



# **Pricing of unconditioned local loop services (ULLS)**

## **Final Report**

**March 2002**

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## 1. Introduction

Under Part XIC of the *Trade Practices Act 1974* (the Act), the Australian Competition and Consumer Commission (the Commission) is responsible for arbitrating disputes about access to particular declared services and also for assessing access undertakings relating to access to such declared services. One of the prime issues that arise under these processes is the determination of an appropriate access price.

The Commission declared the unconditioned local loop service (ULLS) in July 1999. ULLS involves the use of unconditioned cable, primarily copper pairs, between end-users and a telephone exchange where the copper terminates. Telstra as the predominant supplier of this service has ownership and control of the copper customer access network located throughout Australia.

As a new service, it should not be surprising that there is considerable debate in the industry about the appropriate pricing of the ULLS. In this context, the Commission considered it appropriate to inform the market about various methodological issues surrounding the pricing of this service and to provide some views about the various pricing claims that have been made in relation to this service, particularly by Telstra. The Commission released a discussion paper in August 2000 to provide preliminary guidance and assistance to both Telstra and access seekers in negotiating access for the supply of ULLS.<sup>1</sup> This was an attempt to avoid lengthy and protracted disputes and a large number of arbitrations.

The discussion paper specifically considered the appropriate pricing methodology to determine access charges for the supply of declared ULLS. The paper also provided an indication of the Commission's preliminary view of appropriate ULLS charges and of its preferred methodology to the costing work it undertook in the context of Telstra's PSTN undertaking assessment. However, while the Commission's work on Telstra's network costs was a substantial methodological and quantitative exercise, which took more than two years to complete, significant further work was required to apply this appropriately to the ULLS and to deal with ULLS-specific cost issues.

The August 2000 paper followed Telstra's announced proposed charges for the declared ULLS in June 2000, which involved a number of components; including a connection charge, a monthly rental charge and other components relating to service quality and provisioning times. The response from other industry participants to these charges, particularly to the monthly rental, was that these were well above analogous line cost estimates determined as part of the Commission's n/e/r/a-based network costing work conducted for the assessment of Telstra's PSTN undertakings. Some industry participants argued that these line costs were equally relevant to the determination of appropriate ULLS charges.

When the August 2000 paper was released, Telstra and interested parties wishing to access this service were engaged in negotiations over the terms of supply to the ULL.

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<sup>1</sup>ACCC, *Pricing of unconditioned local loop services (ULLS) and review of Telstra's proposed ULLS charges – Discussion Paper*, August 2000 (hereafter referred to as the 'discussion paper').

The pricing of the service was one of the more significant issues in those deliberations. In addition, several access seekers had just notified the Commission of access disputes under Division 8 of Part XIC of the Act in relation to the pricing of the ULLS, which required the Commission to separately arbitrate each dispute by making a pricing determination. This meant that the work by the Commission to substantially progress its views on ULLS pricing issues would need to be undertaken as part of these arbitrations which were confidential in nature.

In response to the discussion paper, submissions were received from a several interested parties commenting on the August 2000 paper and these views were taken into account in this final report.

More significantly, this final report follows the conclusion of the ULLS arbitrations and the Commission's pricing consideration. It took all views expressed by the parties to the arbitrations into consideration and included substantial additional work on ULLS-specific costs which was not considered at the time of the earlier discussion paper.

The Commission received four dispute notifications (from AAPT, Optus, Primus and OneTel) relating to the ULLS supplied by Telstra. The Commission issued interim determinations on each of these disputes except for Primus in December 2000. OneTel subsequently withdrew its notification after it went into receivership and before the Commission issued a draft final determination. The other three notifications were withdrawn by the parties in November 2001 after the Commission had made draft final determinations but before the Commission issued any final determinations. The parties were apparently able to enter into commercial agreements on the supply of the ULLS with Telstra without the need to rely on a final ACCC determination.

The Commission would have been in a position to publish non-confidential versions of these determinations for the information of all market participants and other interested parties had final determinations been issued.<sup>2</sup> This would include the Commission's determined prices as well as the underlying pricing methodology and reasoning. The Commission's decision to finalise its earlier ULLS draft pricing discussion paper is therefore intended to provide similar information to the marketplace about ULLS pricing as what would have been accomplished by the publication of its final ULLS arbitration determinations. As with the public release of final determinations, publishing of pricing information will ensure wider dissemination than just to those industry participants who are involved in arbitrations and have a greater financial ability to pursue disputes.

The Commission sees it as important from a competition perspective that Telstra provides the declared ULLS to access seekers on a timely basis to promote the competitive provision of new voice and data based services to consumers.

In particular, the Commission considers that where a service, such as the ULLS, has a significant role in determining the nature and level of competition in the market, it is desirable for the Commission to publish relevant information that may stimulate competitive outcomes that benefit the long-term interest of end-users. In this regard, it

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<sup>2</sup> Section 152CRA of Part XIC of the *Trade Practices Act 1974* (the Act) was recently introduced to enable the Commission to publish its arbitration determinations provided this did not disclose commercially sensitive material.

can act as an incentive for settlement using negotiations in a number of ways. It may also act as an indicator of the Commission's views and be used as an input in commercial negotiations to increase the chance of resolving issues more quickly.

Against this background the Commission has decided to release this report on the pricing of unconditioned local loop services.

It should be noted, however, that the pricing views documented in this paper are indicative and are not binding on the Commission. This means parties to arbitrations are still able to address the Commission on the relevance and applicability of these views having regard to the individual circumstances of their dispute.

In addition, a number of issues relevant to the provision of the ULLS are also relevant to the provision of the PSTN service. The Australian Competition Tribunal is currently reviewing decisions the Commission made in arbitrating PSTN disputes. Any rulings the Tribunal makes may affect the pricing of the PSTN service and would translate to pricing of the ULLS. Should the Tribunal's views differ to those of the Commission, these pricing principles will be amended appropriately to reflect its rulings.

## 2. The declared service

The Commission declared the unconditioned local loop service (ULLS) in July 1999. ULLS involves the use of unconditioned cable, such as copper pairs, between end-users and a telephone exchange, where the copper terminates. Telstra as the predominant supplier of this service, has ownership of the copper customer access network located throughout Australia.<sup>3</sup>

Declaration of the ULLS enables service providers to connect their own networks to existing infrastructure to deliver new and innovative services to end-users more efficiently. This reduces the need for full duplication of communications networks, while encouraging service providers to establish their own infrastructure where this is efficient.

Supply of the ULLS on reasonable terms and conditions should promote the competitive provision of a variety of high-speed voice and data-based services. This includes services such as local and long-distance telephone calls, Internet access, 'tele-working', distance learning, video-on-demand, remote LAN access and other multimedia and data applications. The Commission expects that declaration of ULLS will also promote retail service competition and provide end-users with the choice between local call suppliers. Also, declaration should establish new infrastructure, where this is efficient, through lowering entry barriers and reducing investment risks.

Services to end-users will be provided at speeds much faster than possible by today's analogue modems, and at prices lower than if these were provided or controlled by a single supplier. In particular, the Commission expects that the benefits of new high speed services will occur more quickly and across a broader customer and geographic base, particularly for residential and small business users outside of CBD areas.

Competition by a wide range of players provides a superior way of meeting the new more sophisticated telecommunications needs of consumers and businesses. Additional competition in the market for high bandwidth services is important as the Commission expects there to be significant demand by both residential and business end-users for these services. Competing firms can add their own carriage technology to the cable, and provide an alternative source of high bandwidth services, which is likely to yield greater and more sustainable competition benefits. Opening up access to the ULLS is also expected to encourage investment in xDSL technology and data networks.

Significantly, the extent of these benefits will largely depend on the terms and conditions of access, including the pricing of this service. In particular, a higher price than is efficient will result in a lower expected take up of this service and lesser benefits to end-users from the provision of competitive voice and data-based services. Too low a price on the other hand will likely lead to an inefficiently high use of Telstra's access network, even where suitable alternative technologies are readily

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<sup>3</sup> See ACCC report, *Declaration of Local Telecommunications Services*, (July 1999) for full details of the Commission's decision.

available. These important considerations determining the efficient pricing of ULLS are covered in this report.

For competing firms to use ULLS to provide high bandwidth services there are a range of technical and operational issues which need to be resolved. These issues have been progressed by various industry groups under the auspices of ACIF and have required the revision of various industry codes.

This has involved:

- development of technical and network rules dealing with spectral compatibility and the deployment of services using xDSL technology on the local loop (such rules are designed to limit interference between services);
- development of operational procedures relating to the pre-ordering, ordering and provisioning of the unconditioned local loop service as well as the handling and rectification of faults (these are designed to streamline transfer of services between providers and establish clear responsibilities for dealing with faults between providers);
- revisions to technical standards and codes for customer equipment and cabling to ensure they are compatible with xDSL equipment; and
- development of principles or rules dealing with service migration as a result of changes to the customer access network architecture (these rules are designed to provide greater certainty to providers in the event of subsequent change to local loop networks).

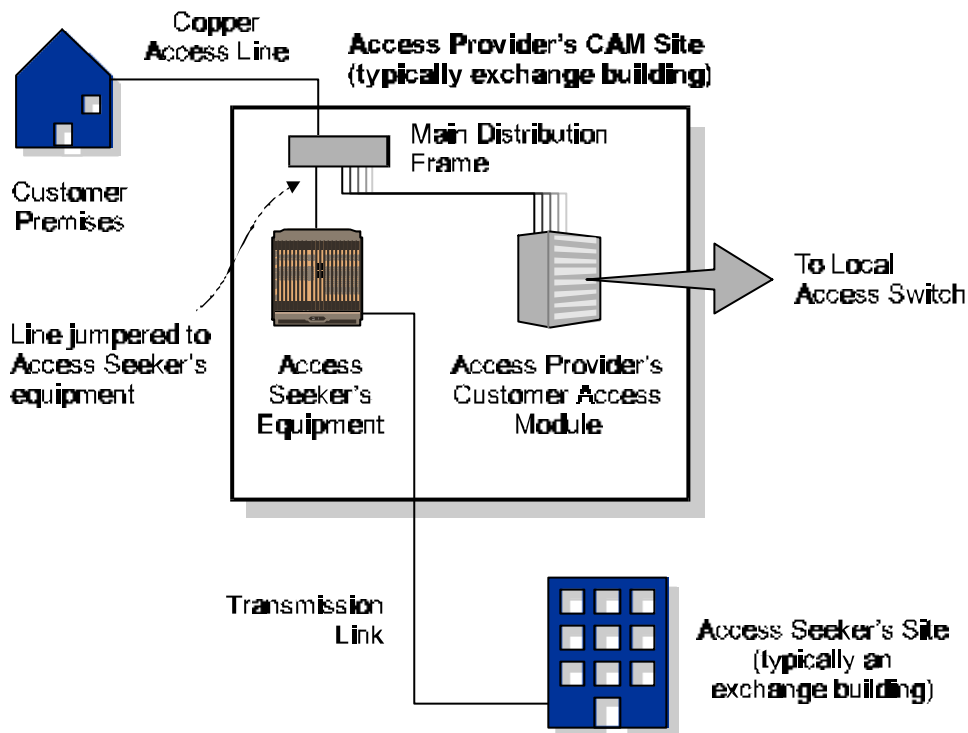
## 2.1 What is the ULLS?

Under Telstra's customer access network architecture, customers are connected to the broader network by cables which runs from a customer's premise to what is known as 'Customer Access Module (CAM)' equipment. The CAM equipment does not necessarily undertake switching; rather its function is to provide battery feed, ring current and dial tone to the customer premises equipment. CAM equipment includes remote switching units or stages (RSUs/RSSs), remote (and integrated remote) integrated multiplexers (RIMs/IRIMs) or newer generation remote customer multiplexers (C-MUXs). In some areas, notably in CBDs, customers are directly connected to local access switches (LASs) which effectively serve as the CAM in this case.

Under Telstra's customer network architecture, the CAM can then be connected (directly, or by means of other CAM equipment) to a Local Access Switch (LAS) and/or a data/IP network. Voice traffic is currently routed to the LAS for carriage using a circuit switched network, while data traffic is routed to a data/IP network (not separately shown). This is illustrated below in Figure 1.



Figure 1. Use of the ULLS



Source: AdvaTel

In *Declaration of local telecommunications services* (the report accompanying the declaration of the ULLS), the ULLS is described as:

...the service for the use of copper-based communications wire between the boundary of a telecommunications network and a point where the copper terminates.<sup>4</sup>

In terms of Figure 1, the ULLS refers to the unconditioned twisted copper pairs that connect a customer's premises to the nearest CAM. In the case of full unbundling of the local loop, the link between the MDF and the CAM is reconnected to become a link to the access seeker's CAM.

<sup>4</sup> Declaration report, p.13.

### 3. Legislative criteria

The object of Part XIC of the Act is to promote the long-term interests of end-users (LTIE) of carriage services or of services provided by means of carriage services.<sup>5</sup> This will partly be achieved through establishing the rights of third parties to gain access to services which are necessary for competitive services to be supplied to end-users.

In considering whether declaration of a service, approval of an access code or an access undertaking or the making of an arbitration determination will be in the long-term interests of end-users, the Commission must consider the achievement of the following objectives:

- promoting competition in markets for 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.<sup>6</sup>

An important consideration in ensuring that access to declared services is in the long-term interests of end-users is whether the **terms and conditions** of access (including the price or a method for ascertaining the price) are **reasonable**. Under Part XIC the Commission cannot approve a draft TAF access code or accept an undertaking unless satisfied that the terms and conditions specified are reasonable.<sup>7</sup> In determining whether terms and conditions are reasonable, the following matters must be considered:

- whether the terms and conditions promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services;
- the legitimate business interests of the carrier or carriage service provider concerned, and the carrier's or provider's investment in facilities used to supply the declared service concerned;
- the interests of persons who have rights to use the declared service concerned;
- the direct costs of providing access to the declared service concerned;

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<sup>5</sup> Section 152AB(1) of the Act.

<sup>6</sup> Section 152AB(2) of the Act.

<sup>7</sup> The Commission must also ensure that the terms and conditions in the TAF access code, in undertakings and any arbitration determination is consistent with any Ministerial pricing determination in place. See section 152CH of the Act.

- the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility; and
- the economically efficient operation of a carriage service, a telecommunications network or a facility.<sup>8</sup>

This does not, by implication, limit the matters under consideration.<sup>9</sup>

When arbitrating access disputes the Commission must consider the same matters. In making a determination the Commission must also take into account the value of extensions, or enhancement of capability to a party whose cost is borne by someone else.<sup>10</sup>

Access prices and the processes of competition, which Part XIC harnesses, should encourage suppliers to produce the kinds of services most highly valued by end-users, improve customer choice of services and service quality, and supply services in the least-cost way. The discussion below briefly interprets these legislative criteria from the perspective of access pricing. A more detailed discussion is in the 1997 *Access Pricing Principles* paper.<sup>11</sup>

### **3.1 Long-term interests of end-users**

The long-term interests of end-users will generally be promoted by lower prices (that are sustainable), higher quality of service and greater choice of products. These outcomes will be promoted by:

- competition in markets for telecommunications services;
- any-to-any connectivity; and
- encouraging the economically efficient use of, and investment in, telecommunications infrastructure.

#### ***Promoting competition in markets for telecommunications services***

Part XIC is concerned with promoting competition in those markets that are dependent on the services of telecommunications infrastructure (dependent markets). Where existing conditions do not already provide for the competitive supply of these services, Part XIC (including the pricing of access) aims to facilitate access to these services to encourage the efficient entry of firms and efficient competition in dependent upstream or downstream markets.

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<sup>8</sup> Section 152AH(1) of the Act.

<sup>9</sup> Section 152AH(2) of the Act.

<sup>10</sup> Section 152CR(1)(e) of the Act.

<sup>11</sup> ACCC, *Access Pricing Principles, Telecommunications – a guide*, July 1997.

***Any-to-any connectivity***

Any-to-any connectivity is the ability of end-users of different networks to communicate. Access prices should not artificially discriminate against the users of any particular network in the provision of any-to-any connectivity and should encourage operators of different networks to configure their networks to promote any-to-any connectivity.

***Encouraging economically efficient use of, and investment in, telecommunications infrastructure***

The economically efficient use of, and investment in, infrastructure comprises three (interdependent) elements:

- dynamic efficiency — firms have the appropriate incentives to invest, innovate, improve the range and quality of services, increase productivity and lower costs through time;
- productive efficiency — firms have the appropriate incentives to produce services at least cost, and production activities are distributed between firms such that industry-wide costs are minimised; and
- allocative efficiency — firms employ resources to produce goods and services that provide the maximum benefit to society. An important condition for allocative efficiency is that prices for services at least reflect the value society places on the next best alternative use of the resources to produce the service.<sup>12</sup>

Dynamic efficiency will be promoted by an access price that provides a normal commercial return on investments and does not distort the ‘build or buy’ decision. To encourage efficient investment in infrastructure (in the long term), an access price should generally be sufficient to cover the prudently incurred costs of providing infrastructure including a normal commercial return on investment.

Productive efficiency will be promoted by an access price that allows for the more efficient sources of supply to displace the less efficient. An access price which encourages the entry of lower-cost (or higher quality) firms within these potentially competitive markets will promote productive efficiency throughout these integrated production chains.

Allocative efficiency consists of several components. First, infrastructure should not be under- or overutilised. Services to end-users should be produced so long as, at the margin, the value of society’s resources used to provide those services does not exceed the value of the services to the users. Second, an access price should minimise distortions in the use of infrastructure. An access price should not artificially bias the

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<sup>12</sup> For example, it would be allocatively inefficient to devote resources to produce telecommunications services that society places a low value on, rather than other services (including other telecommunication services) that society desires highly.

use of one technology over another in the provision of a service or the production of a particular service over another.

### **3.2 Legitimate business interests of the carrier or carriage service provider concerned**

The legitimate business interests of access providers requires the Commission to consider whether the access price would provide a normal commercial return on prudent investment.<sup>13</sup> The services to which Part XIC will mostly apply are provided using highly capital intensive and specialised infrastructure, the costs of which are largely sunk before the service is provided. It is legitimate for the carrier or carriage service provider to recover the costs of prudent investment from its commercial activities, including providing access.

However, it is unlikely the legitimate business interests extend to achieving a higher than normal commercial return through the use of market power. For example, an access price should not, in most cases, be artificially inflated by the lack of competition in the supply of infrastructure services.

### **3.3 Interests of persons who have rights to use the declared service**

In the Commission's view, persons who have rights to use the declared service have an interest in competing for the custom of end-users on the basis of their technical and commercial merits. Their ability to compete in the supply of a service in a dependent market should be based on the cost and quality of their service relative to their competitors. For example, an access price should not artificially protect a vertically-integrated access provider from being displaced by a more efficient access seeker in a downstream market.

### **3.4 The direct costs of providing access**

Direct costs are necessarily incurred/caused by the provision of access. An access price should not be inflated to recover any profits the access provider (or any other party) may lose in a dependent market as a result of the provision of access. As stated in the relevant explanatory memorandum:<sup>14</sup>

... 'direct' costs of providing access are intended to preclude arguments that the provider should be reimbursed by the third party seeking access for consequential costs which the provider may incur as a result of increased competition in an upstream or downstream market.

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<sup>13</sup> The Commission may also take into account access providers' obligations to shareholders and other stakeholders.

<sup>14</sup> *Trade Practices Amendment (Telecommunications) Bill 1996*, explanatory memorandum, p. 44.

### **3.5 Operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility**

An access price should not lead to arrangements between access providers and access seekers that will encourage the unsafe or unreliable operation of a carriage service, telecommunications network or facility.

### **3.6 The economically efficient operation of a carriage service, a telecommunications network or facility**

This criteria is similar to the productive and allocative efficiency elements described on p. 12. An access price should encourage access providers to select the least-cost method of providing the service and provide those services most highly valued by access seekers.

The criteria above are therefore interdependent and in most cases will be re-enforcing, i.e. promoting one criteria will also promote another. In some cases, however, the criteria may lead to different efficient outcomes as between the short term and the longer term. For example, telecommunications is an industry where the delivery of many services is characterised by economies of scale and scope. This could mean that an access price that promotes the economically efficient use of infrastructure in the short term may, in some cases, not encourage efficient investment in infrastructure over the long term and may therefore not be consistent with the legitimate business interests of the access provider.

It should also be noted, however, that the existence of significant economies of scope and scale may mean that it is not efficient to duplicate such infrastructure so that access prices which encourage efficient use may not deter efficient investment, particularly if the access price is cost based and includes a commercial return. This should also ensure that incentives for efficient investment are maintained.

## 4. Pricing principles for unconditioned local loop services

The legislative criteria discussed in chapter 3 have been interpreted in terms of a set of broad access pricing criteria. The Commission determined in its July 1997 access pricing principles paper that pricing based on total service long-run incremental cost (TSLRIC) to recover the efficient costs of a 'forward-looking' network will satisfy the broad criteria, including the reasonableness criteria under s. 152AH of Part XIC of the Trade Practices Act.

These broad access pricing criteria have to be interpreted with respect to the peculiarities of different types of access sought. In October 1998 the Commission issued a discussion paper titled, *Pricing of Local Telecommunications Services*, which looked at the appropriate pricing of 'A-side services' such as the ULLS. This chapter reviews the issues of local telecommunications services access pricing in light of both Telstra's earlier pricing proposal and the Commission's subsequent consideration of the views as a part of the ULLS arbitrations. In particular, it focuses on:

- the applicability of TSLRIC to ULLS;
- the desirability or otherwise of de-averaging of prices across different geographic areas; and
- whether an access deficit contribution (ADC) is appropriate.

### 4.1 Total service long-run incremental cost (TSLRIC)

The concept of TSLRIC can be understood by breaking it up into its components.

- 'Total service' refers to the cost of production of an entire service (or a production element) not to the cost of a particular unit.
  - 'Long run' refers to a cost concept where all factors of production can be varied. In the short run the amount of at least one factor of production (usually capital equipment) is fixed.
  - 'Incremental cost' is a form of marginal cost, although not the more familiar 'marginal cost' where the change in cost is incurred through a change in the **amount** of output produced. It is the annual incremental or additional cost the firm incurs in the long run in providing a particular service (or production element) as a whole, assuming all of its other production activities remain unchanged.
  - TSLRIC is also an attributable cost concept as it refers only to those costs that can be attributed to the production of the service. However, in the case of ULLS, it is produced using production elements shared with customer access lines and ISDN, and these costs are rolled-in and shared over all lines.
  - In practice TSLRIC is usually defined to include a contribution to indirect costs (TSLRIC+).
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Given these attributes, TSLRIC can also be defined as the total cost (on an annual basis) the firm would avoid in the long run if it ceased to provide the service as a whole.

The TSLRIC of supplying a service can also be expressed as the sum of the operating and maintenance costs, and the capital costs that the firm incurs in providing the service as a whole. *Operating costs* are the continuing operational costs of providing the service, including the labour and materials costs that are causally related to the provision of the service. *Capital costs* comprise the cost of capital (i.e. the opportunity cost of debt and equity used to finance the firm) and depreciation (i.e. the decline in economic value of assets) of capital that is specific to the production of the service.

### ***Indirect costs***

In practice, TSLRIC has been interpreted to include a contribution to indirect costs (TSLRIC+). As indirect costs are not directly attributable to the production of any one service, the allocation of these costs across services is somewhat arbitrary and there is a range of possible methods of allocating them. One commonly used approach is the ‘equi-proportionate mark-up over directly attributable costs’. This involves measuring the directly attributable costs of each service within the group and allocating the common costs based on each service’s proportion of the total directly attributable costs.

In the n/e/r/a model, the indirect cost contribution is based on the application of percentage supplements to attributable capital asset value and direct operating and maintenance costs.

### ***Use of forward-looking costs***

Where there are different production technologies and network configurations — either available or in use — there are alternative ways of evaluating the cost components of TSLRIC. Costs could broadly be based on the **actual** technology in use, the **best-in-use** technology or on **forward-looking** technology (as if the most efficient technology commercially available were used). The Commission’s n/e/r/a cost model draws a distinction between the ‘scorched node’ (rebuilding the existing network configuration) and ‘scorched earth’ (building from scratch an optimised network) costing bases.

In practice the Commission has tended to take a ‘scorched node’ forward-looking approach using best-in-use technology. This amounts to a hybrid approach which combines the best technology currently available commercially with the existing network infrastructure. The Commission has defended the use of this approach rather than an actual cost approach on the following grounds:

- penalising bad decisions and rewarding good ones provide stronger incentives for efficient investment decisions;
- the access provider is discouraged to cost-shift from competitive areas to less competitive ones; and
- excessive access charges based on historic costs encourage access seekers to make inefficient ‘build-buy’ decisions.

In its pricing approach to ULLS, Telstra appears to have based its charges on what it claims are the efficient costs of supplying the service using the existing customer

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access network architecture. Telstra argued that while it has used the existing network architecture, its approach to ULLS costing is not based on actual costs, but is consistent with a ‘scorched node’ approach where the most efficient means of providing access to existing network POIs (i.e. at local exchange (RSS/RSU) or RIM points) is used. This is different from the assumption in the n/e/r/a cost model that assumes a somewhat different and evolving network architecture, where interconnection and access is provided at higher levels of the network and which involves a higher number of RIMs.

The distinction, however, between the Telstra ULL approach and that adopted by the PSTN n/e/r/a model in terms of providing access at different levels in the network is not necessarily a choice between an optimised network and an actual network. In either case, it is possible to estimate the cost of connecting to a RIM or an RSS/RSU, the key difference being a larger number of RIMs in the optimised network resulting in a small reduction in total costs.

Telstra’s broad approach to costing existing local exchange (RSS/RSU) and RIM points of presence appears appropriate for the ULL service as this provides a clearer signal to access seekers about where to obtain ULL access. The Commission therefore sees merit in separate prices for access at a RIM and an RSS/RSU. Where access is actually provided at a RSS/RSU which (in the n/e/r/a model) has been replaced with a RIM, it may be inappropriate to set the price as if that involved interconnection at a RIM. The Commission therefore considers it appropriate to modify the model to reflect the actual numbers and distribution of RSS/RSUs and RIMs that are being used to provide the ULLS.

The effect of these changes results in some increase in line costs and is discussed in detail in chapter 5.

## 4.2 TSLRIC conclusion

In the past the Commission has adopted the TSLRIC approach to access pricing. This is consistent with the requirements of Part XIC of the Trade Practices Act that pricing should:

- reflect the direct costs of supply;
- take account of the interests of the access provider and access seekers; and
- encourage the economically efficient use of, and the economically efficient investment in the infrastructure of telecommunications services.

The Commission has also previously stated that TSLRIC is particularly appropriate for services that are well developed, necessary for competition in dependent markets and where the forces of competition work poorly in constraining prices.<sup>15</sup>

The ULLS clearly meets each of these criteria. While this is a new service for access seekers, it relates to the most basic building-block in Telstra’s network, the copper CAN infrastructure which has been developed and in use for generations. As noted in

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<sup>15</sup> See ACCC, *Access pricing principles — a guide, telecommunications*, July 1997.

chapter 1, the service is a vital input for the provision of a variety of voice and high-bandwidth data services and Telstra is the predominant supplier throughout Australia.

The Commission therefore considers that TSLRIC should be applied in the costing of provision of the ULLS.

### **4.3 ‘De-averaging’ of access prices**

Cost variations in different geographical locations have been reflected in previous access pricing decisions for domestic PSTN originating and terminating access services. Because of the regulatory tradition of requiring uniform or average prices for **retail** telecommunications services, the practice of relating prices to costs is sometimes known as ‘de-averaging’, even though new services like the ULLS do not have an existing average price to ‘de-average’.

There are four main reasons why a de-averaged approach is more efficient.

#### ***Consistent with the Commission’s principles***

A de-averaged approach is consistent with the Commission’s standard approach to access pricing that relates to the direct costs of service supply and promotes economic efficiency of infrastructure use and investment. De-averaging of access pricing at the network level is accepted in the market despite price controls that promote averaging of prices at the retail level and where there is potentially a much greater impact in terms of the number of end-users affected. Given the price constraints on voice-based services, these (de-averaged) prices also include an access deficit component.<sup>16</sup>

#### ***Investment efficiency***

A geographically de-averaged approach to pricing is less likely to distort either the build-buy decision of competitors or Telstra’s own investment plans. An averaged pricing approach, by contrast, is likely to result in inefficient investment decisions.

- Competitors less efficient than Telstra can enter into the high value customer areas and capture these customers by building their own infrastructure; leading to a greater duplication of the local loop in the CBD and certain metropolitan areas.<sup>17</sup>
- Competitors will make more use of Telstra’s infrastructure in non-urban areas than is efficient and therefore make correspondingly smaller investments in terms of rolling-out their own alternative infrastructure in non-urban areas, even if such investment was cost effective.

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<sup>16</sup> It should be noted that while the conveyance cost for declared PSTN services is de-averaged, the access deficit component is not. Access deficit issues relating to ULLS are discussed further in the next section.

<sup>17</sup> This is not to suggest that duplication of the local loop in CBD and other built-up areas is necessarily inefficient but rather that average access pricing may encourage a greater level of duplication than is efficient.

***Less cream skimming***

Telstra has often expressed concerns about ‘cream skimming’, the practice of entrants targeting high call volume customers located in CBD and inner metro areas. Although both pricing approaches are unlikely to prevent ‘cream skimming’ completely, the outcome is exacerbated under the averaged approach as it would more seriously affect Telstra’s ability to recover its line costs through both line and call-related charges. This occurs because, in comparison with the de-averaged approach to pricing, Telstra will:

- lose more line revenue in those areas where the CAN is duplicated, typically involving higher-yield customers;
- gain insufficient line revenue to recover costs in those areas where line charges are priced below costs (typically involving lower-yield customers); and
- lose more calls to competitors in both the areas where the CAN is duplicated and where its infrastructure is used to provide ULL services below cost.

Telstra’s own customers across a range of its existing services are therefore likely to bear an increasing share of line costs, which will make it more difficult for Telstra to remain competitive in the longer term.

***Other technologies more suitable in rural and remote areas***

The ULL is most suitable for providing high-speed services in CBD and metropolitan areas. In many regional and remote areas, high-speed services are more likely to be appropriately delivered by alternative technologies, such as satellite or newer generation (fixed or mobile) wireless networks. The correct, cost-based pricing of the ULL (copper network) in these areas will help to ensure that the correct incentives are faced for the deployment of such alternative technologies for the benefit of end-users. This means that, in addition to the above effects on efficient supply, an averaged approach to ULL pricing, far from ensuring affordable high-speed services for regional and remote consumers, would likely lead to inadequate provision of such services to these customers.

The Commission notes that there were no submissions which took issue with the proposed de-averaged approach and supports Telstra’s de-averaged pricing approach for this service.

**4.4 Access deficit contribution (ADC)**

Government retail price control regulations require Telstra to sell network access to its customers at a loss. The difference between what it costs Telstra to provide access and what it could potentially recover in line-related revenues from its customers is termed the access deficit. Telstra is, however, permitted to recover a contribution to this access deficit through its wholesale PSTN charges. This is known as an access deficit contribution (ADC).

In its previous consideration of this matter, the Commission noted that it was yet to be persuaded that an ADC was appropriate for this service.

### ***Telstra's view***

Telstra has submitted<sup>18</sup> that an ADC should be included in the ULLS network charges. It stated that excluding an ADC is inconsistent with the Commission's telecommunications pricing principles, the concept of TSLRIC, and the Commission's treatment of the access deficit in its assessment of Telstra's PSTN charges.

Telstra claimed that the access deficit is a common cost and states that TSLRIC should include a contribution toward common costs. It also stated that the exclusion of an ADC from ULLS charges is inconsistent with a competitive market, as an efficient firm would recover its common costs and, as a result, prices would make a contribution toward these costs. Telstra also claimed that the access deficit is a common cost to providing all services using the CAN and that all calls using the CAN should contribute to the deficit on an equitable basis.

On the question of allocative efficiency, Telstra's view is:

... that to ensure competitive neutrality, the recovery of cost and efficient investment decisions, all parties using Telstra's CAN should recover part of the cross-subsidy [(access deficit)].

Excluding the ADC from the ULLS would, in Telstra's opinion, harm its legitimate business interests and discourage economically efficient investment.

Telstra also claims that access seekers have expressed interest only in the lowest cost, highest use lines for ULLS so that excluding the ADC from ULLS will therefore increase the ADC that must be recovered from remaining customers. Should an ADC be excluded from ULLS, access seekers will attract PSTN (voice) traffic to the ULLS even if the costs of providing the service through PSTN are lower. The resulting increase of ADC on PSTN traffic and the rising use of ULL would, in Telstra's view, result in productive and allocative inefficiency.

Finally, Telstra noted that all access seekers wanting to use the ULLS propose to use it for providing data services rather than voice. However, Telstra argued that the ULLS charges should encourage access seekers to seek out economies of scope in the use of ULLS. Therefore, excluding an ADC in the ULLS charge on the basis that it will be used only for providing data services would discourage the efficient use of the line, which is capable of supplying both voice and data services.

### ***Other parties' views***

Other industry participants concluded that, on average, Telstra recovers the cost of the CAN through access charges and connection costs, and so no access deficit exists. They argued that even if Telstra does incur an access deficit, an ADC should not be included in a ULLS charge.

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<sup>18</sup> Telstra, "Pricing of unconditioned local loop service and review of Telstra's proposed ULLS charges – Telstra's submission to the ACCC draft discussion paper", 15 September 2000.

The participants argued that as the Commission's is a full cost model based on a forward-looking network, and includes capital costs, operational and maintenance costs, and a contribution to common costs and indirect costs, the charges based on this TSLRIC model will fully recover the cost of providing access on a per service basis. Therefore, they contended there is no justification for an ADC charge to recover the access deficit for an individual service.

The industry participants disagreed with Telstra's claim that an ADC is also necessary to recover the access surplus that would be lost from lines that yield above average service revenues, when these services are provided to access seekers under the ULLS. It further stated that in assessing Telstra's proposed rebalancing approach to the ADC (\$50 annual ADC in Bands 1 and 2 and -\$56 ADC component for Bands 3 and 4) some relevant issues apply.

- The loss of the ADC from call charges associated with the ULLS is analogous to the loss of the ADC from call charges arising from preselection. However, no ADC applies to preselection and to impose one on the ULLS will reduce competition between preselected services and ULLS voice services.
- To apply an ADC charge will effectively result in access seekers' data services meeting the ADC from data revenues, whereas Telstra makes no such contribution from data revenues. This will reduce competition for data services.
- Telstra's proposed ADC on ULLS does not tend to promote LTIE and is therefore contrary to the objective of Part XIC of the Act, as it reduces competition in markets comprising Bands 1 and 2, and it distorts investment decisions by encouraging excess investments in these bands.

Several industry members argued that the ADC should not be included in the ULLS charge. They believe that the revenue lost through competition should not be included in any TSLRIC estimate. They also did not expect significant use of the ULLS for voice services, but more for data services.

Independent of the use of the ULLS, industry participants argued there is no economic justification or regulatory precedent for the supplementary ADC charge. They argued that US experience shows the FCC specifically proposing there would be no ADC charge for the ULLS network elements. Further, TSLRIC based prices meet the full cost of provision of access lines and any supplementary ADC charge would encourage uneconomic build/buy decision and retard the development of downstream markets dependent on the ULLS. These views support the Commission's earlier consideration of this matter in its August 2000 discussion paper.

Some industry participants strongly supported the Commission rejecting Telstra's case for the inclusion of an ADC in ULLS pricing. They further noted that:

- there is no access deficit on the local loop or on several services that operate over the local loop. The access deficit only relates to the provision of PSTN line rental so the ADC should only relate to the provision of PSTN services;

- while Telstra claims that ULLS will substitute for PSTN lines, ULLS may also substitute for ISDN or leased lines or may in fact be new lines; and
- Telstra's proposal is likely to result in the total ADC being in excess of the access deficit.

Industry participants also noted that the access deficit is a diminishing cost and that the PSTN base from which it is recovered is increasing.

### *Commission's view*

The Commission has allowed an ADC to be recovered in the access prices for PSTN services as these services are provided over lines that are forced to be sold at a loss. However, the ULLS involves the lease of lines that recover their costs so that conversion of a PSTN line to an ULLS line would ensure that such a line was no longer provided at a loss. Rather, it is a service that involves the provision of cost-recovering lines.

The Commission believes that previously held arguments about the inclusion of an ADC in the access price for PSTN origination and termination service do not apply in the case of ULLS, and that new arguments raised by Telstra do not justify the inclusion of an ADC for ULLS.

Products using the PSTN origination and termination service need to be provided over lines that are, on average, sold at a loss as a result of retail price control arrangements that apply to line rental services. The Commission accepts that users of origination and termination services should contribute to a share of this loss.<sup>19</sup>

Arguments relating to the efficient recovery of common costs and the access deficit are:

- inconsistent with Telstra's usual approach of equi-proportionate mark-ups and would probably undermine the approach currently used for determining the ADC for the PSTN;
- possibly lead to a reconsideration of the appropriate contribution from other services, such as ISDN and leased lines, that share common network costs with PSTN services; and
- would take the approach well outside the fixed-line network to include contributions from mobiles, data services and directory services.

The competitive neutrality argument can be rejected on similar grounds and also because Telstra does not appear to have an internal transfer pricing structure. The extent to which cost allocations might act as a shadow internal pricing mechanism would therefore be inadequate if an ADC is not included in the shadow prices faced by (downstream-retail) decision-makers within Telstra.

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<sup>19</sup> ACCC, a report on the assessment of Telstra's undertaking for the domestic PSTN originating and terminating access services, July 2000.

Finally, Telstra's legitimate business interests are not compromised by the absence of an ADC on ULLS. The Commission is satisfied that the access deficit associated with the provision of voice services is fully acquitted by the totality of PSTN wholesale and retail pricing, and that the ability to do this would not be appreciably affected by the absence of an ADC on ULLS.

The Commission is also currently considering whether a line-sharing (or spectrum sharing) service should be declared under Part XIC.<sup>20</sup> As part of this consideration, the Commission has flagged certain issues related to the appropriate pricing and, in particular, whether an ADC should be taken into account in this regard.

While the Commission is considering the pricing approach for line-sharing services as part of its current inquiry, this does not affect or detract from the above arguments of why it is inappropriate for an ADC to be included in the charge for ULLS.

The Commission believes that services that do not need to be provided in conjunction with loss-making lines should not be recovering the access deficit. The access price for the ULLS should therefore not include an ADC. The contentions of other parties noted above reinforce the Commission's views.

#### **4.5 Network termination device (NTD)**

Generally, an NTD is a distributor which functions as a demarcation point between carrier network lines and customer premises cabling.

It is the Commission's understanding that the Australian Communications Industry Forum (ACIF) is currently in the process of finalising a formal definition of an NTD and associated standards.

This definition is being devised through the work of the TS008 Working Committee (CECRP/WC9) and the TS009 Working Committee (CRP/WC4). The TS008 Standard defines the requirements for all cabling products forming part of a customer premises cabling installation intended for connection to a telecommunications network. The TS009 Standard defines general technical requirements for the installation or repair of customer cabling and customer equipment that is connected, or intended to be connected, to a telecommunications network.

The definition of NTD included in the Standards is being used to specify the technical requirements of an NTD enclosure — the box in which carriers' NTDs can be housed. It should be noted that neither Standard mandates the use of an NTD. The ACIF expects to publish these Standards by the end of 2001. The scope and pace of deployment of NTDs will ultimately depend on the industry.

In its August 2000 ULLS pricing discussion paper, the Commission noted that it was not clear whether the device would necessarily be required for ULLS. At that time, the Commission also queried whether Telstra would need to be responsible for its supply.

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<sup>20</sup> ACCC, *Line Sharing Service*. An ACCC discussion paper examining whether a line sharing service should be declared under Part XIC of the Trade Practices Act 1974, October 2001.

However, the Commission did state that it was interested in receiving comments on whether the NTD is relevant to the provision of ULLS.

***Telstra's view***

Telstra is of the view<sup>21</sup> that NTDs should be considered as part of an optimised CAN, and should be included in the line costs for the provision of ULLS. It states that the installation of NTDs is best and common practice in other jurisdictions where unbundling of the network has been promoted and mandated.

Telstra contends that the use of NTD creates a clear point of demarcation between the network and the customer cabling, which is required in network architecture and consistent with section 22 of the *Telecommunications Act 1997*. Telstra argues that while the first socket in the house has been historically adequate as a network demarcation point, this has become problematic with an increasing number of customer premises having multiple telephones or 'star' wiring.<sup>22</sup>

Telstra also argues that an NTD provides licensed customer cablers with easy access to install additional services, and allows them to work independently without affecting network operation or equipment (e.g. ULLS access provider's equipment). Significant difficulties arise in attempting to locate the first socket as the network boundary point in the absence of an NTD (or main distribution frame (MDF)). This difficulty presently leads to customer wiring cablers accessing network cabling, with associated risks to network integrity and breaches of both the *Telecommunications Act* and the *Crimes Act 1914 (Cth)* for interfering with network facilities and operations;

Telstra contends that using an NTD to provide a definite demarcation point is necessary to avoid the complexity and lengthy disputes over responsibility for particular parts of the network, and to ensure efficient fault management. Telstra argued that an NTD allows carriers to assess responsibility and action network faults and service difficulties without needing access to customer premises. This factor is critically important to Telstra's ability to comply with the new shorter Customer Service Guarantee (CSG) Standard time frames mandated by the ACA.

Telstra also asserted that the presence of an NTD is particularly important where a ULLS is used for both telephony and a high-speed data service when a 'filter' has to be installed at the customer's premises<sup>23</sup>. Telstra argued that the provision of a filter is particularly difficult where an NTD is not present.

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<sup>21</sup> Telstra, "Pricing of unconditioned local loop service and review of Telstra's proposed ULLS charges – Telstra's submission to the ACCC draft discussion paper", 15 September 2000.

<sup>22</sup> 'Star' wiring is when multiple phones on premises are independently connected to a central point or node. This contrasts with the most common types of wiring for second and third phones where a wire is simply run from the first socket.

<sup>23</sup> A filter splits the channel generally used for high speed Internet access from the channel used for voice telephony.



### ***Other parties' views***

Some industry participants believed that:

... as Telstra does not presently include the NTD in either its current or forward-looking network design, it is not best in-use technology, and is of no relevance to the determination of ULLS prices.

It was also claimed NTDs are not used in providing ULLS. Including them in the ULLS price is therefore an attempt to include input that is not yet, or will not be, deployed and that is unnecessary to provide the service.

Other industry participants believed that the costs of the NTD should not be included in line costs because it is not clear the device is required for the ULLS. They argued that Telstra has to provide information showing the following to justify inclusion of an NTD cost in the ULLS charge:

- why the NTD is required for the ULLS; and
- why it was excluded from the PSTN undertaking assessment, with Telstra's full knowledge.

Industry participants believed that, should NTDs be deployed for the provision of the ULLS, it should only be one part of a comprehensive, integrated, network-wide program. They were of the view that deployment of NTDs only for the provision of the ULLS would provide little or no operational or economic benefit to Telstra and that, under these circumstances, Telstra should not be able to include an NTD charge in ULLS pricing.

There was some support for the view that an NTD is required to implement ULL, but the party supporting the use of NTDs noted that the recovery of costs in a ULL charge will depend on whether the costs of existing NTDs have already been recovered and the circumstances that may cause new NTDs to be provided. The party found that the recovery of existing NTD costs will depend on the accounting treatment of such costs (whether they are capitalised or expensed). If the NTDs are expensed, the cost of NTDs has already been recovered. New NTDs may be required because existing NTD is incompatible with ADSL technology or there is no existing NTD in place.

### ***Commission's view***

In the Commission's view, it appears that an NTD may well be appropriate in some situations, particularly where reliance on the first socket is not possible or appropriate. It would, however, be premature to incorporate a specific charge for the provision of an NTD as part of or in addition to Telstra's ULLS line costs. This would have the effect of mandating the use of an NTD in all ULLS provisioning situations. It is not clear that such a broad mandating of an NTD is necessary or appropriate at this time.

Under current legislation, the boundary of a telecommunications network can be demarcated in a number of ways, so that the use of an NTD is one of several options.<sup>24</sup> The use of an NTD is not standard industry practice at present.

The Commission believes that the present use of the first socket as a network boundary demarcation point, particularly for residential services, functions adequately for many existing connections. However, for some connections the use of the first socket may be problematic. This may include connections where there are multiple pairs of lines or where star wiring exists. The practical need for an NTD will therefore depend on the specific nature of the connection that exists in particular cases. The Commission understands that the industry standards are consistent with this approach.

The deployment of an NTD is an issue that needs to be considered on a case-by-case basis by the access provider and access seeker, rather than be mandated as a standard feature in all circumstances.

More generally, an NTD may have broad application in an optimised CAN. The Commission is also aware that there may be an increasing industry push towards deployment of NTDs in the long term, as industry standards are determined and applied. However, at this juncture, the Commission believes that the network-wide deployment of NTDs is not necessary for the provision of the ULLS.

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<sup>24</sup> Section 22 of the *Telecommunications Act 1997*.

## 5. Commission view on ULLS charges

This chapter discusses how the Commission has applied its TSLRIC methodology discussed in the previous chapter to come to a view about the appropriate charges for ULLS. This is also compared to Telstra's initially proposed charge for this service.

### 5.1 Telstra's proposed structure of charges

Before looking at the way the Commission has determined ULLS charges, it would be useful to outline the original Telstra pricing approach.<sup>25</sup>

Telstra proposed the following main charging components for the ULLS:

- once-off provisioning charges of which the main charges are service qualification and connection charges; and
- ongoing charges made up of network costs, ULL-specific costs and an access deficit contribution.

The once-off charges are to be billed when service is provided and the ongoing charges on a monthly basis. All the charges are applied on a per line basis. The connection, network and access deficit charges are subject to variation related to the geographic location of lines in accordance with four 'bands' that are delineated on the basis of teledensity.

- Band 1 — CBD areas of Sydney, Melbourne, Brisbane, Adelaide and Perth.
- Band 2 — urban areas of capital cities, metropolitan regions and large provincial centres (including other CBD areas not already included in band 1).
- Band 3 — semi-urban areas including outer metropolitan and smaller provincial towns.
- Band 4 — rural and remote areas.

It is expected the greatest take-up of the ULL service will occur within bands 1 and 2.

Telstra's network charges also differ depending on whether the ULLS is provided at an RSS/RSU or an IRIM.<sup>26</sup>

In relation to the ongoing charges these relate to the following costs:

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<sup>25</sup> Telstra's original pricing proposal was first announced in June 2000.

<sup>26</sup> See chapter 1, above, for a description of these network points.

- network costs comprising the annual cost of PSTN lines to the level of the RSS/RSU or IRIM, including annual capital, O&M and indirect costs;
- ULL-specific costs such as additional IT system and management costs required to provide the ULLS; and
- an access deficit contribution which relates to the expected loss of call revenue on unbundled lines acquired by other service providers for funding the access deficit on Telstra’s own PSTN line services.<sup>27</sup>

Telstra’s originally proposed line charges are set out in table 1 below:

**Table 1. Telstra’s proposed ULL line charges (\$ per line for 2000/01)**

	Annual IRIM	Annual RSS/RSU	Annual ULL-specific	Annual access deficit contrib.	Monthly total IRIM	Monthly total RSS/RSU
Band 1	-	272	137	50	-	38
Band 2	414	572	137	50	50	63
Band 3	672	763	137	-56	63	70
Band 4	989	989	137	-56	89	89

## 5.2 Telstra’s other (once-off) ULLS charges

### *Service qualification test (SQT)*

Telstra also proposed a SQT of \$6.50 per line. This is based on an automated system where the set-up costs for the automated system are borne by a range of Telstra’s services including ULL, ADSL and ISDN.

By comparison, Telstra’s current PSTN churn service fee (involving partial debt severance) using an automated process is set at \$6 per account or service.

According to available information, the SQT charge does not appear unreasonable.

### *Connection fee*

This charge applies for each line and comprises:

- order administration fee (\$11);
- cable jumpering (\$65–\$80 depending on teledensity band); and
- testing and tagging at customers’ premises (\$17).

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<sup>27</sup> The contribution applies only to lines in bands 1 and 2. Lines in band 3 and 4 receive an access deficit rebate — see also Chapter 4.

The cable jumpering charge includes the costs incurred in jumpering the cable back to Telstra's MDF when the access seeker forgoes the ULL service. The Commission accepts that this involves a cost that may not be recovered from a subsequent reconnection fee occurring immediately or shortly afterwards and may therefore be legitimate to include in costs in this fashion. This charge should reflect the likelihood or probability of the ULL being given up at some point. There is an issue whether the cable jumpering fee is appropriate in situations where a line is transferred from one access seeker to another and where no re-jumpering or reconnection of the cable by Telstra back to its own MDF is necessary.

In respect to PSTN connection and disconnection, Telstra only charges its customers for connection. This does not mean that a disconnection charge is not implicit in the connection charge.

The overall charge of between \$93 and \$108 proposed for connection seems roughly in line with Telstra's charges for similar services regarding other products. For example, PSTN connection charges are \$110 for an in-place connection, where additional work is required at the customer's premises.

The minimum connection charge British Telecom (BT) originally proposed for its ULL service in its schedule of charges submitted to Oftel was £130 (\$A333) per connection. This charge includes the cost of the line test, MDF jumpering and order-handling. It excludes the costs of disconnection and reconnecting the line to BT, which is an additional £20 (\$A51).

Since that proposal BT provided Oftel with indicative charges for provision of unbundled local loop (in August 2000). The proposed schedule of charges submitted to Oftel included a £107 annual rental per line, a £145 connection charge and a disconnection charge of £ 29.<sup>28</sup>

In December 2000 Oftel's determination under condition 83.16 of the Licence of British Telecommunications plc relating to the charges for the provision of metallic path facilities and associated internal tie circuits provided a schedule of final wholesale prices to be applied to the ULL service. The determination stated that operators taking an unbundled loop from BT would pay a £122 annual rental charge plus a connection charge of £88. The associated disconnection charge was set at £29.<sup>29</sup>

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<sup>28</sup> Oftel, *Access to Bandwidth: Conclusions on charging principles and further indicative charges — August 2000*, <<http://www.oftel.gov.uk/publications/broadband/llu/a2b0800.htm>>.

<sup>29</sup> Oftel, *Determination under condition 83.16 of the Licence of British Telecommunications plc relating to the charges for the provision of metallic path facilities and associated internal tie circuits*, December 2000. <<http://www.oftel.gov.uk/publications/pricing/llup1200.htm>>.

### **5.3 Commission's assessment of ULLS network costs**

The remaining part of this chapter considers the determination of appropriate ULLS network costs, taking into account submissions to the August 2000 discussion paper, submissions in the course of four arbitrations as well as undertaking further economic analysis. As a result of this further work, the Commission decided to make revisions to its preliminary view of ULLS network costs.

The Commission also finalised its view on the ULLS-specific costs following the provision of a consultant's report which looked specifically at this aspect as part of the arbitrations. ULLS-specific costs were not addressed in the earlier paper. This is covered in chapter 6.

In reaching its view on the appropriate price for the ULLS the major issues were:

- the Commission's TSLRIC modelling approach (including the re-configuration of the Customer Access Network (CAN));
- the Commission's estimates of the ULLS network costs; and
- the Commission's estimates of the ULLS-specific costs.

A full explanation of the Commission's approach to assessing ULLS network costs is set out below; chapter 6 deals with ULLS-specific costs and chapter 8 sets out the Commission's conclusions on the size of ULLS access charges.

### **5.4 The Commission's ULLS network cost modelling approach**

To model ULLS costs the Commission employed the TSLRIC (n/e/r/a) model that was used to estimate local loop costs to assess Telstra's most recent PSTN undertaking.

This model was modified in a number of ways to ensure that it closely models the efficient costs to Telstra of supplying the ULLS at lower levels in the network, compared to the case for the PSTN originating and terminating access service. These modifications include:

- the use of line distributions by area based on a four (4) band structure determined by Telstra, based on line densities;
- the exclusion of costs associated with line cards which are not relevant to the ULLS;
- a reduction in IRIMs and an increase in RSS/RSUs to better reflect Telstra's current numbers of these exchanges in the network and where the ULLS is to be provided;
- an adjustment to average route distances in the model to accord with the revised configuration of exchanges;

- the inclusion of extra modules in the model to separately estimate ULLS costs at an IRIM and a RSS/RSU as the relative costs of supplying the ULLS at these exchange types differ significantly; and
- minor modifications to the treatment of trench and site sharing in the model.

### ***Line densities***

The Commission made initial estimates of ULLS line costs as part of its preliminary consideration of Telstra's proposed charges in its ULLS pricing discussion paper in August 2000. Since then, the Commission obtained further information from Telstra on its current number of IRIMs, as well as average route distance information for its current network configuration. The Commission was able to estimate the costs of the ULLS more accurately. The information relating to bands 3 and 4 produced cost estimates in which the Commission had little confidence.

Based on further information from Telstra, the Commission adjusted the distribution and feeder cable sizes used in bands 3 and 4. This allowed it to estimate the ULLS costs in those bands more accurately.

### ***Line cards***

Line cards are excluded on the basis that ULL lines are jumpered before they connect to Telstra's line cards and therefore are not necessary to provide the ULLS. They should therefore not be attributed to the ULL service. The Commission estimates the annual costs of these line cards at about \$55 per line (including associated indirect costs).

## **5.5 TSLRIC CAN model revisions**

This was the most significant work associated with the modelling effort of network costs for ULLS and given the differences with the previous approach taken to the modelling of PSTN originating and terminating services is covered in some detail.

### ***Reconfiguration of the CAN***

In its August 2000 ULLS discussion paper the Commission proposed a modification of the n/e/r/a PSTN model to determine ULLS network costs on a TSLRIC basis. In their submissions to the draft paper and in the arbitration process, interested parties, including Telstra, commented on the Commission's approach.

One industry participant believed that the Commission should apply the n/e/r/a TSLRIC model used to assess Telstra's PSTN undertakings, and not adjust the model to reflect Telstra's actual current customer access network design. This affects the assumptions regarding IRIM and RSS/RSU numbers and average distribution and feeder cable distances. The reason for this is because TSLRIC measures forward-looking economic costs of efficient network design based on current best-in-use practice. It was also believed TSLRIC measures the costs through the design of the network as it would look today if rolled-out, assuming all current sunk infrastructure needs to be replaced.

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Another industry participant agreed with the Commission's view that the n/e/r/a CAN model should be the basis for calculating line costs, and that the ULLS charge should exclude line card costs. This participant believed that the most important change made by the Commission was the translation of four geographic zones used in the PSTN model into four bands by line density. It was agreed that calculating line costs by line density is preferred and that the Commission's methodology in this respect is reasonable.

Another industry member agreed that the n/e/r/a model should be used but believed that adopting different network architecture models for different circumstances has the effect of:

- sending mixed signals about what the overall most efficient network architecture should be;
- not encouraging economically efficient investment in infrastructure as there will be no consistent model of the most efficient architecture; and
- compromising two other TSLRIC objectives as it will not promote the efficient use of existing infrastructure to provide incentives for access providers to minimise the cost of providing access.

This industry member believed that the network access charge should be independent of where in the network that access is provided and should be calculated by averaging the cost of alternative access opportunities. This industry participant agreed that if Telstra's bands, based on teledensities, provide greater rigour in defining geographic categories, it supports de-averaged pricing based on these bands.

- While noting its concern about the adequacy of the n/e/r/a CAN model to cost the ULLS properly, Telstra supported its reconfiguration from that used to cost PSTN services. Consistent with its views on the PSTN model, Telstra disagreed with some of the Commission's ULLS model parameters.

These are not specific to ULLS and are largely based on the PSTN model. They are discussed further in section 5.7.

#### *Commission's view*

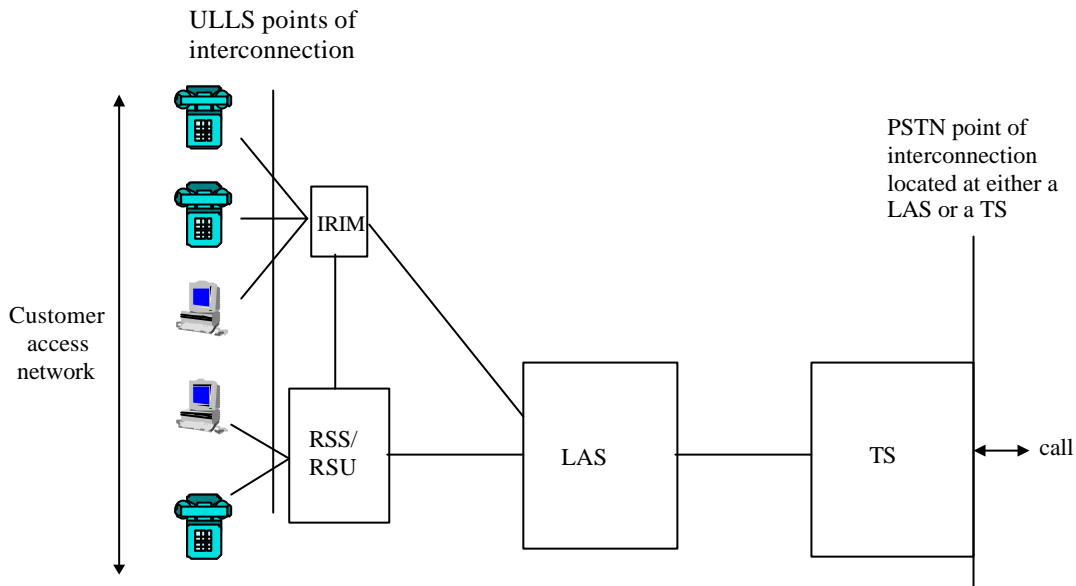
The Commission maintains that Telstra's existing IRIM and RSS/RSU nodes should be used for costing the ULLS. This differs from the practice employed to estimate PSTN line costs for the assessment of Telstra's PSTN undertaking, where the network was assumed to be optimised up to the level of the LAS. This meant Telstra's existing LAS nodes were taken as given — consistent with a scorched node approach — but the number and location of IRIMs and RSS/RSUs were fully optimised consistent with a new-build forward-looking network as planned by Telstra. This amounted to a scorched earth approach below the LAS level.

However, the use of Telstra's existing IRIM and RSS/RSU nodes is consistent with both a scorched node approach and the previous approach in determining which existing nodes are to be retained. As in the case of the PSTN declared services, this is governed by the level of potential points of interconnection to the network (i.e. ULLS



connection type). This is because, compared to PSTN originating and terminating access, the point of interconnection is at the level of the IRIM or RSS/RSU rather than the LAS or TS (see figure 2). Optimisation does, however, occur up to these points with regard to things such as number of pairs per service in operation and cable sizes.

**Figure 2. Points of interconnect for ULLS and PSTN originating and terminating access**



This approach accords more closely with the costs incurred by Telstra in providing the ULLS at the different parts of its network (i.e. at the IRIM or RSS/RSU level). As Telstra would be expected to install more IRIMs at the expense of RSS/RSUs in an optimised network, this will mean the costs of connecting to an RSS/RSU will be somewhat higher than connecting to an IRIM in a more optimised network. As a result there may be some effect on the efficiency of investment decisions by both Telstra and access seekers in the longer term.<sup>30</sup> This is likely to tip the balance in favour of facilities-based competition, rather than access-based competition. However, the Commission does not expect this particular effect to be significant, at least not over the next two years.

If Telstra continues replacing RSS/RSUs with IRIMs as it has indicated, the average costs of providing the ULLS can be expected to fall. However, the difference in charges between the IRIM and the RSS/RSU POI may provide an incentive for Telstra to slow its IRIM deployment, given the higher charges for a connection to an RSS/RSU. This may not be consistent with efficient investment, as noted above. Countering this, however, are other factors which would tend to encourage Telstra to deploy more IRIMs. These include the need to provide more advanced services to a greater proportion of users and the network and cost efficiencies associated with such network modernisation. While Telstra may charge competitors lower charges for

<sup>30</sup> The effect on investment, however, is rather complicated and has several dimensions. This is discussed further in the following paragraphs.

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connection to an IRIM as compared to an RSS/RSU, competitors are also concerned at the competitive implications of IRIM expansion as this entails additional costs of installing fixed infrastructure at these more remote network points. On balance therefore the suggested approach, based on a greater preponderance of RSS/RSU POIs, is not likely to be contrary to the LTIE.

The Commission's modelling approach for arriving at its own ULLS network charges is detailed below.

### ***Use of Telstra's existing IRIM and RSS/RSU configuration***

The Commission accepted that in costing the ULLS it was necessary to modify the Commission's PSTN cost model to reduce the number of IRIMs and to increase the number of RSS/RSUs to match Telstra's existing network configuration more closely.

In the Commission's PSTN modelling, the number of SIOs by area and exchange type served to govern the allocation of IRIM and RSS/RSU costs by area as required (e.g. the share of total exchange site costs). However, Telstra informed the Commission that the proportions of SIOs by exchange type are not available for Telstra's current network configuration. This necessitated extrapolation of the proportion of SIOs by IRIM within each band from estimates of the number of exchanges by band and the exchange provisioning rules used for the PSTN modelling. The proportions of SIOs by RSS/RSU for each band could then be derived as a residual and the numbers of RSS/RSUs determined. This procedure is explained below.

Telstra advised the Commission of its current network composition of IRIMs spread across bands 2 and 3 and IRIMs in band 4. The Commission disaggregated the IRIM figure for bands 2 and 3 based on the proportions of [c-i-c] per cent and [c-i-c] per cent respectively, based on the allocation of the larger number of IRIMs between metropolitan and provincial areas that applied in the modelling for the PSTN undertaking decision. In this modelling the Commission assumed an average of 203 SIOs per IRIM. Application of this ratio to the number of IRIMs by band as determined above enabled the number of SIOs connected to IRIMs to be determined for each band.

Subtracting the number of SIOs connected to IRIMs in each band from the total number of SIOs in each band (using the line proportions provided by Telstra) provided the number of SIOs connected to RSS/RSUs as a residual. The Commission then determined the number of RSS/RSUs by applying the ratio of 1 375 SIOs per RSS/RSU that was assumed in the modelling for the PSTN undertaking decision.

The above approach to determine the number of IRIM and RSS/RSU SIOs by band should result in the same outcomes had the number of SIOs for each exchange type by band been known. However, to the extent that Telstra's actual network assumptions differ from those of the Commission — about exchange SIO provisioning levels for example — the number of SIOs by connection type and the effective number of exchanges will not map exactly what is in Telstra's existing network. The approach is likely to be fairly consistent with a 'scorched node' approach at the level of the IRIM and RSS/RSU.

### ***Revised distance information***

The use of a configuration of IRIMs and RSS/RSUs that aims to reflect Telstra's existing network plus the use of Telstra's teledensity bands for grouping SIOs means that the average distance information used for the PSTN undertaking model could no longer be used with confidence. The Commission therefore obtained from Telstra revised average route distance information by connection type in each band. These are shown in table 2 along with the former distances assumed in the PSTN modelling.

***Table 2. Average cable route distances {c-i-c information shaded}***

Area*	PSTN IRIM		ULLS IRIM		PSTN RSS/RSU		ULLS RSS/RSU	
	Distrib. cable	Main cable	Distrib. cable	Main cable	Distrib. Cable	Main cable	Distrib. cable	Main cable
Band 1	-	-			-	840m		
Band 2	400m	-			300m	1 013m		
Band 3	400m	-			300m	1 013m		
Band 4	-	4 069m <sup>#</sup>			300m	3 769m		

\* In the case of PSTN distances, the areas are CBD, metropolitan, provincial and rural/remote.

<sup>#</sup> Some less densely populated areas were assumed to have a main cable distance of double this distance.

### ***Revised cable size information***

Based on information provided by industry participants on line costs and sizes the Commission has included the revised cable sizes in its model. These changes lead to higher costs for band 3 and 4 areas which is consistent with PSTN model outcomes.

### ***Estimation of separate NTP-IRIM and NTP-RSS/RSU network charges***

The Commission's PSTN undertaking model aggregated NTP-IRIM and NTP-RSS/RSU costs to estimate the cost per SIO across these connection types. The Commission's latest model includes extra modules that enables NTP-IRIM and NTP-RSS/RSU (including NTP-LAS) costs to be identified separately. Costs per SIO by band for these connection types are therefore determined by dividing the annual total costs as determined for the connection types in each band by the number of SIOs by connection type within each band.

### ***Assumptions in the treatment of trench and site sharing***

One industry participant was of the view that, as a result of the addition of the ULLS, while the level of trench costs remains fixed, the number of cables per trench increases (not due to more physical lines, but rather due to the utilisation of spare lines). The trench costs per line are therefore lowered. It was consequently argued that in translating the PSTN n/e/r/a model to a ULLS model, an adjustment for the trench sharing should be made.

The Commission has in essence adopted the same trench sharing assumptions that were employed for the modelling of the geographical areas used for the PSTN undertaking decision. In certain instances this has involved 'hard wiring' trench sharing factors so that the same assumptions carry over into the revised modelling. A major instance of this is the use of the previous inter-IEN sharing factor of 1.4 for determining actual IEN trench lengths (and which in turn affects the amount of ducted trench that can be shared with the CAN).

The Commission has also used a 100 per cent sharing assumption between ducted IEN trench and the CAN feeder trench in band 3 (i.e. 100 per cent of IEN ducted trench in band 3 areas is also assumed to contain CAN feeder cable). In the PSTN undertaking model it was assumed that 100 per cent of CAN feeder trench in provincial areas also contained IEN cables. This effectively meant that 19 per cent of ducted IEN trench in the former provincial category was shared with CAN cable. The change was made because, under the changed network configuration used for the ULLS, CAN trench in band 3 becomes longer than total IEN ducted trench for the former provincial category and the length of ducted IEN trench therefore becomes a constraint on sharing.

The model allocates RSS/RSU and LAS site costs to both the CAN and the IEN based on the proportions of costs associated with these connections that are access and transport network related. However, as the Commission's revised model does not accurately estimate IEN costs, it has used the proportion that was used in the previous model. As was the case previously, IRIM site related costs are included in the actual exchange costs and are therefore not included in ULLS costs.

The Commission does not accept the argument that sharing assumptions should be changed significantly simply because a ULL line can be used to provide other services in addition to voice. In a physical sense there are no changes to the way cables are distributed inside a duct compared to PSTN services, and the PSTN assumptions are considered to remain appropriate.

## **5.6 Other cost model parameter assumptions**

There are some fundamental areas of disagreement between Telstra and the Commission over modelling input assumptions which help to explain most of the differences in the Commission's estimates of efficient network costs. These are:

- the number of pairs per service in operation;
- the level of trench sharing between the CAN and the IEN;
- the approach to depreciation;
- the WACC employed; and
- the level of indirect costs.

These issues have each been explored at length in the Commission's undertaking assessment and are briefly discussed below.<sup>31</sup>

### ***SIO provisioning***

In relation to the number of pairs per service in operation, the Commission assumes a provisioning rule of 1.33 services in operation (SIO) which relates to actual services subject to performance or provisioning requirements as set out under the customer service guarantee. This compares to Telstra's provisioning rule of 2 SIO. The Commission is of the view that 1.33 is sufficient to provide for operational requirements and that Telstra's additional provisioning is to serve future demand. These costs should not be borne by existing users of the network.

### ***Trench sharing***

The level of trench sharing between the CAN and the IEN assumed by Telstra largely reflects existing rather than forward-looking practice. The Commission has accordingly assumed higher levels of sharing in band 2 and 3 areas than Telstra.

### ***Depreciation***

The Commission uses a tilted annuity approach to depreciation that leads to a smoothed depreciation expense over the life of an asset. Telstra uses economic depreciation that produces a higher depreciation expense in the earlier years of an asset's life. The Commission is of the view that its approach prevents over-recovery of capital costs and more closely accords with a market-based pricing approach. The annuity approach also overcomes the 'year 1' problem that arises when using a forward looking TSLRIC model, which assumes the network is brand new in each year which would result in higher asset values (and capital costs).

### ***WACC***

The equivalent WACC used by Telstra is considerably higher than that used by the Commission. The difference results from disagreements over the appropriate values of several WACC parameters that are discussed in appendix 4 of the Commission's undertaking assessment.<sup>32</sup> In particular, the Commission has accepted the same approach to calculating the WACC as in its assessment of Telstra's PSTN undertaking.<sup>33</sup> The Commission calculated two WACCs in this determination, for the period 2000–01 and for the period 2001–02.

For the pricing of the ULLS the Commission accepts all of the WACC parameters adopted in the undertaking assessment apart from the risk-free rate. The risk-free rate accepted by the Commission was calculated as a 1-year bond rate as at 30 June 2000

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<sup>31</sup> See ACCC, *A report on the assessment of Telstra's undertaking for the Domestic PSTN Originating and Terminating Access services*, July 2000.

<sup>32</sup> *Ibid.*

<sup>33</sup> ACCC, *A report on the assessment of Telstra's undertaking for the Domestic PSTN Originating and Terminating Access services*, July 2000.

for the period 2000–01 and as at 30 June 2001 for the period 2001–02. The 1-year bond rate was approximated by interpolating between the 26-week Treasury note and 3-year government bond rates, and averaging over the 10 days leading up to and including the relevant date.

***Indirect costs***

In relation to indirect costs, the Commission uses estimates determined by n/e/r/a of efficient percentages of indirect expenses to direct capital and operations and maintenance (O&M) expenses based on benchmarking with overseas telecommunications carriers. Telstra on the other hand uses current percentages of indirect expenses derived from its COA/CAM accounts. The Commission's average estimate for indirect capital is 4.89 per cent. For indirect O&M the Commission estimate is 24.78 per cent.

## 6. ULLS-specific costs

The ULLS specific charge is designed to cover costs Telstra incurs exclusively to provide the ULLS to access seekers. According to Telstra, ULLS-specific costs consist of:

- IT system development and operational costs;
- ULLS connection group costs;
- wholesale management costs; and
- indirect costs.

### 6.1 Background

In its August 2000 pricing discussion paper, the Commission provided an assessment of Telstra's proposed ongoing network charges and once-off provisioning charges. In addition, Telstra proposed additional charges to recover what were termed ULLS-specific costs; however, the Commission observed that, because of timing constraints, it had been unable to review ULLS-specific charges properly.

To assess Telstra's proposal for the inclusion of ULLS-specific costs in ULLS charges more fully, the Commission engaged the Communication and Media Policy Institute of the University of Canberra and AAS Consulting Pty Ltd (CMPI/AAS) to undertake a review of Telstra's ULLS-specific costs. The consultancy was commissioned primarily to provide advice to the Commission on the reasonableness of the \$11.42 per month/line ULLS specific cost charge proposed by Telstra (which equates to \$137 per year). Also, the consultants were requested to undertake an international benchmarking study of ULLS-specific costs.

CMPI/AAS provided a draft report to the Commission on 26 June 2001 that was provided to the parties involved in arbitrations for comment. Following a review of all the submissions, including some which were subject to separate confidentiality conditions, the consultants provided a final report to the Commission on 12 October 2001.<sup>34</sup>

### 6.2 CMPI/AAS main findings

CMPI/AAS (the consultants) concluded that Telstra's ULLS-specific charge is considerably larger than could reasonably be justified by the information examined in the review. The consultants suggested several changes to the cost model which they believed will lead to a lower, more reasonable estimate. The consultants concluded that

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<sup>34</sup> *Review of Telstra's ULLS Specific Costs* — final report to the ACCC by the Communication and Media Policy Institute of the University of Canberra and AAS Consulting Pty Ltd, October 2001; *Review of Telstra's ULLS specific costs* – draft report to the ACCC by CMPI/AAS, June 2001

the costs associated with ULLS-specific activities were only about 22 per cent of those proposed by Telstra.

The following three main factors were examined by the consultants which they argued resulted in a substantial reduction in the charge:

- a significant reduction in the estimated capital expenditure needed for the development of the ULLS IT System compared to Telstra's estimates;
- significant reductions in the estimated operational expenditures as compared to Telstra's estimates; and
- a significant increase in demand levels assumed by the consultants compared to Telstra's estimates.

The process which the consultants used to adjust Telstra's estimates to arrive at more reasonable ULLS-specific cost figure were undertaken as follows:

- adjustments to Telstra's model;
- adjustments to Telstra's cost estimates; and
- adjustments to Telstra's estimated demand for the ULLS.

#### *Adjustments to Telstra's model*

The consultants reviewed Telstra's ULLS-specific costs estimation model and concluded that while the structure and operation of the model were considered appropriate for the task, some revisions were necessary to correct apparent oversights and inconsistencies. There were four main adjustments costing the ULLS.

- The starting date was adjusted from Telstra's starting date. The adjustment took into consideration that Telstra only started expenditure nearly a year later than the model's starting date. This is important as Telstra sought to recover all ULLS-specific costs over a five-year period in its model. However, Telstra did not begin selling its product until over a year after the model's starting date. By beginning its five-year recovery period over a year early, Telstra relegated recovery of its costs to the four-year period over which it began selling its product. In contrast, moving the beginning of its five-year cost-recovery period ensured there were five years of output over which Telstra could recover its costs. In turn, this has the effect of reducing the price Telstra needs to charge per unit of output to recover its total costs.
- The starting date for depreciation charges adjusted to coincide with the initial delivery of the supply of ULLS.



- NPV calculations for operational expenditure based on a continuous accrual basis throughout the year rather than assuming all operational expenditure is incurred at the end of the year.
- Adjustment for a Telstra error in opening value for capital investment and treatment of investment for calculation of capital charges.

#### *Adjustments to Telstra's cost estimates*

These are divided into adjustments to IT system development costs and other costs and represented larger adjustment to costs.

#### *Adjustments to IT system development costs*

IT system development costs represents a large proportion of Telstra's proposed charge. The consultants concluded that:

- 10 to 20 per cent of the total development cost is likely to fail the causality test for attribution to ULLS;
- initial Telstra estimates were consistently biased upwards — the consultants' audit revealed actual expenditure was considerably lower than estimated;
- Telstra revised capital and operational expenditures downwards following investigations by consultants;
- deferral by one year of escalation factor for IT maintenance; and
- Telstra's late submission claiming a substantial further cost for IT system development not previously accounted for was largely considered not attributable to ULLS.

#### *Adjustments to other costs*

The consultants' report also made the following adjustments:

- downward adjustment of wholesale project management costs after the initial phases;
- reduction in Telstra's estimate of staffing levels for connection group costs;
- application of the PSTN WACC previously used by the Commission; and
- applied indirect cost ratios used for PSTN services rather than Telstra's higher estimates.

#### *Adjustment of demand estimates*

A significant difference between the consultants' model and that used by Telstra was the difference in demand estimates for the ULLS. These estimates were well below those recommended by the Consultants.

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One of the differences is that Telstra's demand estimates start a year before Telstra assumed demand existed. This effectively creates only four years of demand for the service, despite arguing it needs to recover its full costs over a five-year period. The consultants considered this inappropriate given that no demand existed at Telstra model's assumed starting date and actual expenditure only started almost a year later.

As part of the review the consultants used a number of different approaches to estimate demand for the ULLS. They considered estimates provided by access seekers and Telstra, independent analysts, information in the public domain, statements by Telstra executives, official ABS statistics, and overseas experience with ULLS take-up. On the basis of this information the consultants estimate that by 2004–05 (i.e. after five years) aggregate demand for ULLS is likely to be in the range of 400 000 to 500 000 services. The consultants recommended that 400 000 would be a reasonable aggregate demand estimate for ULLS in 2004–05.

The consultants' demand estimates are outlined below.

**Table 3. Consultant demand estimates**

Year	Simple demand	Cumulative demand
2000/01	2 000	2 000
2001/02	40 000	42 000
2002/03	100 000	140 000
2003/04	170 000	270 000
2004/05	230 000	400 000

### 6.3 Summary of consultants' proposed changes

Starting from Telstra's original ULLS-specific cost of \$137 per year, the effects of the proposed changes are summarised in table 4.

**Table 4. Effects of the proposed changes**

Model	Annual cost \$	Once off cost \$ (a)	Comment
1. Telstra's original model	<b>135</b>	[c-i-c]	Adjusted from \$137 for error in opening value for capital investment
2. Capex treatment corrected model	<b>122</b>	[c-i-c]	Adjusted for inconsistent treatment of original capital values plus application of PSTN WACC and indirect costs
3. Capex year zero treatment corrected plus revised capital values	<b>59</b>	[c-i-c]	Model 2 revised for year zero treatment and related addition of fifth year demand and costs plus addition of revised capital values provided by Telstra and 'reasonable' adjustments by CMPI
4. Capex treatment corrected plus revised capital values, connection and wholesale costs	<b>52</b>	[c-i-c]	Model 3 with CMPI adjustments to ULLS connection group and wholesale management costs
5. CMPI demand estimates (400 000)	<b>30</b>	<b>46</b>	<b>Model 4 with demand estimates recommended by CMPI</b>
5a. CMPI demand estimates (350 000)	<b>34</b>	<b>52</b>	Model 5 <i>sensitivity test</i> with lower demand estimates
5b. CMPI demand estimates (450 000)	<b>28</b>	<b>42</b>	Model 5 <i>sensitivity test</i> with higher demand estimates

(a) Whereas the annual charge is produced using cumulative demand, the once-off charge is produced using the number of connections occurring in each year (simple demand).

#### **Industry comments on ULLS-specific costs**

One industry participant disagreed with many material aspects of the consultants' report and thought it reflected a misunderstanding of fundamental economic principles and the TSLRIC approach. It's major difficulties with the report concerned the demand estimates, TSLRIC methodologies and definitions used by the consultants.

Generally, other industry participants who were invited to comment on the consultants' report supported and endorsed the methodology applied by them and the conclusions contained in the report.

In relation to ULLS-specific costs, an industry participant contended that the total costs to provide the ULLS should not exceed \$5.5 million. They argued that these costs should be recovered over a total number of provisions of 2.5 million ULL services, which equates to a ULLS-specific charge of \$2.20 per provision, or 20 cents per month, recouped of a one-year period. It was suggested that a 9 per cent WACC and 10 year project life be used to provide this estimate.

It was stated that the consultants' recommendations represent an improvement on Telstra's cost model, but that further reductions should be made. While accepting many components of the consultants' draft report, the industry participant was critical of certain facets of the consultants' approach and the subsequent conclusions.

A contention was that Telstra's proposed costs do not indicate of what an efficient provider would incur. The industry participant argues that a greenfields approach should be used in assessing the reasonableness of Telstra's costs, consistent with the TSLRIC methodology. It was also opposed to the inclusion of any costs that have an ambiguous relationship to the ULLS in the calculation of a ULLS-specific charge. In particular, it argues against IT maintenance costs; mainframe and mid-frame processing costs; wholesale project management costs; and sales and marketing costs attributed to the ULLS wholesale product being included as part of recoverable costs.

Additionally, it was suggested that ACIF codes should not be used as a test for cost causality, and that the consultants' estimated demand for the ULLS is conservative. Regarding capital costs, there was a belief that the IT systems should be depreciated on a straight line basis over a 10-year period, and that a pre-tax WACC of between 6 and 9 per cent is appropriate for calculating the average cost of capital for the ULLS. It was also noted that Australia's ULLS prices are higher than those in most overseas jurisdictions in the US and Western Europe.

#### ***Consultants' response to industry comments***

The consultants believe that many of the industry participants' arguments were not well founded and did not provide a convincing case for changing the conclusions reached in their draft report. In particular, submissions tended to rely more on opinions and assertions of doubtful validity than it did on more objective evidence, and some of the critical comments reflected a misunderstanding of the findings in the draft report. The consultants also noted that the criticism of ACIF processes were misconceived as, while ACIF specifications were seen as a relevant consideration, they were only one factor in cost attribution.

The consultants found little evidence and objective data in support of arguments justifying changes to the conclusions reached in the draft report. The consultants found that while one submission repeatedly asserted that the consultants were in error or mistaken, but adduced little in the way of tangible, factual material to support those assertions. The consultants noted several instances where the submission made selective use of statements in the draft or otherwise misconstrued the conclusions reached. Overall, the consultants concluded that submission did not provide any compelling evidence justifying material changes to the conclusions reached.

Because no new evidence was produced the consultants' final report re-endorses the conclusions that Telstra's proposed ULLS-specific charge was considerably larger than could be reasonably justified by the available information.

Two major factors are responsible for this conclusion.

- IT development costs attributable to ULLS are substantially lower than originally estimated by Telstra. Further IT system development initiatives

identified by Telstra during the course of the review, which were not included in original estimates, were not considered to be attributable to ULLS.

- Demand estimates included in the original costing model were considered to be low and inconsistent with public statements by Telstra executives as well as other available evidence. While the consultants' independently derived forecasts of demand were criticised by Telstra for being overambitious and by an access seeker for being too low, the consultants remain confident that their estimates are realistic and consistent with market expectations.

#### **6.4 Commission's conclusions on ULLS-specific costs**

The Commission decided to accept the consultants' report on the review of Telstra's ULLS-specific costs for the reasons noted in their report. Essentially, there are two main categories of adjustment to Telstra's model that resulted in the consultant recommending a reduction in the charge for ULLS-specific costs to be reduced from [c-i-c] to \$46 on an once-off basis or \$137 to \$30 on an annual basis. As noted above, these are a reduction in Telstra's estimated costs associated with ULLS-specific costs and higher demand estimates than those submitted by Telstra. The Commission's conclusions on these two issues are detailed below.

##### ***Reduction of ULLS-specific costs***

The Commission noted that the independent consultants undertook a thorough and vigorous audit and review of the costs associated with ULLS-specific costs. In summary, the Commission accepts the view of the consultants that:

- IT development costs attributable to ULLS are substantially lower than originally estimated by Telstra;
- Telstra's estimated operational expenditures (notably Connection Group and Wholesale Management costs) were too high and required downward revision;
- the cost recovery should be over 5 years, beginning in July 2000; and
- the PSTN WACC should be applied.

##### ***Increased demand estimates for ULLS***

- The Commission acknowledges that forecasting demand for products or services includes a degree of uncertainty. This particularly applies to new products or services where there are no historical demand patterns or trends.
- In deciding, at this time, to accept the consultants' higher demand estimates, the Commission was influenced by the evidence the consultants had received, including demand experienced in overseas markets. Notwithstanding this decision, the Commission has decided that demand levels should be monitored. Actual ULLS demand would, of course, be relevant to the setting of charges in the future.

## 7. Benchmarking report

In its August 2000 discussion paper, the Commission reported some very limited information on charges for the ULL service in several other countries to compare to those proposed by Telstra. Since then, the Commission has engaged CMPI/AAS to undertake a benchmarking study of ULLS charges in other jurisdictions.

The consultants were initially tasked with performing a benchmarking study of Telstra's proposed ULLS-specific costs. This involved a comparison of Telstra's ULLS-specific costs with the costs of similar activities incurred by other 'like-for-like' companies. For example, comparison with other telecommunications carriers operating in similar environments in other countries and/or companies in other industries in Australia with similar IT based systems. However, due to a limited time frame and the paucity of appropriate comparable data from other jurisdictions and enterprises, the scope of the study was confined to rather limited publicly available information and the focus shifted to a comparison of ULLS charges more generally.

The consultants noted that the study was in any case a limited one and the data presented in the study should be interpreted with a high degree of caution.

To provide a more reasonable comparison, the charges in the study were based on a 24-month contract. Therefore, the ULLS charge in Australia was calculated as a sum of the connection charge and 24 monthly ULLS rental charges. All prices were listed in A\$ using purchasing power parity exchange rates.

To provide overall ULLS prices (for SIOs connected to an RSS/RSU or an IRIM), Australian charges were calculated as 25 per cent band 1 charge plus 75 per cent band 2 charges. The weights represent the expected distribution of xDSL take-up in these bands. For international prices, if a single price was listed, that price was used; however, if a range of ULLS prices was listed, the consultants used a 1<sup>st</sup> quartile price. A 1<sup>st</sup> quartile price is the value of the lowest price in the range plus one quarter of the difference between the lowest and highest price in the range.

While noting that many qualifications need to be attached to the comparisons, the consultants found that Australian pricing proposed by Telstra as well as that set by the Commission's interim determination appeared quite high by world standards. Both Telstra's proposed and the Commission's interim determination prices are higher than other prices compared in the above manner.

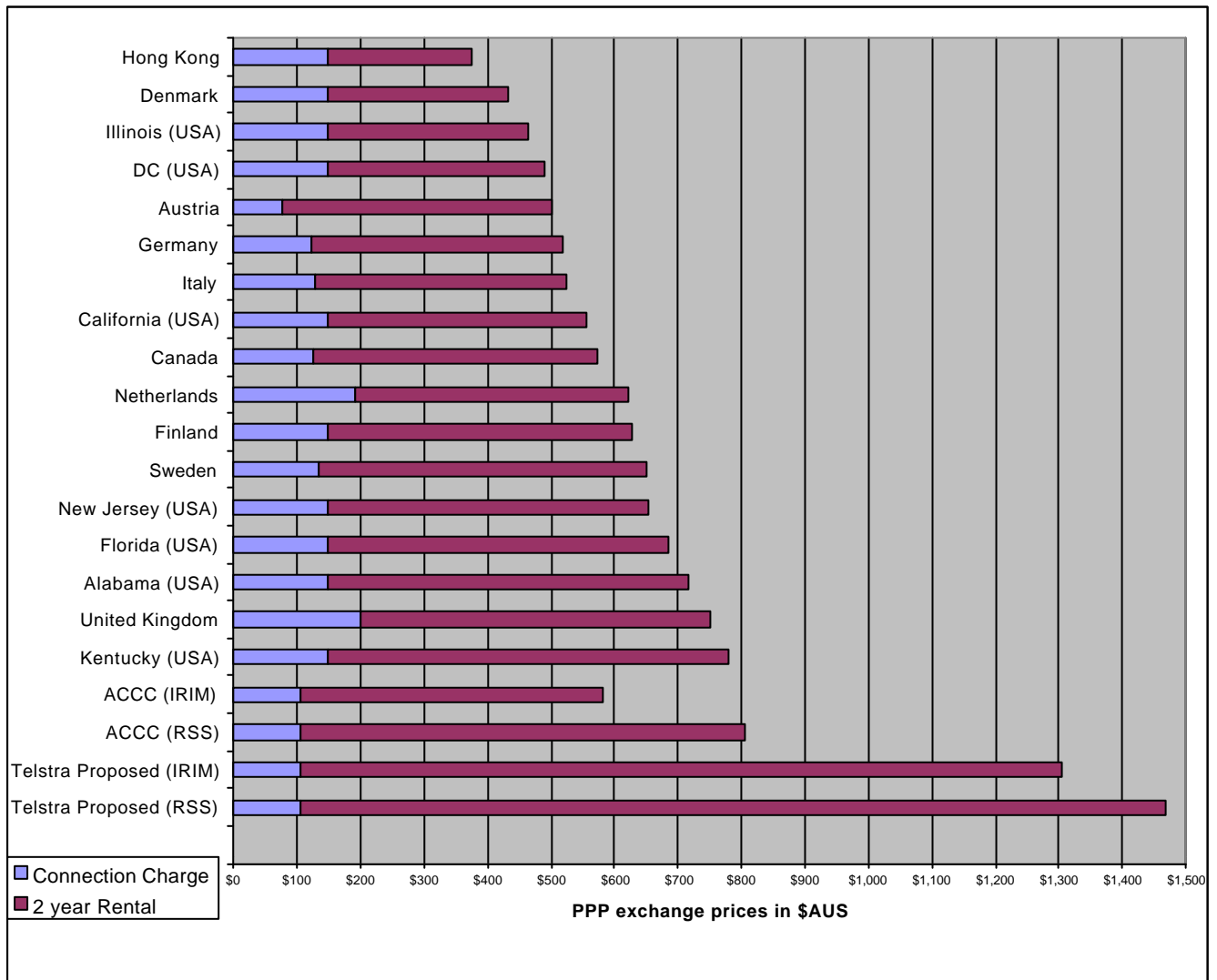
The consultants also found the following factors affect ULLS pricing:

- required pricing practices (TSLRIC or other);
- treatment of connection and disconnection charges in ULLS pricing;
- line density; and
- consumer demand (xDSL demand used as a proxy).

The consultants concluded that, even though the study was limited, Telstra’s proposed band 1 and band 2 charges were relatively high by international standards. They noted that should the Commission determine a lower rate in line with the consultants’ recommendations, the comparability of the Australian prices with those ruling overseas would be significantly improved.

Following the finalisation of the Commission’s views on the ULLS charge, and adhering to the consultants’ procedure in deriving overall ULLS prices (see above), the Commission has calculated the 2-year ULLS charge based on its final views of monthly ULLS charges. This is compared with Telstra’s proposed charges and international benchmarks below:

**Figure 3. International benchmarks**



The above figure indicates that the ACCC’s revised prices, while on the higher side, are comparable to international benchmarks.

## **8. Conclusion**

In this paper, the Commission has presented its views on an appropriate pricing methodology for the ULLS and concludes this should be based on TSLRIC principles, similar to those applied for PSTN declared services. However, it rejects the proposal to incorporate an ADC for this service. On the other hand, the Commission supports the de-averaging approach proposed by Telstra.

In relation to Telstra's proposed ULL prices themselves, the Commission has compared Telstra's network costs to the line cost estimates that would be derived from an appropriately modified n/e/r/a network cost model, which in most important respects is similar to that used for the PSTN undertaking exercise. This comparison is primarily intended to provide further guidance to market participants in their negotiations over supply to the declared ULLS. It is hoped that the scope of any price differences that currently exists between Telstra and access seekers for supply of this service will be narrowed significantly.

### **8.1 Commission's estimates of ULLS network costs**

The Commission has finalised its estimates of ULLS network cost and ULLS-specific costs as discussed in chapters 5 and 6. By combining both these elements, it is possible to provide estimates for the total charges for the ULLS as a whole.

Based on further revisions to its model (detailed above) the Commission has arrived at the estimates of ULLS network costs by connection type and band as shown in table 5 below. These are compared to Telstra's proposed charges for 2000–01. For the purposes of comparison, the Commission's monthly costs are calculated by first combining the annual network costs and ULLS-specific costs charged on an annual basis, then spreading these over 12 months. However, ULLS-specific costs may be charged on a once-off basis. For a more complete comparison on this basis, see attachment 1. The Commission's corresponding estimates for 2001 – 02 are summarised in table 6.



**Table 5. ACCC's and Telstra's ULLS charges (2000-01) — summary**

	<b>ACCC monthly total IRIM</b>	<b>ACCC monthly total RSS/RSU</b>	Telstra monthly total IRIM	Telstra monthly total RSS/RSU
2000/2001				
Band 1	-	<b>12</b>	-	38
Band 2	<b>20</b>	<b>35</b>	50	63
Band 3	<b>24</b>	<b>39</b>	63	70
Band 4	<b>60</b>	<b>59</b>	89	89

**Table 6. ACCC's ULLS charges (2001-02) — summary**

	<b>ACCC monthly total IRIM</b>	<b>ACCC monthly total RSS/RSU</b>
2001/2002		
Band 1	-	<b>13</b>
Band 2	<b>21</b>	<b>35</b>
Band 3	<b>24</b>	<b>39</b>
Band 4	<b>59</b>	<b>58</b>

## **8.2 Other ULLS related charges**

The Commission has not formed views on other ULLS related charges proposed by Telstra. The Commission has decided not to require the payment of such charges as a term of access to the ULLS, and encourages access seekers to resolve any disputes in relation to the payment of such charges by negotiation.

## Attachment 1

The Commission made further revisions to the network cost estimates. Based on further revisions to its model (detailed above) the Commission has arrived at the estimates of ULLS network costs by connection type and band as shown in table 7. Unlike in its previous views, the Commission has now included an option for access seekers to pay the ULLS-specific costs either up-front or on an annual basis.

**Table 7. Commission's ULL line cost estimates (\$ per line)**

	Annual IRIM	Annual RSS/RSU	ULL specific	Monthly IRIM (without ULLS specific)	Monthly RSS/RSU (without ULLS specific)
2000/2001			Now charged up-front (\$46 up-front or \$30 per annum.		
Band 1	-	116		-	10
Band 2	213	392		18	33
Band 3	258	437		21	36
Band 4	688	679		57	57
2001/2002					
Band 1	-	125		-	10
Band 2	218	391		18	33
Band 3	259	434		22	36
Band 4	680	669		57	56

Table 8 illustrates the Commission's views of ULLS line cost estimated at the time of its August 2000 discussion paper. Note these are not disaggregated according to type of connection (IRIM v RSS/RSU).

**Table 8. Commission's ULLS line cost estimates at the time of the August 2000 Discussion Paper**

	Annual network	Annual ULL specific	Annual total	Monthly total
Band 1	111	137	248	21
Band 2	222	137	359	30
Band 3	300	137	437	36
Band 4	468	137	605	50
Average	295	137	432	36

Telstra's equivalent proposed ULLS network costs and the total charges (including an access deficit adjustment that Telstra also proposes) are shown in table 9 below.

**Table 9. Telstra's proposed ULL line charges (\$ per line for 2000/01)**

	Annual IRIM	Annual RSS/RSU	Annual ULL specific	Annual access deficit contrib.	Monthly total IRIM	Monthly total RSS/RSU
Band 1	-	272	137	50	-	38
Band 2	414	572	137	50	50	63
Band 3	672	763	137	-56	63	70
Band 4	989	989	137	-56	89	89