercise of market power such that it can profitably ‘give less and charge more’ without being threatened by competing suppliers.<sup>18</sup>

Telstra and Cable & Wireless Optus are the major suppliers of intercapital transmission capacity services using their fibre optic networks. Telstra also has a digital microwave network. From the submissions provided by market participants to this inquiry and other information available to the Commission, it appears other carriers have completed, are in the process of completing or are planning to start, rolling-out their own transmission networks using mainly fibre optic cables and digital microwave.

Nevertheless, Telstra and Cable & Wireless Optus are, presently, the only suppliers with transmission networks on all intercapital routes. New entrants in the market now supplying the intercapital transmission capacity service have limited their roll-out to certain routes. In particular, Soul Pattinson have only rolled-out intercapital transmission infrastructure on the Sydney to Brisbane routes, while PowerTel have rolled-out from Brisbane to Melbourne.

Table 1 outlines, on a route-by-route basis, the carriers that have, or are planning to construct, their own infrastructure for intercapital transmission. By pre-construction, the Commission refers to any process prior to actual construction being initiated. Pre-construction, therefore, includes market scoping, route studies, organisation of funding and tendering for construction companies. The table reveals that the construction, or planned construction, of infrastructure for intercapital transmission capacity services is occurring across Australia. There is presently more construction, or planned construction, taking place along the Melbourne, Sydney and Brisbane routes. However, it is clear that new entry is also proposed on the Melbourne to Perth routes. The Commission is aware of Amcom completing the roll-out of fibre between Melbourne and Adelaide. It is expected that this service will be operational shortly.

At present, there does not appear to be much resale of the intercapital transmission capacity service. Amcom is presently reselling capacity while the construction of its Melbourne to Perth network is completed. Information has been provided to the Commission that would suggest that resale competition may increase over time, particularly with the sale of dark fibre from

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<sup>18</sup> The Commission’s ‘safe harbour’ approach to mergers reflects both the possibility for unilateral and coordinated market power. Refer to p. 28 of the Commission’s *Merger guidelines*.

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Cable & Wireless Optus to AAPT. This arrangement gives AAPT exclusive access and ownership of Cable & Wireless Optus' dark fibre for approximately 25 years.<sup>19</sup>

### ***Market growth***

The planned and current roll-out of intercapital transmission capacity is likely to be driven by the strong demand for data services. Citing an article by McGinn (1999)<sup>20</sup>, the AIEAC states that:

The spread of business data networks and the burgeoning growth of the Internet...have seen digital data traffic rising to levels equal to, or nearly to, voice. One estimate is that data traffic is growing by a factor of three every five years while...internationally, data traffic will overtake voice in two to three years.<sup>21</sup>

This increase in demand for data services has seen an increase in planned future international capacity. The AIEAC estimate that installed international capacity of 18.5 Gbps will increase to 3,365.5 Gbps by 2003, provided mainly by submarine fibre optic cables.<sup>22</sup>

The Commission's discussions with industry participants indicated that there was general support for the AIEAC analysis on market growth.

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<sup>19</sup> Cable & Wireless Optus submission, p. 10.

<sup>20</sup> McGinn, R.A., *A revolution in networking: towards a network of networks*, October 1998, <http://www.lucent.com/news/speeches/docs/mcginn1.htm>, August 1999.

<sup>21</sup> National Bandwidth Inquiry report, p. 10.

<sup>22</sup> *Ibid*, p. 57.

**Table 1: Investment in infrastructure for the intercapital transmission capacity service**

Undeclared routes	Carrier	Stage	Completion date	Technology
Melbourne-Canberra	<b>Cable &amp; Wireless Optus</b>	In operation		Fibre optic
	<b>Telstra</b>	In operation		Fibre optic, digital microwave
	Macrocom	In operation	1997/98	Digital microwave
	Nextgen <sup>23</sup>	Pre-construction	October 2002	Digital microwave
	ntl consortium in partnership with Southern Broadcasting and WIN Television	Pre-construction	End of 2001	Fibre optic
Canberra-Sydney	<b>Cable &amp; Wireless Optus</b>	In operation		Fibre optic
	<b>Telstra</b>	In operation		Fibre optic, digital microwave
	Macrocom	In operation	1997/98	Digital microwave
	Nextgen	Pre-construction	October 2002	Fibre optic
	ntl consortium in partnership with Southern Broadcasting and WIN Television	Pre-construction	End of 2001	Digital microwave
Melbourne-Sydney	<b>Cable &amp; Wireless Optus</b>	In operation		Fibre optic
	<b>Telstra</b>	In operation		Fibre optic, digital microwave
	PowerTel	In operation		Fibre optic
	Soul Pattinson Telecommunications	Under construction		Digital microwave
	Nava Networks	Pre-construction	July 2002	Fibre optic
	SPI Powernet (formerly GPU Powernet)	Pre-construction		Fibre optic

<sup>23</sup> Nextgen is a consortium comprising of Leighton Holdings, Vytel, Macquarie Bank and Lucent Technologies

Declared routes	Carrier	Stage	Completion date	Technology
Sydney-Adelaide	<b>Cable &amp; Wireless Optus</b>	In operation		Fibre optic
	<b>Telstra</b>	In operation		Fibre optic, digital microwave
	Macrocom (via regional cities)	Pre-construction	June 2001	Digital microwave
Sydney-Brisbane	<b>Cable &amp; Wireless Optus</b>	In operation		Fibre optic
	<b>Telstra</b>	In operation		Fibre optic, digital microwave
	PowerTel (via Tamworth and Toowoomba)	In operation	September 1999	Fibre optic
	Soul Pattinson Telecommunications	In operation		Digital microwave
	Macrocom (including Gold Coast)	Under construction	Begin of 2001	Digital microwave
	ntl consortium in partnership with Southern Broadcasting and WIN Television (including Rockhampton)	Pre-construction	End of 2001	Digital microwave
Nextgen	Pre-construction	October 2002	Fibre optic	
Melbourne-Adelaide	<b>Cable &amp; Wireless Optus</b>	In operation		Fibre optic
	<b>Telstra</b>	In operation		Fibre optic, digital microwave
	Amcom Communications	Under construction	April 2001	Fibre optic
	Nextgen	Pre-construction	July 2003	Fibre optic
Melbourne-Perth	Nava Networks	Pre-construction	July 2002	Submarine cable
Perth-Adelaide	<b>Cable &amp; Wireless Optus</b>	In operation		Fibre optic
	<b>Telstra</b>	In operation		Fibre optic
	Amcom Communications (via Kalgoorlie)	Pre-construction	June 2001	Fibre optic
	Nextgen	Pre-construction	July 2003	Fibre optic

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#### 4.2.2. Barriers to entry

High concentration levels do not necessarily mean that competition is ineffective. Where a market is characterised by low barriers to entry, the behaviour of incumbent firms may be constrained by the threat of potential competition thereby producing behaviour that is consistent with competitive market outcomes. However, significant barriers to the entry of new suppliers to the market and high concentration levels may indicate that the threat of entry is unlikely to constrain the behaviour of incumbent firms. In this situation, actual entry may be necessary to ensure effective competition.

Potential barriers to entry in the intercapital transmission market include:

- the sunk cost nature of infrastructure investment; and
- the existence of spare capacity in the network.

#### *Nature of infrastructure investment*

A possible barrier to entry in the intercapital transmission market is the significant sunk cost involved in constructing the necessary infrastructure. While it maybe possible to recover the cost of the multiplexing equipment and other associated electronic equipment, the trench construction and laying of fibre is a sunk cost.

Consultants contracted by AIEAC for the National Bandwidth Inquiry report estimated the cost of constructing a new hypothetical fibre optic network, with multiplexing equipment capable of generating 2.5 Gbps capacity, linking Brisbane, Sydney, Melbourne and Adelaide to be approximately \$239 million.<sup>24</sup>

Given the significant amount of expenditure required to install an intercapital transmission network, the AIEAC suggested that investment in infrastructure would become viable only if there is a high level of demand for services that are dependent on the infrastructure and a long-term business strategy.

Nevertheless, AIEAC concluded that construction of an intercapital transmission network is “within the strategic and budgetary reach of major Australian corporations...particularly on a joint venture or consortium basis.”<sup>25</sup> Cable & Wireless Optus also believes that the increasing number of telecommunication carriers forming consortiums with financial institutions has contributed to reducing the financial burden of entering the market. Under the consortium

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<sup>24</sup> National Bandwidth Inquiry report, pp. 110-126.

<sup>25</sup> Ibid, p. 126.



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arrangements, the financial institution is responsible for funding the project, but the carrier has responsibility for the network.<sup>26</sup>

Another reason suggested by Cable & Wireless Optus for the lower barriers of entry to the market is that the cost of building an intercapital transmission link has fallen by 40 percent in the last five years.<sup>27</sup> The AIEAC also noted significant cost reductions, concluding that “the cost of bandwidth transmission has fallen at an average of 30 percent per annum for the past 25 years”.<sup>28</sup>

While barriers to entry into the market appears to have decreased, the Commission believes that the cost of infrastructure investment remains significant and sunk, and therefore the Commission believes there is limited contestability. Having said that, the Commission notes that new entry has occurred and is planned to occur. Therefore, clearly barriers to entry are not so high as to exclude all entry.

### ***Potential capacity as a barrier to entry***

Consultants engaged by the AIEAC to undertake a stocktake of Australia’s backbone network and planned expansion found that there are “considerable amounts of transmission capacity available” in these networks.<sup>29</sup> In addition, the previous inquiry noted that the development of DWDM technology means that it would not be “a difficult task” to increase capacity of already existing fibres.<sup>30</sup>

Telstra, however, does not agree with the Commission’s view in the previous inquiry that it is relatively easy to increase capacity on existing fibres using DWDM. It submits that installing DWDM equipment requires major capital investment, especially on older fibres, which would require more equipment to make the DWDM equipment more compatible with the old fibre. Further to that, while the cost of transmission “per bit” continues to fall significantly with the introduction of DWDM systems on existing optical fibres. Telstra has indicated that the increasing customer demand for transmission bandwidth results in significant ongoing capital investment pressure on Telstra. Consequently, Telstra is also considering whether to purchase capacity from other suppliers.

The relevance to this inquiry of spare capacity, and the ease with which capacity can be increased due to DWDM, depends on the potential effect of spare capacity on competition. The AIEAC is concerned that incumbents may use DWDM to deter entry:

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<sup>26</sup> Cable & Wireless Optus submission, p. 12.

<sup>27</sup> Cable & Wireless Optus submission, p. 9.

<sup>28</sup> National Bandwidth Inquiry report, p. 106.

<sup>29</sup> Ibid, p. 65.

<sup>30</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, p. 62.

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[A] new trunk optic fibre entrant faces the prospect of a significant potential supply *overhang* [emphasis in original] from incumbents who can quickly lower prices, after the entrant has sunk potentially significant investment in fixed infrastructure.<sup>31</sup>

The theory of strategic ‘excess capacity’ centres on the notion that an incumbent firm may hold spare capacity in order to deter entry. The presence of spare capacity sends a signal to potential entrants that it has the means to engage in intense competition with the potential entrants if they decide to enter.

In their submissions to the Commission as part of the monitoring program, Cable & Wireless Optus and Telstra submitted that any spare capacity in their networks is held to meet future demand by their own customers. Vodafone also submitted that spare capacity “should not be an issue looking forward” with exponential growth in demand.<sup>32</sup> In its submission to this inquiry, Telstra stated that:

Demand for transmission capacity is highly dynamic with limited predictability in terms of time and geography. As a result the efficient operation of a transmission network will always require a certain degree of what might be labelled as “spare capacity”.<sup>33</sup>

Other submissions also questioned the relevance of the spare capacity issue to this inquiry. AAPT considered that this issue is important only in an arbitration relating to the price of transmission capacity, but not an important issue in a review of the declaration.<sup>34</sup>

The Commission notes its comments in the previous inquiry report that:

Given the lack of detailed, verifiable information from current transmission providers, however, it is not possible for the Commission to form definitive views about the precise extent of any excess capacity. However, it would note that this is essentially an empirical issue and the existence or otherwise of excess capacity and its extent are matters that ultimately become relevant in any consideration of efficient pricing.<sup>35</sup>

The Commission has considered the behaviour of the incumbent transmission carriers, Telstra and Cable & Wireless Optus in response to Macrocom’s entry and subsequent entry by PowerTel, Amcom and Soul Pattinson Telecommunications. There is no evidence before the Commission to suggest that they have used spare capacity to deter entry, which tends to suggest that the high level of potential capacity may not be a significant barrier to entry.

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<sup>31</sup> National Bandwidth Inquiry report, p. 208.

<sup>32</sup> Vodafone submission, p. 2.

<sup>33</sup> Telstra submission, p. 3.

<sup>34</sup> AAPT submission, p. 2.

<sup>35</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, p. 62.

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### 4.2.3. Transmission prices and costs

#### *Movements in prices*

The AIEAC found that the cost of intercapital transmission capacity has significantly declined; by approximately 30 percent per annum, on average, in the last 25 years.<sup>36</sup> However, Ovum, a consultant engaged by the AIEAC for the National Bandwidth Inquiry, found that price reduction for a 2 Mbps service on the less competitive routes, such as, Melbourne to Perth, has been far smaller than the 60 percent price reduction for the eastern seaboard routes between 1997 and 1999.<sup>37</sup>

Submissions to this inquiry provided differing views on the level of price changes across the different routes:

- Macrocom noted that prices for the Sydney to Melbourne and the Sydney to Brisbane routes have fallen, but for routes still dominated by Telstra and Cable & Wireless Optus prices have remained unchanged;<sup>38</sup>
- PowerTel submitted that the reduction in wholesale prices for intercapital transmission capacity has been greater than the prices for capacity between regional centres due to the small quantities of capacity purchased, but that there is “little flexibility in obtaining reasonable terms and conditions”, especially on the thinner routes, such as those between Perth and the eastern capital cities;<sup>39</sup>
- some access seekers indicated that it is currently paying more for capacity on the Melbourne to Perth route than the Sydney to Brisbane route; and
- Vodafone also observed that the extent of price reductions “has varied across different routes, not just intercapital routes.”<sup>40</sup>

As part of the monitoring program, Telstra and Cable & Wireless Optus provided information relating to discounts and standard (listed) prices between March 1999 and December 2000 to the Commission. The Commission notes that the listed prices for Telstra and Cable & Wireless Optus also provide for some discounts, depending on such factors as the length of time of the contract and volume of capacity sourced from the carrier.

The information provided to the Commission suggests that standard (listed) prices on all routes have declined, but that the decline has been larger on the Sydney to Brisbane routes

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<sup>36</sup> National Bandwidth Inquiry report, p. 60.

<sup>37</sup> Ibid, pp. 104-5.

<sup>38</sup> Macrocom submission to the monitoring program, 21 December 1999, p. 1.

<sup>39</sup> PowerTel submission, p. 2.

<sup>40</sup> Vodafone submission, p. 2.

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than the Melbourne, Adelaide and Perth routes. This, however, does not provide a complete picture of prices actually paid, particularly given the information was provided on a confidential basis and, therefore, could not be exposed to comment by others.

This decline may be due to a range of factors, including:

- increased competitive pressures;
- lower costs; and
- changes in relative bargaining power.

Both AAPT and Cable & Wireless Optus believed that the fall in transmission prices is reflective of the change in cost. AAPT submitted only that the “price movements are reflective of cost movements” while Cable & Wireless Optus submitted that the price reductions are due to the falling cost of building transmission infrastructure.<sup>41</sup> The AIEAC also attributed the falling cost of transmission over the previous 25 years to developments in research and technology aimed at reducing costs.<sup>42</sup> The AIEAC expected that costs are likely to continue to decline in the future.

Falling costs of transmission may also be due to growth in the market, which may have allowed suppliers to realise economies of scale and scope in their infrastructure. This is likely to reduce the per unit cost of supplying transmission capacity, and if price movements reflect cost movements, leading to lower prices of transmission.

Many submissions suggested that the main contributing factor to the declining intercapital transmission prices is increased competition in the market. The AIEAC expected that more competition in higher demand routes will contribute to further decline in future transmission prices on those routes.<sup>43</sup>

In relation to the relative bargaining power of access provider and access seeker, the Commission noted in its previous inquiry on the domestic transmission capacity service that in:

...commercial negotiations between access providers and access seekers for the purchase of wholesale transmission capacity...most negotiating strength has rested with the suppliers of wholesale transmission services.<sup>44</sup>

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<sup>41</sup> AAPT submission, p. 3; Cable & Wireless Optus submission, p. 21.

<sup>42</sup> National Bandwidth Inquiry report, p. 60.

<sup>43</sup> Ibid, p. 98.

<sup>44</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, p. 57.

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AAPT believed that access seekers and access providers in the intercapital transmission capacity market have more equal negotiating strength than in other declared services because “the provision of intercapital transmission services differs from that of other declared services”.<sup>45</sup> AAPT believed that, when purchasing transmission capacity, access seekers take a longer-term view than when purchasing other declared services. This would result in access seekers entering into long-term contracts with access providers, which contribute to the return on the access providers’ investment. However, AAPT noted that bargaining power imbalances still remain on routes dominated by Telstra and Cable & Wireless Optus.

Cable & Wireless Optus submitted that service providers have been able to use the threat of constructing their own intercapital transmission network to strengthen their negotiating powers with it. It is also noted that those access seekers seeking greater volumes of transmission capacity are able to negotiate for a lower purchase price.

### *Comparisons of prices and costs*

Comments were made to the Commission that prices for intercapital transmission remain above incremental cost, even on routes that fall outside the current service description (that is, Melbourne, Canberra and Sydney). The Commission also notes the AIEAC’s findings that current retail prices for bandwidth are still 30 to 50 percent higher than prices for comparable retail services in Europe and the United States.<sup>46</sup>

The AIEAC, nevertheless, acknowledged that North America and Europe have experienced more years of competition than Australia and expected that prices will continue to decline for the next five years at a rate of 30 to 50 percent per annum.<sup>47</sup> Cable & Wireless Optus, however, submitted that international comparisons of prices is inappropriate because the routes, build costs and demand profiles differ across countries.<sup>48</sup>

The AIEAC’s National Bandwidth Inquiry report contains estimates of the cost of constructing an intercapital transmission network from Brisbane to Adelaide via Sydney and Melbourne. It estimated the costs to be \$239 million. The Commission also sought information from a new entrant in the market, on the costs of constructing an intercapital transmission network.

The Commission sought to compare the costs of constructing an intercapital transmission network with prices of these routes charged by Telstra and Cable & Wireless Optus particularly over the Melbourne to Perth routes. In doing so, the Commission notes that the Melbourne to Perth route is relatively more expensive to construct due to land from Adelaide

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<sup>45</sup> AAPT submission, p. 2.

<sup>46</sup> National Bandwidth Inquiry report, p. 98.

<sup>47</sup> Ibid, p. 206.

<sup>48</sup> Cable & Wireless Optus submission, p. 23.

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to Perth being more rockier. This raises the cost of digging trenches for the fibres. There are also less regional centres between Adelaide and Perth. Therefore, higher prices on the Adelaide to Perth or Melbourne to Perth routes would be expected, irrespective of the competitive dynamics of those routes.

The Commission notes that the high levels of excess capacity complicate the calculation of per unit costs and it has not reached concluded views on the current difference between price and costs. However, on the information available it is possible that Telstra and Cable & Wireless Optus are obtaining significantly above commercial returns at present. However, and more importantly, any above commercial returns being earned by the incumbents are likely to be dissipated in the short to medium term with the entry of new carriers.

### ***Market conduct***

Conduct of market participants is also an indicator of the degree of competition. In this regard, the Commission received submissions from Cable & Wireless Optus that access seekers have been able to negotiate flexible access agreements with access providers. To support this argument, Cable & Wireless Optus noted the long-term agreement it has entered with AAPT, which gives AAPT exclusive access and ownership of Cable & Wireless Optus' dark fibre for approximately 25 years.<sup>49</sup>

Other access seekers expressed their concern about the ability of the supplier to supply the service without experiencing outages. Davnet indicated, in its discussions with the Commission, that it is the quality and reliability of the intercapital transmission capacity service which is potentially more important than the price element. Davnet does not believe that carriers are addressing the quality aspect of providing an intercapital transmission capacity service with carriers only willing to compete on price but not willing to negotiate their price offerings according to service quality. As noted above, PowerTel also submitted that there is a lack of flexibility in obtaining reasonable terms and conditions, especially on the thinner routes, such as those between Perth and the eastern capital cities.<sup>50</sup>

The Commission accepts there is mixed evidence and views about the type of commercial agreements being reached. On the information available to the Commission, it appears that to some extent more flexible agreements are being reached, although these appear to be limited to relatively large access seekers.

#### **4.2.4. Arbitrations concerning supply of the domestic transmission capacity service**

Since the domestic transmission capacity service was declared in 1998, there have been two disputes notified to the Commission (by AAPT and Primus, both against Telstra). Both these disputes were subsequently withdrawn, and there is currently no dispute concerning the

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<sup>49</sup> Cable & Wireless Optus submission, p. 10.

<sup>50</sup> PowerTel submission, p. 2.

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supply of intercapital transmission capacity. There are various possible reasons for the limited number of arbitrations concerning supply of this service, including:

- the threat of arbitration has been successful in constraining prices;
- the cost of notifying a dispute and undergoing the arbitration process outweighs the potential benefit of a lower price, particularly where there is uncertainty about the result of an arbitration;
- smaller access seekers may have limited financial resources to allocate to regulatory affairs, which may be allocated to disputes over other services, such as those relating to customer access;
- there is sufficient competition or contestability in the markets;<sup>51</sup> and
- prices for the intercapital transmission capacity service are considered reasonable by access seekers.

The absence of arbitrations concerning the supply of the domestic transmission capacity service is likely to be due to a combination of the reasons outlined above. Importantly, to provide an end-to-end call, an access seeker relies on access to other inputs, such as the domestic PSTN originating and terminating service to offer services to end-users. The Commission understands that the regulatory focus of many access seekers has been on the customer access network (CAN). This is consistent with evidence provided to the Commission that indicated that the cost of purchasing intercapital transmission capacity, to provide an end-to-end voice or data service, is lower than the costs of originating and terminating calls on the CAN.

Market inquiries also suggest that the uncertainty of arbitration outcomes may have contributed to discouraging access seekers from notifying the Commission of disputes. On the other hand, the Commission notes that prices have continued to decline and this continual decline in prices for intercapital transmission capacity may mean access seekers are less concerned about arbitrating a dispute.

#### **4.2.5. Competition in downstream markets**

In the previous inquiry, the Commission did not believe that competition in the relevant downstream markets, at that time, was reflective of a competitive market, given that the main suppliers of intercapital transmission capacity were vertically integrated and also held a large

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<sup>51</sup> Telstra submits that the absence of arbitrations for this service “suggests that the prices on all intercapital routes are considered reasonable by access seekers and hence contestability of the market has been successful in setting commercially acceptable prices.” [Telstra submission, p. 4]

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share of the retail market.<sup>52</sup> In such a situation, the Commission noted that the vertically integrated access provider's "strategic response" may be to make it difficult for the service providers to acquire the wholesale service.<sup>53</sup>

The level of competition in the downstream markets, however, has been increasing, as evidenced by the greater number of suppliers. In competitive downstream markets, the Commission would expect that any reduction in intercapital transmission prices would be passed-through to end-users in these markets in the form of lower charges for services (for example, reductions in charges for international and national long-distance telephony services).

The Communications Research Unit (CRU) has recently undertaken work for the Commission on pricing of certain telecommunications services. In doing so, the CRU has collected information from Telstra, Cable & Wireless Optus, AAPT, and One.Tel. It therefore includes end-prices for intercapital transmission carriers and access seeker, although the index will be weighted by those carriers with greater market shares. The CRU's calculations indicate that the:

- price of national long-distance calls decreased by around 23.5 per cent between 1996-97 and 1999-2000; and
- price of international calls decreased by around 53 per cent between 1996-97 and 1999-2000.

The price changes are shown in Figures 1 and 2 below. They indicate that the prices paid by both residential and business consumers of national long-distance and international calls decreased at a significant and steady rate over the analysis period with the greatest reduction in prices accruing to residential customers. The Commission notes that these prices are not specific to intercapital routes. However, this decline in prices suggests that the level of competition in downstream markets has increased in recent years.

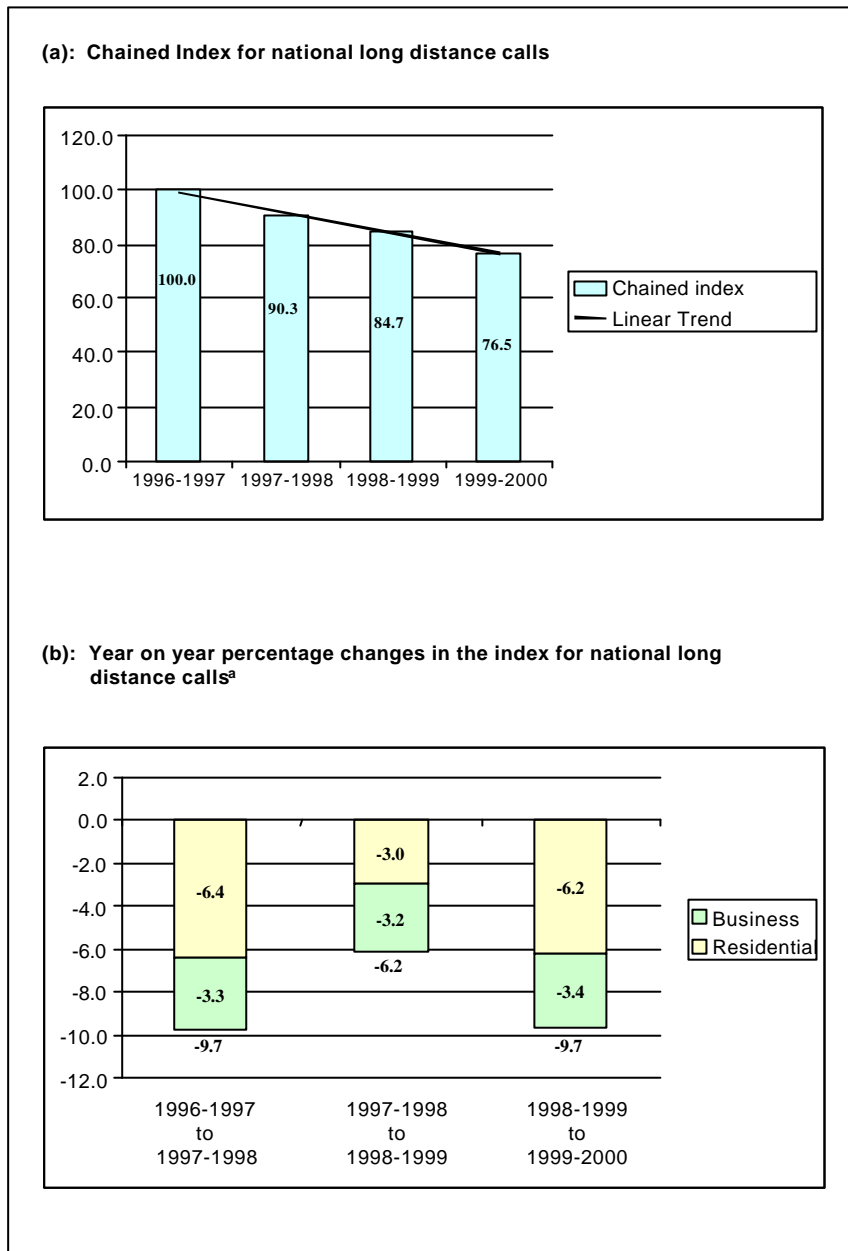
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<sup>52</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, p. 59.

<sup>53</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, p. 60.



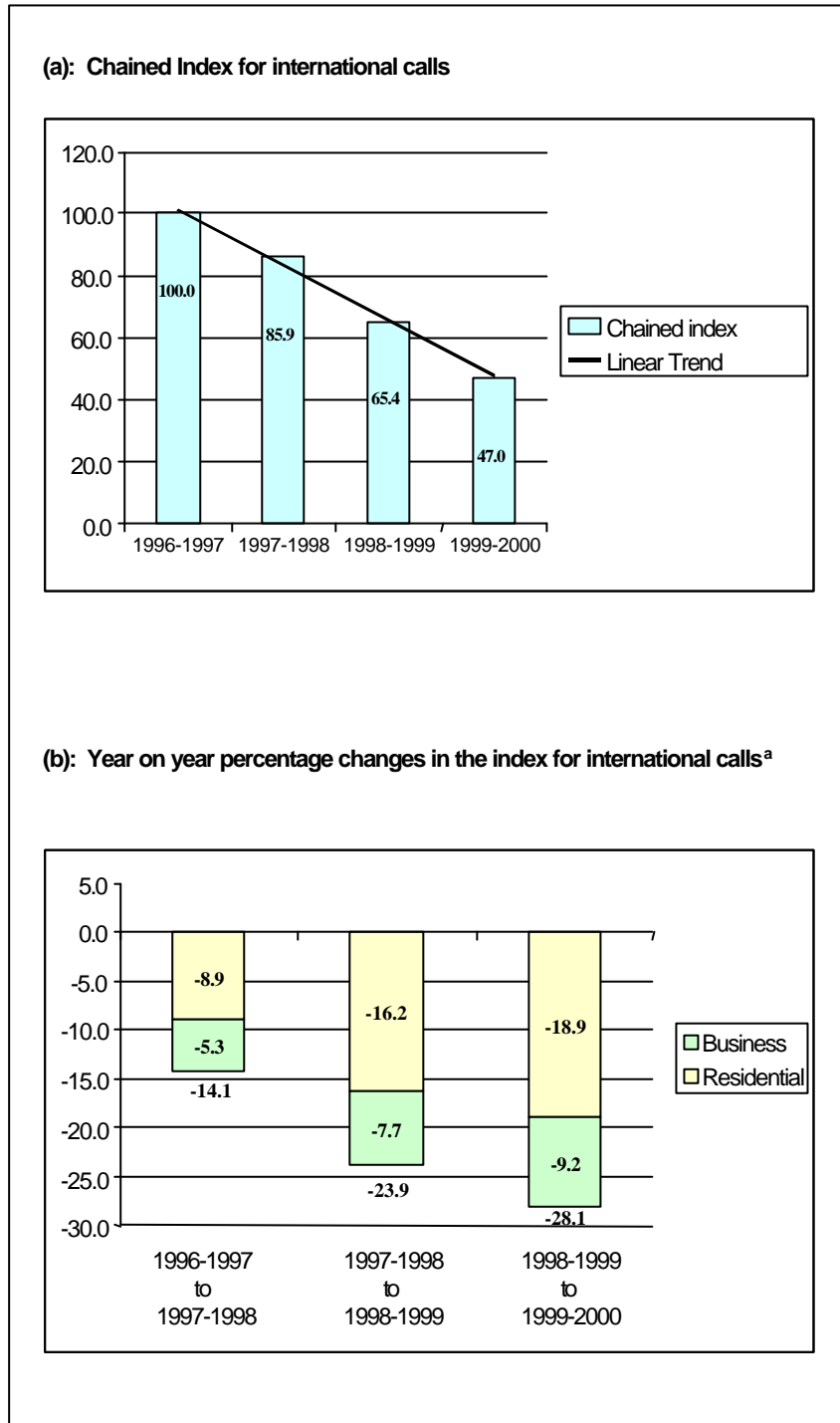
**Figure 1: Change in the price of national long distance calls, 1996-97 to 1999-2000<sup>54</sup>**



a. The sum of the percentage points attributed to each major component of the index may not sum to the total percentage change due to rounding.

<sup>54</sup> A chained Laspeyres index was used to overcome the inability of the standard index to cope with changes in consumption patterns. A chained Laspeyres index differs from the standard index in that the composition of the basket of goods is not fixed for several periods. The basket is re-weighted each year and the value of the index in the third and subsequent years is calculated without reference to the base year. Changes in consumption patterns are introduced each year and the baskets for which changes in price are calculated are more representative of consumption on average.

**Figure 2: Change in the price of international calls, 1996-97 to 1999-2000**



a. The sum of the percentage points attributed to each major component of the index may not sum to the total percentage change due to rounding.

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### ***Materiality of intercapital transmission in the supply of downstream services***

As noted in section 4.2.4 of the draft report, service providers offering telecommunications services to end-users rely on inputs (such as, the domestic PSTN originating and terminating service from Telstra) other than the intercapital transmission capacity service. Therefore, competition in relevant downstream markets will be influenced by a combination of the price and quality of transmission capacity, and the price of other inputs.

Market inquiries with industry participants reveals that competition in downstream markets rely to a significant extent on the prices of other inputs. For instance, Soul Pattinson submitted that intercapital transmission capacity, as an input to the provision of downstream services, is not as important as being able to access the ‘last-mile’ at reasonable prices.

The impact of transmission prices on relevant downstream markets will depend on how significant transmission capacity prices are to total cost relative to the prices for other services. Information was provided to the Commission that the cost of acquiring intercapital transmission capacity may be a smaller proportion of the cost of providing an end-to-end voice call than some other inputs. Further, the Commission understands that the proportion of cost for long-distance calls, for example, that can be attributed to marketing and customer support is increasing, with network costs declining.<sup>55</sup>

However, the Commission would still expect that intercapital transmission, as a cost input, will continue to be an important aspect of providing competitive downstream services. The pricing of this service will therefore have a material and important effect on the downstream market.

#### **4.2.6. Conclusion – competition in intercapital transmission markets**

Competition in the transmission capacity services market has not developed evenly across Australia with the eastern seaboard routes becoming less concentrated than the Perth to Melbourne routes.

New entry on the eastern seaboard routes has occurred in the previous two years which indicates that, while the barriers to entry may restrict contestability, entry is still occurring. There are now four facilities-based suppliers offering transmission capacity services on the Sydney to Brisbane route compared to two on the Perth to Melbourne route. New entry is planned on the Perth to Melbourne routes, and the Sydney to Brisbane and Melbourne-Canberra-Sydney routes.

Prices for intercapital transmission capacity continue to fall across all routes, which is likely to be due to both significant decreases in underlying costs and to increased competition. The AIEAC found that the level of transmission capacity prices is still 30 to 50 percent above

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<sup>55</sup> See, for example, National Bandwidth Inquiry report, p. 201.

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those offered in other countries. Importantly, it also forecast that prices will continue to fall in the next five years.

The continual decline in prices prior to this inquiry may have been a contributing factor to the lack of arbitrations notified. The Commission, however, notes that there may be a variety of other reasons for this including the access seekers' regulatory focus on the CAN.

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## **Section 5. Will varying the declaration promote the LTIE?**

The following section provides the Commission's preliminary views in relation to whether (and the extent to which) varying the declaration will promote the LTIE.

The Commission will examine how the service is being used in the absence of a variation to the service declaration, and what is likely to happen if the declaration is varied. The with/without test recognises that an assessment of the effectiveness of competition is not a static analysis, limited to a description of current conditions and behaviour. It is a dynamic analysis concerned with features affecting the competitive supply of services in the future.

To determine whether varying the declaration will promote the LTIE, the Commission will analyse the likely result of a variation on the promotion of three objectives:

- competition;
- any-to-any connectivity; and
- economic efficiency.<sup>56</sup>

The Commission will then consider whether the likely result of a variation of each objective will promote the LTIE, and make an overall assessment of whether the cumulative impacts on each objective will promote the LTIE.<sup>57</sup> Where appropriate, the Commission's assessment will be undertaken on a route-by-route basis, since the competition characteristics of each route differ, as discussed in section 4 of the Draft Report.

### **5.1. Will varying the declaration promote competition?**

#### **5.1.1. Principles**

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

In general terms, competition is the process of rivalry between firms, where each market participant is constrained in its price and output decisions by the activity of other market

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<sup>56</sup> Referred to as 'secondary objectives' in the Commission's *Telecommunications services – Declaration provisions* guidelines.

<sup>57</sup> See *ibid*, pp. 35-36.

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participants. The Trade Practices Tribunal (now the Australian Competition Tribunal) stated that:

In our view effective competition requires both that prices should be flexible, reflecting the forces of demand and supply, and that there should be independent rivalry in all dimensions of the price-product-service packages offered to consumers and customers.

Competition is a process rather than a situation. Nevertheless, whether firms compete is very much a matter of the structure of the markets in which they operate.<sup>58</sup>

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

Market power may be drawn from the ownership of infrastructure required for providing services in the downstream market. Without access to the services provided by the infrastructure, a firm would not be able to operate in the downstream market. Therefore, the establishment of a right for third parties to negotiate access to certain services, on reasonable terms and conditions, can operate to constrain the use of market power, which could be derived from the control of these services.

An access regime such as Part XIC, or Part IIIA of the Act, attempts to change the *structure* of a market, to *limit* or reduce the sources of market power and consequent anti-competitive *conduct*, rather than directly regulating conduct which may flow from its use, which is the role of Part IV and Part XIB of the Act. When the structure of the market becomes more competitive, as a result of the access regime or due to other factors, the Commission may consider revoking or varying the service declaration. In this situation, maintaining declaration of the eligible service may not have much effect in terms of promoting further competition. In this regard the Explanatory Memorandum for the *Trade Practices Amendment (Telecommunications) Bill 1996* states:

It is not intended that the access regime embodied in this Part impose regulated access where existing market conditions already provide for the competitive supply of services. In considering whether a thing will promote competition, consideration will need to be given to the existing levels of competition in the markets to which the thing relates.<sup>59</sup>

This statement recognises the costs of access, such as administration and compliance, as well as potential disincentives to investment. A continuation of regulated provision of services will

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<sup>58</sup> Re Queensland Co-operative Milling Association Ltd and Defiance Holdings Ltd (1976), *Australian Trade Practices Reporter* 40-012, at 17,245.

<sup>59</sup> Item 6, proposed s. 152AB.

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only be desirable where it leads to benefits in terms of lower prices, better services or improved service quality for end-users, which outweigh any costs of regulation.

When considering whether a service should be varied or revoked, the Commission's task is to determine the extent to which a declaration is likely to promote competition. The question of whether competition will actually improve or increase will be highly relevant but is not determinative of this issue. The key issue when considering a declaration is whether the declaration will assist in establishing conditions by which such improvement will be more likely to occur. This interpretation of promoting competition was recently endorsed by the Australian Competition Tribunal, which stated that the concept of promoting competition:

...involves a consideration that if the conditions or environment for improving competition are enhanced, then there is a likelihood of increased competition that is not trivial.<sup>60</sup>

It is, however, not enough to determine if a variation or revocation will promote competition by simply examining its impact on the competitive process in the market. Rather, the extent to which a variation or revocation promotes competition should be examined from the end-users' perspectives; that is, to have regard to the likely results from increased competition in terms of price, quality and service diversity.

In interpreting the objective of promoting competition, section 152AB(4) of the Act requires that regard must be had to, though not limited to, the extent to which the arrangements will remove obstacles to end-users gaining access to carriage services. The Explanatory Memorandum to Part XIC of the Act states that:

... it is intended that particular regard be had to the extent to which the particular thing would enable end-users to gain access to an increased range or choice of services.<sup>61</sup>

Further, in determining the extent to which a variation or revocation is likely to promote competition the Act provides that:

... regard must be had to the extent to which the thing will remove obstacles to end-users of listed service gaining access to listed services.<sup>62</sup>

Where, for example, a variation is likely to result in increased service diversity, end-users will be able to gain access to an increased range or choice of services. In such a situation, a variation or revocation to the existing declaration may be expected to promote competition to

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<sup>60</sup> Re Review of Declaration of Freight Handling Services at Sydney International Airport (2000), *Australian Trade Practices Reporter* 40-775, at 107.

<sup>61</sup> Explanatory memorandum for the Trade Practices Amendment (Telecommunications) Bill 1996 - item 6, proposed s. 152AB.

<sup>62</sup> Subs. 152AB(4).

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a greater extent than where it is likely to lead to an increase in the number of suppliers, but with all suppliers essentially offering the same service at the same price.

### **5.1.2. Impact of varying the declaration**

All intercapital transmission routes now appear to be in transition towards greater competition, leading to more competitive wholesale prices. As would be expected, new entrants have focused, initially, on the heavier traffic eastern seaboard routes. However, three fibre optic carriers are also proposing to enter the lower traffic Melbourne to Perth routes.

In determining whether continued declaration of the remaining intercapital routes will promote competition, the Commission has considered:

- the impact of new entry on market conduct;
- the current and likely future market structure of the Sydney to Brisbane route;
- the likelihood that the announced new entry will occur on the Melbourne to Perth routes;
- the impact of current regulation on current and future prices; and
- whether the current declaration removes obstacles to end-users gaining access to telecommunications services.

The Commission has also considered whether it should continue monitoring the intercapital transmission market, and whether this assists in determining whether varying the declaration is in the LTIE.

#### ***Impact of new entry on market conduct***

In the previous inquiry, the Commission's economic consultants suggested that two facilities-based suppliers, by themselves, are unlikely to provide a high degree of competition in the market. In summary, the reasons for this analysis were:

- the ongoing interaction between the two main access providers over a range of markets and the possibility of retaliatory action in such markets;
- the difficulty in profitably deviating from a situation of tacit high pricing in order to instigate more competitive prices;
- the ease of detection of any access offers at competitive rates;
- the danger that an access provider will undermine its own profits in downstream markets by lowering transmission access prices; and



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- the fact that rapid growth of demand for transmission services will minimise the incentive to reduce access prices in the short term.<sup>63</sup>

Telstra and Cable & Wireless Optus are vertically integrated and hold a large share of the retail market. This may provide the incumbents with an incentive to make it difficult for service providers to acquire the wholesale service, or for each carrier to simply charge its own retail division favourable prices for intercapital transmission capacity relative to what it charges access seekers.

There was some evidence available to the Commission in the previous inquiry that access prices were above cost and that ‘shadow pricing’ was occurring between Telstra and Cable & Wireless Optus.<sup>64</sup> The AIEAC’s findings suggest that prices continue to be above costs.

The Commission has observed that prices continue to fall. While some access seekers indicate continued difficulties in negotiating transmission prices on the Melbourne to Perth routes, expected new entry is likely to lead to more competitive pricing.

Further, PowerTel submitted that, until a facilities-based supplier has completed construction of its infrastructure and brought its capacity into service, the price and other terms and conditions would remain unknown to the Commission.<sup>65</sup> The Commission understands this point to be that it will be unable to observe the competitive dynamics of the market until entry occurs; that is, there may be collusion or parallel pricing.

The Commission notes that most of the new entrants currently offering services are vertically integrated. However, the Commission believes that there are strong incentives for new entrants to compete for new traffic. Firstly, the large economies of scale in the provision of intercapital transmission suggests that entrants will need to offer more attractive prices to attract as many customers as possible, particularly given the available market may not include the downstream traffic of Telstra and Cable & Wireless Optus. Secondly, a number of new entrants are likely to follow existing entrants. Therefore, the first new entrant will be under further competitive pressure to capture and maintain market share. Thirdly, the new entrants do not have large retail market shares like Cable & Wireless Optus and Telstra, and, therefore, have less reason to act strategically in the supply of intercapital transmission.

This analysis is supported by discussions with industry participants. The Commission, in particular, notes comments on Amcom, which the Commission understands has competed aggressively in the Perth market for customers.

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<sup>63</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, pp. 50-51.

<sup>64</sup> *Ibid*, p. 51.

<sup>65</sup> PowerTel submission, p. 1.

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### ***Current and likely future market structure of the Sydney to Brisbane route***

PowerTel and Soul Pattinson are presently the two new entrants competing with Telstra and Cable & Wireless Optus on the Sydney to Brisbane route. Macrocom is also currently constructing its network, and the ntl consortium and Nextgen has announced plans for a network to cover this route. The likelihood of Nextgen's entry is discussed below in the context of the Melbourne, Adelaide and Perth routes.

In regards to market conduct on this route, prices for transmission capacity have declined. Most access seekers have indicated that the prices on this route are lower than prices on the Melbourne, Adelaide and Perth routes.

### ***Likelihood of announced new entry on the Melbourne-Adelaide-Perth routes***

The Commission has considered the likelihood of the new entry occurring on the Melbourne to Perth routes. To this end, it sought information from the carriers proposing to roll-out. A summary of the Commission's findings is below.

Amcom has rolled out its cable between Melbourne and Adelaide, which will soon become operational. It has also signed a contract with SingTel to provide it with intercapital transmission capacity. Construction of its Adelaide to Perth leg, however, has not begun yet, with ABN AMRO still in the process of arranging debt and equity funding for this part of the network.

Nava plans to construct a submarine cable from Singapore to Perth and Perth to Melbourne. It has also secured funding of US\$520 million for its construction and has contracted Fujitsu to provide the submarine cables for its network. The construction of its network is expected to start in the fourth quarter of 2001 and be completed by the third quarter of 2002.

Nextgen has secured full funding for the construction of its national network, which it expects to complete by July 2003 (Perth to Melbourne being the last part of the roll-out). Nextgen has indicated in its business plan that it has fixed timeframes for roll-out. In particular, failure of the prime contractor (Visionstream) to meet the contract times for construction or service levels will result in financial damages accruing to the prime contractor.

The Commission notes that market conditions may be conducive to new entry. Firstly, the incumbents' networks on the Melbourne to Perth route may not have as much potential capacity as on other routes. Market inquiries reveal that Telstra's network has limited upgradeability, while Cable & Wireless Optus has some ability to upgrade, although this could be costly.

Secondly, the expected general increase in data traffic in the foreseeable future should increase the business case for the Melbourne, Adelaide and Perth routes, particularly given that the Nava network will be likely to increase the level of traffic across Australia (although the Commission notes that it is likely traffic from the Nava network will stay totally on its network). Nevertheless, the expected increase in data traffic provides new entrants with the

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opportunity to capture a part of the market not currently serviced by Telstra and Cable & Wireless Optus.

Importantly, the current and expected increase in demand for data services provides new entrants with the opportunity to capture a new market that is not serviced by the incumbents. The agreement between SingTel and Amcom is evidence of this occurring. Additionally, to date, there has been an increase in the relative share of the downstream market captured by carriers and carriage service providers other than Telstra and Cable & Wireless Optus.

The proposed roll-outs have secured the necessary funding, and therefore it appears the market considers these plans to be viable, although some industry participants expressed concerns about some of the proposed roll-outs occurring. However, the Commission notes that the evidence supports at least some entry being likely, and that it is already occurring on the Melbourne to Adelaide route, with Amcom and Macrocom currently rolling-out networks.

Submissions were made to the Commission that it should maintain regulation until new entry occurs. The Commission appreciates that there are risk factors on any new investment occurring, such as the possibility of significant changes to the financial markets and to changes in telecommunications markets that makes the business case less viable. However, the Commission believes that there is sufficient evidence that all intercapital markets have developed to a stage where new entry is likely to occur.

### ***Impact of the current regulation***

Current declaration of the Sydney to Brisbane, Melbourne to Adelaide and Adelaide to Perth routes may be a factor in constraining prices of the incumbents. If so, variation to remove the Melbourne, Adelaide and Perth routes from the service description at this time could lead to the possibility of incumbents raising prices in the interim before new entry occurs. The Commission must then consider whether regulation in the interim would promote competition.

In theory, the threat of arbitration arising from declaration could be expected to constrain the pricing of the incumbents. That is, the incumbents may offer more competitive prices and terms and conditions to avoid an arbitration dispute being notified to the Commission.

To the extent the threat of arbitrations is constraining prices, many access seekers have already locked-in prices under existing (regulated) conditions. Access seekers that have not locked-in prices may be able to source transmission from other access seekers (such as AAPT) under resale agreements. The Commission notes that the ability of resellers to constrain prices and compete vigorously with facilities-based suppliers is limited by the price resellers have paid to acquire the capacity. Therefore, while resellers may not be a source of additional pressure on the downward movement in prices, they may nonetheless constrain the incumbents seeking to increase prices.

Second, the Commission's proposed continued monitoring of the market (see below) may provide some disincentive for incumbents to increase prices.

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Some access seekers submitted that the Commission's arbitral powers should be maintained as a safety-net in case they encounter difficulties negotiating with the access providers. The Commission would expect that current market conditions will lead to competition increasingly driving lower prices and better outcomes for access seekers, given the likely level of market entry on all intercapital routes and the entry that has already occurred on the Sydney to Brisbane route. For the reasons above, the Commission also believes that there are constraints on the ability of the incumbents to exploit the removal of the Melbourne to Perth routes from the service description prior to the likely new entry occurring. This is particularly so given the lack of arbitrations notified to the Commission, and therefore the doubt that exists over the current impact of regulation constraining access prices.

### ***Removing obstacles to end-users gaining access to telecommunications services***

In the previous inquiry, the Commission noted that demand for high bandwidth applications was increasing and that a competitive wholesale transmission market was important, as it would have an effect on the services offered in the dependent downstream markets.

PowerTel submitted to this inquiry that the prices quoted to it for transmission capacity service on the Perth to eastern city routes would prevent service providers from developing a wider range of competitive retail products and that, if prices were more reasonable, service providers could "significantly enhance service capabilities".<sup>66</sup>

As noted above, the information available to the Commission indicates prices have fallen on the Melbourne to Perth routes, although not to the extent of the Melbourne to Brisbane route. However, new entry into the Melbourne to Perth routes has not yet occurred, and prices should come under increased competitive pressure with the entry of new carriers. This should facilitate the provision of more cost based downstream products, and enhance the possibility of innovative downstream service offerings.

### ***Conclusion***

The Sydney to Brisbane route appears to be becoming increasingly competitive with two new entrants already competing with the incumbents and the potential for three additional new entrants in the next two years. The incumbents will, therefore, be facing increased competitive pressure leading to more reasonable terms and conditions for access seekers, and ultimately end-users.

The Melbourne, Adelaide and Perth routes are not as competitive as the Sydney to Brisbane route since the incumbents still dominate this route. The Commission, however, observes that new entry is likely in the near future with two new entrants expected by the end of 2001 and two additional new entrants in the next two years. The Commission expects this new entry

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<sup>66</sup> PowerTel submission, p. 2.

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will also lead to lower transmission prices on the Melbourne, Adelaide and Perth routes with benefits being passed to end-users.

## **5.2. Will varying the declaration achieve any-to-any connectivity?**

Section 152AB(8) provides that the objective of any-to-any connectivity is achieved if, and only if, each end-user who is supplied with a carriage service that involves communication between end-users is able to communicate, by means of that service, or a similar service, with each other whether or not they are connected to the same network. This allows end-users to communicate with each other, irrespective of the network to which they are connected. As the explanatory memorandum to the *Trade Practices Amendment (Telecommunications) Bill 1996* noted, the concept of any-to-any connectivity is not always relevant in the declaration context.

### **5.2.1. Principles**

In addition to the impact of varying the declaration on competition, the Commission must consider whether revocation of certain intercapital transmission routes is likely to result in the achievement of the objective of any-to-any connectivity in relation to carriage services that involve communications between end-users.

The reference to ‘similar’ services in the Act enables this objective to apply to services with analogous, but not identical, functional characteristics, such as fixed and mobile voice telephony services or Internet services which may have differing characteristics. The any-to-any connectivity requirement is particularly relevant when considering services that involve communications between end-users.<sup>67</sup> When considering other types of services (such as carriage services, which are inputs to an end-to-end service or distribution services such as the carriage of pay television), the Commission considers that this criterion will be given less weight compared to the other two criteria.

### **5.2.2. Impact of varying the declaration**

Submissions received by the Commission did not address this particular objective with respect to the intercapital transmission capacity service. The Commission does not believe that a variation to remove the proposed intercapital routes from the domestic transmission capacity service declaration will have an impact on the achievement of any-to-any connectivity.

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<sup>67</sup> *Trade Practices (Telecommunications) Amendment Act 1997*, Explanatory Memorandum.

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### 5.3. Will varying the declaration encourage economic efficiency?

When assessing whether a variation will promote the LTIE, para. 152AB(2)(e) of the Act requires the Commission to have regard to the extent to which a variation is likely to encourage the economically efficient use of, and the economically efficient investment in, infrastructure. In interpreting the objective of encouraging economic efficiency, subs. 152AB(6) provides that, regard must be had to, but is not limited to, the following:

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

#### 5.3.1. What is efficiency?

The phrase ‘economically efficient use of, and the economically efficient investment in, infrastructure’ refers to the economic concept of efficiency, which has three components, namely productive efficiency, allocative efficiency and dynamic efficiency.

**Productive efficiency** refers to the efficient use of resources within each firm such that all goods and services are produced using the least cost combination of inputs.

**Allocative efficiency** refers to the efficient allocation of resources across the economy such that the goods and services that are produced in the economy are the ones most valued by consumers. It also refers to the distribution of production costs amongst firms within an industry to minimise industry-wide costs.

**Dynamic efficiency** refers to the efficient deployment of resources between present and future uses such that the welfare of society is maximised over time. Dynamic efficiency incorporates efficiencies flowing from innovation leading to the development of new services, or improvements in production techniques.

Efficient infrastructure investment makes an important contribution to the promotion of the LTIE. It can lead to more efficient methods of production, fostering increased competition

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and lower prices, as well as enhancing the level of diversity in the goods and services available to end-users.

### ***Competition and efficiency***

There is also a strong relationship between competition and efficiency. The Commission's analysis of the likely impact of a variation on competition will, therefore, also influence its analysis of the impact on efficiency. For instance, if the Commission comes to a view that supply of the eligible service is not yet subject to effective competition, then it could conclude maintaining declaration would:

- facilitate the provision of the declared service to access seekers at a price which is closer to underlying costs, resulting in a more efficient allocation of resources; and
- prevent inefficient duplication of infrastructure used to supply the declared service.

Maintaining regulation is, however, likely to have other impacts on efficiency, both positive and negative. For instance, while declaration may promote efficient investment in downstream markets, it may also result in costs as potential access providers continue to comply with the standard access obligations, or discourage efficient investment in infrastructure used to supply the declared service.

### **5.3.2. Impact of varying the declaration on the economically efficient use of infrastructure**

#### ***Technical feasibility***

In general, the technical feasibility criterion appears to be particularly relevant when an inquiry concerns the threshold decision of whether to declare a particular service or services. The current inquiry concerns a possible reduction in the current scope of the domestic transmission capacity service declaration. The Commission has not been provided with any evidence to suggest that a variation to the scope of the declaration will have any impact on this criterion.

#### ***The existence of spare or potential capacity in existing networks***

Submissions were made to the Commission that the construction of intercapital transmission infrastructure currently taking place suggests that there is an inefficient duplication of infrastructure with significant over-investment.<sup>68</sup>

Consultants engaged by the AIEAC to conduct a stocktake of capacity in the backbone communication networks for the National Bandwidth Inquiry surveyed domestic network operators and developed a model based on existing data. The stocktake estimated that, currently, potential capacity exceeded installed capacity “by between two and five orders of

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<sup>68</sup> Davnet submission, p. 4; Macquarie submission, p. 2.

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magnitude.”<sup>69</sup> The data model estimated that capacity in 2005 is likely to be twice present capacity for a low growth scenario, between four and eight times present capacity for a medium growth scenario, and between 30 to 35 times the present capacity for a high growth scenario.<sup>70</sup>

The AIEAC explained the difference between installed and potential capacity is due to:

- DWDM technology, which can increase the capacity of existing installed capacity; and
- carriers presently adopting a “conservative dimensioning philosophy” in relation to the construction and operation of fibre optic cables.<sup>71</sup>

The findings of the Commission’s previous inquiry also indicated that Telstra has an extensive meshed network of optical fibre cabling between all capital cities (in addition to its digital microwave and satellite network). The major capital cities have duplicated redundancy paths, typically a coastal route and an inland route. These duplicated paths ensure that if one route is lost, through damage or failure, the other path assumes the full load.

The Commission sought further information on available capacity, on a route by route basis, from access providers as part of the intercapital transmission monitoring program. Both Telstra and Cable & Wireless Optus provided the Commission with information pertaining to the capacity requirements by service providers on each route, but refused to provide further information relating to available capacity.

In refusing to provide further information, Telstra denied there is excess capacity in their intercapital transmission network.<sup>72</sup> Cable & Wireless Optus also submitted that there is no excess capacity in its network, at a given point in time and given the current multiplexing technology.<sup>73</sup> Other providers of transmission capacity were not offering services at the time and, therefore, were not able to provide the Commission with such information.

The Commission’s market inquiries supported the view of the AIEAC that at present there is significant potential capacity in fibre optic links. The Commission understands that capacity is more fully utilised on digital microwave links, which is to be expected, given the capacity of digital microwave is limited by the availability of radio spectrum and limitations of multiplexing for radio frequency technologies.<sup>74</sup>

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<sup>69</sup> National Bandwidth Inquiry report, p. 54.

<sup>70</sup> Ibid, p. 54.

<sup>71</sup> Ibid, p. 55.

<sup>72</sup> Telstra submission to the monitoring program, 30 June 1999, p. 4.

<sup>73</sup> Cable & Wireless Optus submission to the monitoring program, 4 July 1999, p. 15.

<sup>74</sup> National Bandwidth Inquiry report, p. 236.



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There may be other reasons to explain the presence of spare capacity in existing access providers' fibre optic intercapital transmission networks other than inefficient under utilisation of existing infrastructure. Access providers are likely to find it more efficient to construct their network with more capacity than is currently required when the up-front cost of construction is significant, but the cost of adding additional fibres and electronic equipment is relatively low, especially if access providers anticipate demand for intercapital transmission capacity to significantly increase in the future. This allows access providers to quickly utilise spare capacity in their network to meet any expected, or unexpected, increase in demand in the future.

### *Legitimate commercial interests of access providers*

The legitimate commercial interests of access providers includes a commercial return on its investments, its interests in maintaining contractual commitments and its interests in using the network for future requirements. The legitimate commercial interests of access providers also include their ability to exploit economies of scale and scope.

Submissions to the Commission did not raise specific issues that would have an impact on this criterion.

### **5.3.3. Impact of varying the declaration on the economically efficient investment in infrastructure**

When assessing whether to vary the service description, the Commission will need to evaluate the effect of the proposed variation on efficient investment in networks or network elements. This includes consideration of both:

- incentives for investment in the existing infrastructure used to supply the eligible service; and
- incentives for investment in new infrastructure which could be used to supply the eligible services.

### *Incentives for investment in existing infrastructure*

In the previous inquiry, Telstra submitted that it might not have an incentive to invest in infrastructure because of the potential for access seekers to 'piggy back' off their investment at regulated prices. Telstra submitted that declaration would lead to under investment in both current and new technologies.<sup>75</sup> This under-investment in existing infrastructure may include access providers' maintenance, improvement and expansion decisions leading to inefficient investment that may be harmful to the LTIE.

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<sup>75</sup> Australian Competition and Consumer Commission Inquiry Report, *Competition in data markets*, November 1998, p. 45.

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Declaration under Part XIC of the Act overrides property rights of network owners, which entitle them to exclusive use of their investments. This may reduce the incentive to invest in existing infrastructure. In the previous inquiry, however, the Commission noted that ownership in infrastructure provides significant strategic and competitive benefits, which make it unlikely that declaration would act as a deterrent to investment in existing infrastructure. Such advantages include:

- the benefits to infrastructure owners of having full control and certainty over access to essential inputs;
- brand recognition and marketing benefits associated with being a major owner and supplier of key inputs to the production of telecommunications services; and
- the high level of bargaining power in commercial decisions.

No evidence was provided to the Commission to suggest that under-investment in existing infrastructure was occurring.

### ***Incentives for investment in new infrastructure***

In the previous inquiry, it was noted that there may be disincentives to investment by new suppliers because there are risks associated with new entry into the intercapital transmission capacity services market. These risks include the possibility that:

- new capacity would not be sold because of the high level of existing unused capacity;
- existing access providers would engage in pricing to drive new competitors out of the market, made easier if there is a high level of excess capacity available; and
- regulated pricing may not take adequate account of the large sunk costs that would be involved.

Cable & Wireless Optus' submission supported the last element, submitting that declaration creates disincentives for investment in infrastructure by new suppliers because

...declaration increases uncertainty thereby raising prospective investor's cost of capital and further exposed current suppliers to superfluous regulatory costs and burdens.<sup>76</sup>

In its submission to this inquiry, Telstra maintained that "it is highly likely that the declaration has limited" the extent of new facilities-based entry.<sup>77</sup> AAPT and Macquarie, however, disagreed suggesting that declaration has not discouraged incentives for investment in

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<sup>76</sup> Cable & Wireless Optus submission, p. 24.

<sup>77</sup> Telstra submission, p. 2.

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infrastructure by new entrants.

The Commission has analysed the level of infrastructure development across different intercapital routes. It would expect that that new entry will initially focus on thicker routes.<sup>78</sup> AAPT submitted that a majority of the investment undertaken since declaration has concentrated on the Melbourne, Canberra and Sydney routes but this is a “reflection of the fact that this [route] is by far the heaviest traffic route and as such will attract new entrants before any other route.”<sup>79</sup>

New entry has been observed on other routes, notwithstanding the lower level of traffic being transferred. In particular, Soul Pattinson and PowerTel have entered the Sydney to Brisbane route, and Amcom and Macrocom are nearing finalising of their networks between Melbourne and Adelaide.

The Commission recognises that the decision about when and where to invest, and how the investment is to be undertaken is complicated. However, the Commission’s consideration of investment decisions on both declared and undeclared routes was not supportive of the view that declaration has restricted new entry. Substantial new entry has occurred and is planned to occur, even on those intercapital routes with less traffic. The current declaration does not appear to be causing delay or stopping such investment from occurring.

The evidence of Macrocom’s investment plans also mirrors those of other potential new entrants. Most of the new access providers with whom the Commission has had discussions indicated that the current declaration has little influence on their investment decisions, and that market factors (such as forecasts of future demand) were critical in deciding whether to undertake new network investment. This would suggest that the declaration on intercapital transmission capacity outside of Melbourne, Canberra and Sydney has not caused any significant reduction in incentives for investment in new infrastructure.

Nevertheless, the Commission acknowledges that the absence of developed pricing principles, and implementation of those pricing principles, may create a degree of uncertainty about the rate of return that would arise if the Commission was to make an arbitration determination. One carrier, however, indicated that as a new entrant, it must plan for more competitive pricing on its entry and that it would expect access regulation, even if it remains, to become increasingly irrelevant with its entry.

Macquarie submitted that the increasing roll-out of fibre optic cables while utilisation rate of existing capacity is low, represents an inefficient duplication of infrastructure.<sup>80</sup> Further, two carriers of new or proposed networks indicated they have constructed their own intercapital

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<sup>78</sup> See also National Bandwidth Inquiry report, p. 62.

<sup>79</sup> AAPT submission, p. 3.

<sup>80</sup> Macquarie submission, p. 2.

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transmission infrastructure because of the high prices to purchase intercapital transmission capacity as access seekers. Whether there has been inefficient duplication of infrastructure, however, is difficult to determine and assess because the overbuild may be in preparation for, and based on, anticipated increase in demand for capacity in the future. The Commission's draft views on this matter are provided under the efficient use criterion.

The Commission additionally notes that new carriers had the option of arbitrating the dispute. New infrastructure investment on intercapital routes is substantial, and would be based on business plans that consider expected demand for traffic and the likelihood of other investment on these routes. Prospective entrants have not sought to seek an arbitrated outcome as an alternative to building infrastructure. If this new investment is inefficient, the current declaration has not deterred it occurring.

The Commission also notes that some duplication of infrastructure is required due to the creation of redundancy (also known as restoration) routes. This is to ensure that if their main access provider's cable is cut, it can divert traffic through other access providers' networks in order to avoid disruption to their customers' communications needs. Some duplication of infrastructure, therefore, occurs to promote geographical diversity, which may minimise any probability of connection loss due to a damaged cable.

## **5.4. Conclusion**

The intercapital transmission market appears to be a market in transition towards greater competition. New entry to date has focused on the thicker routes on the eastern seaboard. However, new entry appears likely to occur between Melbourne and Perth. The level of new entry and discussions with new entrants suggests that declaration has not adversely impacted on efficient investment.

Importantly, it appears that access seekers are already receiving lower prices for transmission and, for larger access seekers, more flexible terms and conditions for the service. With the entry of new carriers, access seekers will receive even more competitive prices which should lead to benefits for end-users in terms of greater choice of suppliers (to the extent more competitive downstream prices facilitate efficient new entry), lower prices and new services.

The impact of current access regulation on pricing on those intercapital transmission routes that are currently declared is complicated. In particular, given the absence of arbitrations, it is not clear that current pricing may be additionally constrained by the threat of arbitration.

The Commission notes submissions that argue that there is an inefficient duplication of infrastructure and under-utilisation of existing infrastructure at present. The existence of large potential capacity on existing and proposed networks may be an efficient response to expected future increases in data traffic. In any event, this investment has occurred in the presence of the current declaration.

More specific concluding comments on the different routes are below.

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#### **5.4.1. Sydney to Brisbane route**

In the Commission's view, there is increasing competition on the Sydney to Brisbane route. There are now two new entrants (PowerTel and Soul Pattinson) competing with Telstra and Cable & Wireless Optus, one potential new entrant currently constructing its network, and two potential new entrants announcing plans for a network covering this route. The Commission expects that the new entry will result in more competitive pricing for wholesale services, and therefore benefits to end-users.

Having regard to the likely future development of the intercapital transmission markets, it is unlikely that continued declaration of this route will promote competition or efficient investment in these circumstances. The Commission, therefore, believes that varying the domestic transmission capacity service declaration to remove the Sydney to Brisbane route will promote the LTIE.

#### **5.4.2. Melbourne, Adelaide and Perth routes**

Telstra and Cable & Wireless Optus are still presently the only facilities-based suppliers on the Melbourne, Adelaide and Perth routes. Consequently, and having regard to the available evidence on prices paid, etc, it appears that competition on these routes is not as strong as competition on the Sydney to Brisbane route.

The Commission expects competition to develop in the near future. Macrocom, Amcom, Nava Networks and Nextgen have all indicated they propose to roll-out intercapital transmission infrastructure on the Melbourne, Adelaide and Perth routes. Amcom has completed the roll-out of fibre for the Melbourne to Adelaide leg of its Melbourne to Perth network, and this is due to become operational soon. Macrocom is expected to complete the establishment of its digital microwave network from Melbourne to Adelaide before the end of 2001.

While the Melbourne, Adelaide and Perth routes remain a duopoly, the available evidence suggests that prices have fallen and will continue to fall on the Melbourne to Perth routes. The Commission also notes the uncertainty about the impact of current regulation on promoting more competitive prices. In any event, many access seekers have obtained contracts under current (regulated) market conditions, and therefore Telstra and Cable & Wireless Optus are likely to be constrained from increasing prices in the absence of regulation. This includes by the possibility of resale competition, such as by AAPT and Amcom.

On balance, continued declaration of the Melbourne, Adelaide and Perth routes is unlikely to promote competition or efficient investment. The Commission, therefore, believes that a variation of the declaration to remove these routes will promote the LTIE.

#### **5.4.3. Future monitoring of intercapital transmission**

The Commission currently monitors the intercapital transmission market, by obtaining quarterly price information from Cable & Wireless Optus and Telstra. However, it is

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proposed that the market continues to be monitored, and be broadened to include major new entrants, such as Macrocom, PowerTel, Amcom and Soul Pattinson Telecommunications, as:

- it will enable the Commission to monitor whether competition continues to develop as expected; and
- it will provide important information for comparison purposes with regional routes (that is, the Commission could compare trends in prices for intercapital transmission capacity with those for specific regional routes, particularly those close to intercapital transmission routes).

The Commission will contact each of the new entrants, after the finalisation of the report, to discuss the details of the monitoring program.

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## Appendix 1.

### List of Submissions Received

AAPT Limited	17 July 2000
Cable & Wireless Optus <sup>†</sup>	21 July 2000
Davnet Ltd	25 July 2000
Macquarie Corporate Telecommunications Pty Limited	17 July 2000
PowerTel Limited	17 July 2000
Telstra Corporation Limited	4 August 2000
Vodafone Australia	25 July 2000

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<sup>†</sup> Partially confidential.

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## Appendix 2.

### Current domestic transmission capacity service description

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

- a) one customer transmission point and another customer transmission point; and
- b) a transmission point in Sydney and a transmission point in Melbourne; and
- c) a transmission point in Melbourne to a transmission point in Canberra; and
- d) a transmission point in Sydney and a transmission point in Canberra; and
- e) a transmission point in a State or Territory capital city and a transmission point in another State or Territory capital city, where the communications would entail communications of the type described in one or more of paragraphs (b), (c) and (d) if the capacity was routed via a continuous cable running from Brisbane to Perth through each of the capital cities; and
- f) one access seeker network location and another access seeker network location.

For the purposes of e), a State or Territory capital city will be taken to include any associated secondary centre.

#### Definitions

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

In this appendix:

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

an ***associated secondary centre*** means, in the case of Brisbane, the Gold coast, in the case of Sydney, Newcastle and Wollongong, and in the case of Melbourne, Geelong; and

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

a ***designated rate*** is a transmission rate of 2.048 megabits per second, 4.096 megabits per second, 6.144 megabits per second, 8.192 megabits per second, 34 to 45 megabits per



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second, 140/155 megabits per second (or higher orders agreed between a carrier or carriage service provider and another service provider); and

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

a ***transmission point*** is any of the following agreed between a carrier or carriage service provider and another service provider:

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

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## Appendix 3.

### Proposed domestic transmission capacity service description

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

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

#### Definitions

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

In this appendix:

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

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

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

a ***designated rate*** is a transmission rate of 2.048 megabits per second, 4.096 megabits per second, 6.144 megabits per second, 8.192 megabits per second, 34 to 45 megabits per second, 140/155 megabits per second (or higher orders agreed between a carrier or carriage service provider and another service provider); and

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

a ***transmission point*** is any of the following agreed between a carrier or carriage service provider and another service provider:

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