



**Australian
Competition &
Consumer
Commission**

**Pricing Principles for
Non-geographic Number Portability
- a guide**

October 2003

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Abbreviations

ACA	Australian Communications Authority
CAC	Australian Competition and Consumer Commission
ACIF	Australian Communications Industry Forum
CSP	carriage service provider
ECPR	Efficient Component Pricing Rule
FLRNs	Freephone and Local Rate Numbers
IN	Intelligent Network
INMS	Industry Number Management Services Limited
NGNP	non-geographic number portability
PRNP	premium rate number portability
PSD	prime service deliverer
LTIE	long-term interests of end-users
TELSPA	Telephone Service Providers Association of Australia Inc

1. Introduction

On 3 July 2003, the Australian Competition and Consumer Commission (the Commission) issued directions to the Australian Communications Authority (ACA) under s. 458(2) of the *Telecommunications Act 1997* (the Act) requiring that number portability for premium rate services be mandated in the Numbering Plan.

By mandating number portability for premium rate services (PRNP), the majority of non-geographical numbers currently used in Australia are now portable.¹ The Commission previously mandated number portability for freephone '1800' and local rate '13' and '1300' numbers (FLRNs) in September 1997.

The lack of non-geographic number portability² (NGNP) represents an impediment to competition by 'locking-in' end-users to a particular CSP and making it difficult for new entrants to existing attract customers.

Under s. 462 of the Act, a CSP that holds a portable number in accordance with the Numbering Plan must provide number portability to another CSP on terms and conditions as agreed between the two parties. Where parties are unable to agree on the terms and conditions upon which number portability is provided, an arbitrator may be agreed between the parties to determine the terms and conditions. If the parties are unable to agree on a particular arbitrator, the Commission would then be required to undertake this role.

1.1. Overview of the Commission's pricing principles

The purpose of this document is to inform interested parties of the pricing principles the Commission will apply, in the usual case, where an arbitration dispute arises between a CSP holding the portable non-geographic number (the donor CSP)³ and the CSP to whom the end-user wants to port their number(s) (the recipient CSP).

The Commission recognises that in a multi-carrier environment the costs of NGNP extend beyond the direct costs incurred by the donor and recipient CSPs. Carriage service providers, other than the donor or recipient CSP, may incur costs when a customer changes CSP and ports their non-geographic number.⁴ Further, some CSPs might provide a commercial transit service for other CSPs and direct calls to the terminating CSP once the number has been ported.

Although the principles are not intended to unreasonably limit the outcomes of commercial negotiations, an indication of the approach the Commission is inclined to take if required to arbitrate a dispute may assist parties by narrowing the boundaries for those negotiations. For the same reason, these principles may also be a useful tool in

¹ Number portability does not currently apply to "Special Service" numbers specified in Schedule 4 of the Numbering Plan (eg. international, satellite, data network and operator services).

² The term non-geographic number portability is used to refer to Freephone, Local Rate and Premium Rate number portability.

³ The donor CSP is the CSP to which a non-geographic number has been allocated under the Numbering Plan.

⁴ For example, other CSPs (including pre-selected long-distance service providers) must ensure that calls originating on their network are routed to the appropriate terminating network once a number has been ported.

alternative dispute resolution processes.

The pricing principles set out below are intended to apply to all portable non-geographic numbers (ie. freephone, local rate and premium rate numbers).

The Commission, if it is required to arbitrate a dispute over the terms and conditions of the provision of NGNP will, in the usual case, allocate the costs of NGNP between the donor CSP and the recipient CSP as follows. Each CSP should be responsible for:

- all system set-up and maintenance costs;
- any additional call conveyance costs; and
- customer transfer costs

incurred in their own network to meet their obligations under the Numbering Plan to provide NGNP.

1.2. Industry submissions

Following the release of the draft pricing principles for NGNP in September 2003, the Commission received two submissions. **Attachment A** sets out the submissions received by the Commission to its draft pricing principles.

Optus submitted that it was supportive of the Commission's draft pricing principles:

Our general view is that it is important and appropriate to apply pricing principles to NGNP that are consistent with those applied to LNP [local number portability]. In particular, Optus supports the requirement that each CSP be initially responsible for its own costs and that CSPs be free to recover system set-up, call conveyance and customer transfer costs from customers at their own discretion. [Optus submission, 25 September 2003, p.1].

In contrast, Telstra submitted that it

... has fundamental concerns with number portability pricing principles that require CSPs to bear all of their own costs of providing number portability services.

As we have stated previously, number portability pricing principles that let all costs lie where they fall effectively mean that Telstra customers subsidise the costs of competing CSPs.

... appropriate pricing principles should be technology neutral and should allow cost-based pricing to be applied to NGNP services supplied by the donor CSP to the recipient CSP. [Telstra submission, 3 October 2003, p.1-2].

1.3. Structure of the guide

The discussion of the pricing principles for NGNP is divided into a number of parts. **Chapter 2** describes the relevant legislative background. **Chapter 3** briefly describes a number of technical methods that may be used to provide NGNP and their respective cost structures. In **Chapter 4**, the legislative criteria are discussed with specific reference to the pricing of NGNP. **Chapter 5** outlines the approach used by the Commission in developing these pricing principles. **Chapter 6** of the paper discusses relevant issues associated with the allocation of the costs of NGNP. Finally, **Chapter 7** presents the Commission's views on the appropriate pricing principles for NGNP.

The pricing principles detailed in this guide constitute the general approach the Commission currently intends to take in the usual case. The Commission's approach to pricing NGNP may not be static. This guide reflects the Commission's approach based on knowledge and experience to date.

2. Legislative background

The main objectives of the Act, when read together with Parts XIB and XIC of the *Trade Practices Act 1974*, are to promote the long-term interests of end-users (LTIE) of carriage services or of services provided by means of carriage services, and to promote the efficiency and international competitiveness of the Australian telecommunications industry.⁵

Section 455(1) of the Act provides that the ACA must, by written instrument, make a plan for the numbering of carriage services in Australia and the use of numbers in connection with the supply of such services. Section 455(5)(d) of the Act states that the Numbering Plan may set out rules about the portability of allocated numbers (including rules about the maintenance of, and access to, databases that facilitate portability). Section 458(2) of the Act confers on the Commission the power to give written directions to the ACA in relation to the rules the ACA can include in the Numbering Plan regarding number portability. In exercising its power, the Commission must have regard to whether portability of particular allocated numbers is required in order to promote the LTIE of carriage services or of services supplied by means of carriage services.⁶ Whether a particular thing promotes the LTIE is to be assessed with reference to the following objectives:

- promoting competition in markets for listed services;
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and
- encouraging the economically efficient use of, and the economically efficient investment in, the infrastructure by which listed services are supplied.⁷

On 3 July 2003, the Commission issued directions to the ACA under s. 458(2) of the Act requiring that number portability for premium rate services be mandated in the Numbering Plan. In making the direction, the Commission formed the view that PRNP is required in order to promote the LTIE.⁸ This matter will not be revisited in this document.

Under s. 462 of the Act, a carrier or CSP required by the Numbering Plan to provide NGNP must comply with that requirement on such terms and conditions as are commercially agreed between the two parties, or failing agreement, determined by an arbitrator appointed by the parties. If the parties fail to agree on the appointment of an arbitrator, the Commission is to be the arbitrator.⁹

Under s. 8 of the *Telecommunications (Arbitration) Regulations 1997*, the Commission must take the following matters into account in making an arbitration determination:

⁵ Telecommunications Act 1997 (Cth), s. 3.

⁶ Telecommunications Act 1997 (Cth), s. 458(5).

⁷ *Telecommunications Act 1997* (Cth), s. 458(6) which refers to the definition of 'long-term interests of end-users' in the *Trade Practices Act 1974* (Cth), s. 152AB(2).

⁸ Australian Competition and Consumer Commission, ACCC directions to the Australian Communications Authority on premium rate number portability, 3 July 2003.

⁹ *Telecommunications Act 1997* (Cth), s. 462(1) and (2).

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- the legitimate business interests of the parties, and the parties' investment in facilities used to supply the relevant service;
- the interests of all persons who have rights to use the service;
- the direct costs of providing access to the service;
- the operational and technical requirements for the safe and reliable operation of a telecommunications network, or facilities used to supply carriage services;
- the economically efficient operation of a carriage service, a telecommunications network or a facility;
- whether the determination will promote the LTIE of carriage services or services supplied by means of carriage services;^{10, 11} and
- any other matters the Commission considers relevant.¹²

¹⁰ Whether a determination will promote the LTIE of carriage services or of services supplied by means of carriage services is to be determined in the same way as the question is determined for Part XIC of the *Trade Practices Act 1974* (that is, in accordance with s. 152AB of the *Trade Practices Act 1974*): *Telecommunications (Arbitration) Regulations 1997*, s. 8(2).

¹¹ *Telecommunications (Arbitration) Regulations 1997*, s. 8(1)(a)-(f).

¹² *Telecommunications (Arbitration) Regulations 1997*, s. 8(3).

3. Technical background

Number portability allows customers, who have rights of use over their number(s), to change their CSP and retain the same number(s).

There are potentially a number of different technical methods of providing NGNP. The appropriate method of providing NGNP is uncertain and may differ from case to case and CSP to CSP depending on a range of factors including:

- the number of calls to ported numbers;
- network design;
- the demand for other services; and
- expectations concerning future technology.

Overall, however, so long as the CSP meets its obligations under the Numbering Plan to provide NGNP, the technology employed is the choice of each CSP.

The purpose of this Chapter is to describe a few of the technical methods of providing NGNP that appear of most relevance for Australia and discuss the different costs of providing NGNP using these methods.

3.1. Methods of providing NGNP

3.1.1. Call forwarding (facility re-direct)

Facility re-direct is a call forwarding device. Calls to ported numbers travel through the donor CSP's network until they reach their destination local exchange (ie. the local exchange to which the party receiving the call (the 'B-party') was connected to before changing CSP and porting the number). The destination local exchange recognises the number has been ported and re-routes the call to the recipient network via a point of interconnection.

3.1.2. Call drop-back

Call drop-back is an enhancement of the facility re-direct solution. It involves passing the signal to the destination local exchange during the call set-up phase to determine whether the call is to a ported number. If the call is to a ported number, the call path to the recipient CSP is established directly, and the donor CSP's destination local exchange takes no further part in the call.

3.1.3. Intelligent network solutions

An intelligent network (IN) solution involves the interrogation of a database (whether or not calls are to a ported number). The database contains information on the appropriate routing of calls to ported numbers. If the call is to a ported number then it is directed to the recipient CSP's network via a point of interconnection. If the call is not to a ported number, it is routed as normal.

There are a number of possible IN solutions. The major difference among them is where in the donor CSP's network the databases are located. The earlier in the routing of the call the database is interrogated, the more efficient will be the routing of the call. However, the earlier in the network the database is interrogated, the more calls to non-ported numbers that must interrogate the database.

3.2. Costs of providing NGNP

The costs of providing NGNP can broadly be divided into three categories.

First are the costs that are unrelated to the number of calls to ported numbers. These costs are in the main incurred in establishing and maintaining the capability to provide NGNP (*system set-up and maintenance costs*). These costs include the costs of conditioning exchanges and establishing and maintaining databases.

Second are the costs that vary with the number of calls made to numbers ported from the donor CSP's network. These costs are in the main the additional costs associated with delivering calls to ported numbers (*call conveyance costs*). These costs include any additional switching and transmission required for calls to ported numbers, as well as the costs of expanding the capacity of the network to cater for calls to ported numbers. In part, these costs depend on the number of end-users who port their number.

Third are the once-off costs the donor CSP incurs each time an end-user ports their number to another CSP (*customer transfer costs*).

Different technical solutions for NGNP have different ratios of these costs.

Facility re-direct involves relatively low system set-up costs as it is established within the existing network structure. However, as calls to ported numbers using facility re-direct can create an additional loop for the duration of the call, (referred to as tromboning), facility re-direct requires additional switch processing, switching capacity and transmission capacity for each call to a ported number and hence involves relatively high call conveyance costs.

Call drop-back involves higher system set-up costs than facility re-direct, but as a signal to the destination exchange during the call set-up phase determines if the call is ported (rather than the call going through the destination exchange for its duration) it avoids tromboning and some of the call conveyance costs involved in a facility re-direct solution.

IN solutions involve relatively high system set-up costs, but low call conveyance costs. The costs of software, network alterations and establishing databases and query points in the network for an IN solution are usually quite high (relative to facility re-direct). But as the IN solution routes calls to ported numbers via a more direct route through the network (using less elements of the network), the call conveyance costs are usually lower relative to facility re-direct.

Once an IN technology (database) has been set-up, CSPs may be able to provide a range of other services at low marginal cost including, for example, PRNP.

The customer transfer costs also differ depending on which solution to NGNP is used. If an IN solution is used, customer transfer primarily often involves the updating of a central database. For facility re-direct it involves re-programming the local exchange and can potentially be more costly.

Identifying the most cost efficient (lower cost in total) method of providing NGNP is difficult. The most cost efficient method is uncertain and will differ according to a number of factors including the:

- number of calls to ported numbers;
- number of competing CSPs; and

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- design and technology of the donor CSP's network.

For instance, given the nature of the costs of facility re-direct and IN solutions for NGNP (*low system set-up and high conveyance* versus *high system set-up and low conveyance*), there may be a proportion of calls to ported numbers above which it becomes more cost efficient to use an IN solution. However, this in itself may depend on the location of the IN databases in the donor CSP's network.

The choice of the most efficient method of providing NGNP, subject to meeting the requirements of the Numbering Plan, is a matter for each CSP to determine. Although these pricing principles are designed to encourage efficient choices of the methods to provide NGNP, they do not aim to limit those choices. Nor are they predicated on any particular choice of porting model.

The Commission understands that the technical model to be used to provide PRNP will be the same or similar to that used to provide freephone and local rate number portability (ie. using the INMS system).

The INMS is a not-for-profit organisation that was established by CSPs in December 1997 to facilitate the allocation and portability of FLRNs¹³. It should be noted that the Commission has not been requested to arbitrate any disputes over freephone or local rate number portability. The Commission believes that lack of disputation may, in part, be due to the professional services provided by the INMS to its members.

The pricing principles have been developed on the basis that the INMS system will be used to provide portability for non-geographic numbers.

In addition, the pricing principles outlined below are consistent with those developed for both local number portability and mobile number portability (MNP). In the case of MNP, however, the pricing principles also took into consideration the choice of technical solution adopted by donor CSPs and its impact on call conveyance costs.¹⁴

In its submission, Telstra stated that:

The ACCC ... seems to assume in its draft guide that because a number is portable it will be allocated from a number pool managed by the INMS. This is not correct, the benefits and costs of a pooled allocation of numbers... is an entirely separate matter for consideration and requires input from the Australian Communications Authority.

Whilst this view is correct in relation to premium rate numbers, the Commission understands that the ACA delegated its numbering responsibilities under the Numbering Plan to the INMS, which included the establishment of a pooled allocation approach for FLRNs. That said, the Commission is aware that this is an issue that will need to be considered by the ACA as part of its deliberations on implementing premium rate number portability.

¹³ On 16 November 2000, the ACA delegated the relevant Numbering Plan powers to the INMS to provide for the management of FLRNs.

¹⁴ The technical solution used to provide MNP (known as the 'Hybrid Model') contains a number of different technical solutions (eg. a donor-based routing model, an internal IN model and an external IN model).

4. Legislative criteria and pricing principles for NGNP

In this Chapter the legislative criteria the Commission must consider if it is required to arbitrate a dispute over the terms and conditions of NGNP are discussed. The discussion examines each of the legislative criteria and draws implications for the pricing of NGNP. The criteria are interdependent — in some cases promoting one criterion will promote another — in other cases, the criteria may conflict.

4.1. Whether the determination will promote the LTIE of carriage services or of services supplied by means of carriage services

The LTIE will, in general, be promoted by lower prices (that are sustainable), higher quality and greater choice of products and services. Section 152AB of the *Trade Practices Act 1974* provides that in determining whether a particular thing promotes the LTIE, regard must be had of the extent to which the thing is likely to result in the achievement of the following objectives:

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

4.1.1. Promoting competition in markets for telecommunications services

The 1997 telecommunication reforms were concerned with opening up to competition potentially competitive markets that are dependent on the services of telecommunications infrastructure (dependent markets). Competition constrains the market power of individual prime service deliverers (PSDs)¹⁵/CSPs and creates the incentives for PSDs/CSPs to maximise the benefits to end-users at minimum cost.

Competition and its consequent constraints on the behaviour of PSDs/CSPs is likely to be greater where PSDs/CSPs can easily enter and exit the market and can compete on their relative merits based on price (cost), quality and the range of services they provide. One factor that will influence the extent to which PSDs/CSPs can compete on their relative merits is the degree to which end-users are ‘locked-in’ to their current PSD/CSP.

NGNP provides end-users with the ability to change from one PSD/CSP (of non-geographic services) to another whilst retaining the same number(s). As such, NGNP can reduce the costs incurred by end-users in changing their provider of non-geographic services and promote competition in the provision of premium rate and other telecommunications services.

¹⁵ Prime service deliverer means in respect of a standard telephone service, the service deliverer selected by the customer for the carriage of all preselectable calls originating from that standard telephone service.

It follows that pricing principles for NGNP should allow PSDs/CSPs to enter, attract end-users and remain viable in the long-term based on their relative merits, which in turn depends upon their costs (including their costs of providing NGNP), and the quality and range of services they supply. In this regard, pricing of NGNP should allow for efficient entry and exit in the provision of non-geographic services and other telecommunications services.

4.1.2. Any-to-any connectivity

As stated in Section 152AB(8) of the *Trade Practices Act 1974*:

... the objective of any-to-any connectivity is achieved if, and only if, each end-user who is supplied with a carriage service that involves communication between end-users is able to communicate, by means of that service, with each other end-user who is supplied with the same service or a similar service, whether or not the end-users are connected to the same telecommunications network.

Pricing principles for NGNP should be consistent with achieving any-to-any connectivity. In particular, pricing principles for NGNP should not encourage PSDs/CSPs to provide a portability solution that lowers the quality or reliability of providing non-geographic services.

4.1.3. Encouraging economically efficient use of, and investment in, telecommunications infrastructure

The economically efficient use of, and investment in, infrastructure involves many elements. PSDs/CSPs should have the appropriate incentives to invest, innovate, improve the range and quality of services, increase productivity and lower costs through time. PSDs/CSPs should also have appropriate incentives to produce services at least cost, and production activities should be distributed among PSDs/CSPs so that industry-wide costs are minimised. Further, PSDs/CSPs should employ resources to produce services that provide the maximum benefit to society.

When considering the implications of pricing principles for NGNP for these elements, it is useful to divide the discussion into two parts:

- the economically efficient use of, and investment in, infrastructure to provide NGNP; and
- the economically efficient use of, and investment in, infrastructure to provide non-geographic services and other telecommunications services.

4.1.4. The economically efficient use of, and investment in, infrastructure to provide NGNP

In regard to pricing principles for NGNP, three issues are particularly important:

- providing incentives for PSDs/CSPs to minimise the costs of providing NGNP;
- providing appropriate signals to encourage 'efficient' porting of non-geographic service numbers by end-users; and
- providing incentives for PSDs/CSPs to provide appropriate levels of quality of NGNP.

Providing incentives for PSDs/CSPs to minimise the costs of providing NGNP

Pricing principles for NGNP should provide appropriate incentives for PSDs/CSPs to minimise their costs of providing NGNP consistent with the required level of quality

and reliability of the service specified by the ACIF code: No. C519 'End to end network performance industry code' (the ACIF code) at any time.

Providing appropriate signals to encourage 'efficient' porting of non-geographic numbers

Pricing principles for NGNP should encourage the 'efficient' porting of numbers. Having decided to change their PSD/CSP, end-users should port their number(s) only when the benefits of porting exceed the costs of providing NGNP.

The relevant costs, in this regard, are the additional call conveyance costs (including commercially negotiated transit service costs, where applicable) and customer transfer costs. These costs are avoided if customers change their PSD/CSP but decide not to port their numbers (although there will still be some costs associated with allocating new numbers to the customers).

The benefits to customers of porting their number result from avoiding the costs of a number change. These include the costs of informing potential callers of the number change and the costs of missing calls.¹⁶

For the efficient use of infrastructure to provide NGNP, end-users should port their number(s) only if the benefits to them outweigh the additional call conveyance and customer transfer costs. Pricing principles for NGNP should provide end-users with the appropriate incentives for 'efficient' porting.

Providing incentives for PSDs/CSPs to provide acceptable and appropriate levels of quality of NGNP

As noted above, PSDs/CSPs must provide a portability solution that meets certain quality levels specified by the ACIF code. However, over and above these requirements, pricing principles for NGNP should not unnecessarily limit PSDs/CSPs from agreeing, on a commercial basis, a quality level above the minimum specified by the ACIF code. These higher levels of quality may be provided at a price, or at a premium upon any price agreed or determined for the minimum level.

4.1.5. The economically efficient use of, and investment in, infrastructure to provide non-geographic services and other telecommunications services

The primary mechanism to encourage the economically efficient use of, and investment in, infrastructure to provide non-geographic services is competition. It is widely held that competition (or the threat of competition) is the most effective way of encouraging PSDs/CSPs to innovate, improve productivity, minimise costs of providing services and improve the range and quality of services. Competition also provides incentives to use infrastructure and invest to provide non-geographic services to maximise benefits

¹⁶ More generally, there are three types of benefits of NGNP to end-users:

Type 1 benefits - those which flow directly to end-users arising from a lowering of their switching costs when changing PSD/CSP;

Type 2 benefits - those which arise from the intensification of competition caused by the provision of number portability, which leads to lower prices and improvement in the quality of telecommunications services to all end-users; and

Type 3 benefits - those that flow to end-users who call ported numbers being able to more easily locate these premium rate services.

to end-users.

NGNP will increase the ability of more efficient PSDs/CSPs to displace less efficient PSDs/CSPs in the provision of non-geographic services. The provision of NGNP, by removing a barrier to entry and competition, also reduces the ability of PSDs/CSPs to maintain artificially high prices, resulting in the more efficient use of telecommunications infrastructure. Pricing principles for NGNP should not inhibit the development of competition or unnecessarily reduce the competitive benefits that NGNP can generate.

However, care must be taken not to encourage inefficient entry. Pricing principles for NGNP should not discourage PSDs/CSPs that can provide high quality services at least cost from entering and providing non-geographic services. Conversely, the pricing principles should not cause inefficient high-cost PSDs/CSPs to remain viable in the long-term.

Further, NGNP involves customer transfer costs and additional call conveyance costs (when terminating calls to a ported number). An end-user should change PSDs/CSPs, and keep the same number(s), only if the cost reduction achieved by the customer's new PSD/CSP for providing non-geographic services is greater than the customer transfer costs and additional call conveyance costs to get calls to the customer's ported number.

4.2. The legitimate business interests of the parties, and the parties' investment in facilities used to supply the relevant service

Most often the parties to a dispute will be PSDs/CSPs providing competing non-geographic services. Regard to the legitimate business interests of parties requires that PSDs/CSPs be allowed to compete on their relative merits, in terms of their costs, quality and range of services they provide. It also requires that PSDs/CSPs should be allowed to meet their contractual commitments and have control over the use of their own network. In regard to the parties' investment in facilities, PSDs/CSPs should be allowed to at least recover a normal commercial return on prudent investment (inclusive of risk). It is unlikely 'legitimate business interests' extends to achieving a higher than normal commercial return through the use of market power.

Providing NGNP involves significant investment by all PSDs/CSPs. Pricing principles should allow efficient PSDs/CSPs to recover the costs of these investments and the costs of providing NGNP more generally. In any competitive market it is ultimately end-users who bear the costs incurred by an efficient firm in doing business. This should be kept clearly in mind when determining whether the pricing principles allow each PSD/CSP to recover the costs of NGNP.

4.3. The interests of all persons who have rights to use the service

As indicated in Chapter 2, under the Numbering Plan it is ultimately end-users that have rights of use of non-geographic numbers. Once a number(s) has been allocated, an end-user has the right to port their number(s) to another provider of non-geographic services. The interests of end-users include allowing them to reap the rewards of their investments in their number(s) and not be unduly restricted in their choice of PSD/CSP. As a result, pricing principles for NGNP should not allow the appropriation of the good will or capital that customers have invested in a number(s).

4.4. The direct costs of providing access to the service

Direct costs are those costs necessarily incurred in the provision of NGNP. As stated in the *Trade Practices Amendment (Telecommunications) Bill 1996* Explanatory Memorandum:

... '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.¹⁷

This requires that the price for NGNP should not be inflated to recover any profits the PSD/CSP (or any other party) may lose in a dependent market as a result of the provision of NGNP. In particular, the Efficient Components Pricing Rule (ECPR) — opportunity cost pricing — may be inconsistent with this criteria.¹⁸ Therefore, any charges between PSDs/CSPs for NGNP should, in the general case, be based on the direct costs of providing NGNP.

4.5. The operational and technical requirements for the safe and reliable operation of a telecommunications network, or facilities used to supply carriage services

Pricing principles for NGNP should not encourage arrangements between PSDs/CSPs or incentives for particular PSDs/CSPs that lead to the unsafe or unreliable operation of a telecommunications network or facilities used to supply carriage services. Nor should the pricing principles inhibit PSDs/CSPs from operating their network in a safe or reliable manner.

4.6. The economically efficient operation of a carriage service, a telecommunications network or a facility

This criterion is similar to the economically efficient use of, and investment in, infrastructure to provide non-geographic services and other telecommunications services described above. Pricing principles should encourage PSDs/CSPs to select the least-cost method of providing NGNP given the required level of quality and reliability. Pricing principles should not unreasonably limit PSDs/CSPs from reaping economies of scale and scope in their own networks. Further, pricing principles for NGNP should not encourage PSDs/CSPs to employ methods of providing NGNP that impose unnecessary costs on other PSDs/CSPs.

From the above discussion of the legislative criteria, a number of issues are particularly relevant when assessing pricing principles for NGNP. They are the:

- implications for entry and competition in the provision of non-geographic services;
- incentives for PSDs/CSPs to select efficient solutions to provide NGNP;
- ability of PSDs/CSPs to recover the costs of providing NGNP;
- incentives for the 'efficient' porting of numbers;
- implications for the industry-wide costs of providing non-geographic services;

¹⁷ Trade Practices Amendment (Telecommunications) Bill 1996 – Explanatory Memorandum, page 44.

¹⁸ ECPR bases price on the incremental cost of providing a service plus the opportunity cost to the service provider of losing business in related markets.

Pricing Principles for Non-geographic Number Portability

- incentives for PSDs/CSPs to provide appropriate levels of quality and reliability of NGNP; and
- ability of end-users to reap the rewards of investments in their number(s).

5. Commission's approach to determining pricing principles for NGNP

Given the legislative criteria and the implications for the pricing of NGNP, the Commission has adopted a three-stage approach to developing pricing principles for NGNP.

Stage one involves considering whether there should be any payments between PSDs (with routing obligations), donor CSPs and/or recipient CSPs for the provision of NGNP. This basically involves answering the question of which party should initially be responsible for each of the costs of NGNP.¹⁹

Stage two involves determining, if there are to be payments for NGNP, whether such payments should be cost based. In light of the legislative requirements for the Commission to consider the direct costs of providing NGNP; the interests of all persons who have rights to use the service; and the economically efficient use of, and investment in, infrastructure to provide non-geographic services and other telecommunications services; any charge to be paid by a PSD and/or a donor CSP to a recipient CSP for NGNP should be based on the costs of providing NGNP.

Stage three involves determining the appropriate cost base upon which any payment between PSDs, donor CSPs and recipient CSPs for NGNP should be calculated. For example, should any payment for NGNP be based on short run marginal cost, incremental cost, fully distributed cost or some other costing method?

If in stage one it is decided that there is to be no payment between PSDs, donor CSPs and/or recipient CSPs, stages two and three are not required.

¹⁹ Even though the PSDs/CSPs will initially be responsible for these costs, it is likely that end-users will ultimately bear most of these costs (through higher prices). As discussed below, which end-users bear these costs will depend upon which PSD and/or CSP is initially responsible for these costs.

6. Allocation of the costs of NGNP

The purpose of this Chapter is to consider the appropriate initial allocation of the costs of providing NGNP between PSDs (with routing obligations), donor CSPs and the recipient CSP. This represents stage one of the process outlined in Chapter 5.

Two approaches to allocating the costs of NGNP are assessed in relation to each of the relevant issues derived from the legislative criteria. The cost allocations are:

- **each CSP is initially responsible for the costs incurred in their own network to provide NGNP** (*each CSP is responsible for their own costs*); and
- **the donor CSP recovers the costs incurred in its own network to provide NGNP from the recipient CSP** (*donor CSP recovers costs from the recipient CSP*).

Although much of the discussion focuses on these cost allocations, the Commission also considered approaches where these costs are shared between the donor CSP and the recipient CSP. In particular the Commission considered:

- allocating a proportion of each of the cost types to the donor CSP and the recipient CSP (for example, allocating a proportion of call conveyance costs to each CSP); and
- allocating in turn each of the cost types (system set-up, call conveyance and customer transfer costs) to the donor CSP and the recipient CSP.

It should be again stressed that this is an initial allocation of costs. Once this allocation is made it is at the discretion of each CSP to determine whether and how to recover these costs from its customers.

6.1. Entry and competition in the provision of non-geographic services

As indicated in Chapter 4, the pricing of NGNP should allow CSPs to enter, attract end-users and remain viable in the long-term based on their relative costs (including the costs of providing NGNP in their own network), and the quality and range of services they can provide.

Each CSP is initially responsible for its own costs

If each CSP is responsible for its own costs of providing NGNP, both the donor CSP and the recipient CSP will be able to compete and attract end-users based on their relative merits (including their relative costs of providing NGNP). In this sense this allocation of the costs of providing NGNP does not advantage one CSP over other CSPs.

Donor CSP recovers costs from the recipient CSP

If the donor CSP recovers the costs of providing NGNP in its own network from the recipient CSP, the degree to which the relative merits of the CSPs will determine its long-term viability will be weaker. If the recipient CSP is more cost efficient in providing NGNP, it will not be able to pass those benefits onto its customers. Rather, the ability of the recipient CSP to compete will depend upon the cost efficiency of the

donor CSP in providing NGNP (rather than its own cost efficiency). Further, if the donor CSP recovers its costs from the recipient CSP, there may be an incentive for the donor CSP to disadvantage its competitor (the recipient CSP) by adopting a high-cost method of providing NGNP (see discussion below). This will increase the likelihood of efficient entry being deterred and for inefficient exit to occur.

As noted above, Telstra submitted that it has a fundamental concern with the principle that requires carriage service providers (CSPs) to bear all of their own costs of providing number portability as it believes this effectively means that Telstra customers subsidise the costs of competing CSPs.

If each CSP is initially responsible for the system set-up, call conveyance costs and customer transfer costs of NGNP in its own network, the long-term viability of CSPs will largely depend on their relative merits based on their costs (including the cost of providing NGNP in their own network), and the quality and range of services they can provide. Further, if the donor CSP can recover the costs of NGNP from the recipient CSP, there is the prospect for efficient entry to be deterred and inefficient exit to occur.

6.2. Incentives for CSPs to select efficient solutions to provide NGNP

As detailed in Chapter 4, pricing of NGNP should encourage CSPs to select the technical method that provides NGNP at minimum cost for a given level of quality and reliability.

Each CSP is initially responsible for its own costs

If each CSP is responsible for its own system set-up, call conveyance and customer transfer costs of providing NGNP, CSPs have the appropriate incentives to select the most efficient technologies to minimise these costs.

Donor CSP recovers costs from the recipient CSP

If the donor CSP recovers these costs from the recipient CSP, the incentives are reversed. The donor CSP has the incentive to gain an advantage over its competitors (recipient CSPs), by selecting the technology that maximises the costs of NGNP.

These incentives are magnified as the donor CSP will not have to bear any of the costs of selecting an inefficient technology and the recipient CSPs must bear all these costs. This differs from the incentives faced by providers of many declared services under Part XIC of the *Trade Practices Act 1974* (such as PSTN originating and terminating access). For access services, the incentives to adopt inefficient technologies are far weaker, as the access provider usually provides the same services to its own downstream operations as well as access seekers. Unlike the donor CSP, the access provider will have to bear a proportion of the costs of adopting an inefficient technology.

Similar issues arise if the donor CSP can only recover the call conveyance and customer transfer costs from the recipient CSP. In this case, the donor CSP has an incentive to employ a solution for NGNP that has high call conveyance and customer transfer costs even if it is more efficient to use a different solution.

Encouraging CSPs to adopt efficient technology is important given the size of the

system set-up and call conveyance costs of NGNP. Providing incentives to make inefficient choices will impose substantial additional costs, which in the end will be to the detriment of the LTIE.

One possible approach is to limit the costs CSPs can recover to those of providing NGNP using the most efficient solution. There are practical difficulties with this approach. First, as the most efficient solution may differ from one CSP to another, it risks the selection by the Commission of an inappropriate technical solution. Second, even when the technology has been selected, there are incentives for these costs to be overstated.²⁰

Another approach is to share the donor CSP's costs of providing NGNP between the donor and recipient CSPs. If the donor CSP must bear some of the costs of providing NGNP in its own network, it will have a greater incentive to select the most cost efficient solution. This will depend upon the proportion of the costs that are borne by the donor CSP. The greater this proportion, the greater the incentive for the donor CSP to choose an efficient solution.

Creating incentives to encourage CSPs to adopt an efficient technology for providing NGNP is important given the size of the costs of NGNP. This can best be achieved if each CSP is initially responsible for its own system set-up, call conveyance and customer transfer costs of NGNP. It should be noted that by having each CSP being initially responsible for the costs of NGNP is not based on any presumption that one method of providing NGNP is superior to another. Rather, a desirable property of this approach is that it does not in any way affect each CSPs choice of method to provide NGNP.

6.3. Ability of CSPs to recover the costs of providing NGNP

The pricing of NGNP should allow an efficient firm to achieve a normal commercial return on investment and a recovery of costs, including on the investment and the costs associated with providing NGNP.

Under each of the different ways of allocating the costs of NGNP between the donor CSP and recipient CSP, there is scope for an efficient CSP to recover the full costs of providing NGNP.

Each CSP is initially responsible for their own costs

If each CSP is initially responsible for its own costs of providing NGNP, the question becomes one of how will an efficient provider of non-geographic services recover the system set-up, call conveyance and customer transfer costs?

In answering this question, it must be stressed that it is likely that ultimately end-users will bear the costs of NGNP. Offset against these costs, however, are the competitive benefits NGNP generates, including an improved bargaining position for content providers, lower prices, improved services and more efficient investment in network infrastructure.

²⁰ One possible approach for the Commission is to use information sourced independently of the parties to determine these costs, such as international benchmarks, or the costs incurred by other CSPs in the industry in implementing NGNP.

Taking the call conveyance and customer transfer costs first, these costs are incurred when an end-user changes their CSP and opts to keep their number. These costs are similar to other exit costs incurred in a large number of competitive markets when customers change the provider of services. In competitive markets, service providers recover these costs from their customers. For example, in some industries firms charge higher service fees or negotiate contracts with minimum service periods and exit charges for the early termination of contracts. In other cases, these costs are recovered through up-front fees.

In terms of NGNP, it is important to note that each CSP providing non-geographic services must (unless exempted by the ACA) provide NGNP. As a result, each CSP has the scope to recover the efficient costs of NGNP from their end-users.²¹ How each CSP recovers these costs from its end-users is a decision for each CSP.

System set-up costs of NGNP are akin to most other costs CSPs face in the non-geographic services market. All CSPs providing non-geographic services must provide NGNP and hence incur system set-up costs. The Commission is of the view, however, that an efficient CSP would be able to recover their costs from end-users. How each CSP decides to recover these costs is entirely at its own discretion.

Donor CSP recovers costs from the recipient CSP

The logic above also applies if the donor CSP recovers the costs of providing NGNP from the recipient CSP. In this case, the costs are initially recovered from the recipient CSP who will recover them from end-users either on a call by call basis or through up-front fees.

Irrespective of which CSP is initially responsible for the costs of number portability, there is scope for CSPs to recover the costs of NGNP. How CSPs choose to recover these costs from customers is at their own discretion.

6.4. ‘Efficient’ porting of non-geographic numbers

To encourage the ‘efficient’ porting of non-geographic numbers, end-users should face incentives to port their numbers only if the benefits (including price and the quality of service) to them outweigh the costs of NGNP. In this regard, the relevant costs are the additional call conveyance costs and the customer transfer costs.²² These are the costs that are incurred if an end-user decides to port his/her number. For efficient porting of non-geographic numbers, end-users must be signalled the costs of doing so. Whether this is the case depends on the manner in which CSPs structure their charges.

The Commission, in its role as the arbitrator, has no jurisdiction over how CSPs structure their charges. The discussion below considers whether the manner in which the costs of NGNP are allocated between the donor and recipient CSP limit the extent to which the costs can be signalled to the CSP.

²¹ As Telstra is currently the only provider of premium rate services, Telstra will inevitably be responsible for all of the call conveyance and customer transfer costs. It is entirely a matter for Telstra (and any other CSP for that matter who decides to enter the premium rate market) to choose how to recover those costs from end-users.

²² Assuming that an alternative CSP has entered the market and there is an obligation to provide NGNP, set-up costs can be treated as sunk and are not relevant for this comparison.

Each CSP is initially responsible for their own costs

If each CSP is initially responsible for its own costs of NGNP, then potentially the call conveyance and customer transfer costs of NGNP can be signalled to end-users by the donor CSP offering end-users a discount to give up the option of having a portable number or charging a fee if the end-user decides to port. Although any such approach is at the discretion of the donor CSP, making each CSP initially responsible for the costs of NGNP does not prevent the costs being signalled to customers.²³

Donor CSP recovers costs from the recipient CSP

The logic above also applies if the donor CSP recovers the costs of providing NGNP from the recipient CSP. In this case, the costs are initially recovered from the recipient CSP. Potentially the recipient CSP could recover these costs from end-users either on a call by call basis or through up-front fees. In doing so, the costs of providing NGNP would be able to be signalled to end-users.

A variety of mechanisms exist for call conveyance and customer transfer costs to be signalled (albeit imperfectly) to end-users. These mechanisms are possible irrespective of which CSP is initially responsible for these costs.

6.5. Industry-wide costs of providing non-geographic services

Once a CSP has entered and is offering competing non-geographic services, the choice of CSP by end-users should be such as to minimise the industry-wide costs of providing non-geographic services. Pricing for NGNP should provide incentives for end-users to change their CSP (and port their number) only if there is a net reduction in the industry-wide costs of providing the service (including the costs of NGNP). In this regard, the relevant costs are the additional call conveyance costs and the customer transfer costs.²⁴

Again, these costs can potentially be signalled to customers. These costs will then be incorporated in the end-user's choice of CSP. The end-user's choice of CSP will then be such as to minimise the industry-wide costs of providing non-geographic services.

Whichever combination of non-geographic service charges and contract mechanisms a CSP chooses is entirely at its own discretion. The signalling of such costs is possible irrespective of which CSP is responsible for recovering the call conveyance and customer transfer costs of NGNP.

The 'efficient' allocation of end-users across CSPs is likely to be achieved by signalling the costs of NGNP to end-users. A variety of mechanisms exist for call conveyance and customer transfer costs to be signalled to end-users. These mechanisms are possible irrespective of which CSP is initially responsible for these

²³ One difficulty is setting a discount or structuring a fee to recover the call conveyance costs. As the donor CSP will not know with accuracy the number of calls to the ported number, these costs are uncertain. This makes it difficult for the donor CSP to structure a discount or fee to signal the 'true' cost of call conveyance to the party that ports the number.

²⁴ Assuming that an alternative CSP has entered the market and there is an obligation to provide NGNP, set-up costs can be treated as sunk and are not relevant for this comparison.

costs.

6.6. Incentives for CSPs to provide appropriate levels of quality and reliability of NGNP

Different solutions for NGNP can provide different levels of quality and reliability. In this regard, the ACA is likely to specify the minimum quality that must be provided by a CSP to meet their obligations under the Numbering Plan to provide NGNP.

While these safeguards will be in place, the allocation of the costs of NGNP may nevertheless influence the quality and reliability of NGNP provided.

Each CSP is responsible for its own costs

If each CSP is responsible for their own costs of NGNP, the donor CSP has an incentive to provide NGNP at as low a quality as possible within the limits of the Numbering Plan. This may create two problems. First, it may encourage the inefficient degrading of NGNP which, for example, may increase the costs to the recipient CSP of handling the call. Second, it may reduce the scope for the CSPs to reach commercial agreements for a quality of NGNP exceeding the requirements of the Numbering Plan.

Donor CSP recovers costs from the recipient CSP

If the donor CSP can recover its costs from the recipient CSP there is greater scope for the recipient CSP to compensate the donor CSP for a service quality in excess of the requirements under the Numbering Plan and for the recipient CSP to compensate the donor CSP for porting numbers in a fashion that reduces costs in the recipient CSPs network.

The incentives for parties to reach agreement on the most appropriate level of quality and reliability of NGNP are greater if the recipient CSP compensates the donor CSP for the costs incurred in its network. However, as the jurisdiction of the Commission is to arbitrate disputes over NGNP as defined in the Numbering Plan, the decisions of quality of NGNP over and above the requirements set out in the Numbering Plan are open to commercial agreement.

6.7. Ability of end-users to reap the rewards of investments in their non-geographic numbers

The pricing of NGNP should not allow the appropriation of the good will or capital that an end-user has invested in a non-geographic number. This principle suggests that the maximum charge an end-user should face for retaining their number(s) should be a cost based charge so that any such capital are not appropriated by the CSP. If each CSP is responsible for its own costs of NGNP, the scope for this capital to be appropriated is limited.

7. Commission's view

Based on knowledge and evidence available to the Commission at this time, the Commission, if it is required to arbitrate a dispute over the terms and conditions of the provision of NGNP, is inclined, in the usual case, to allocate the costs of NGNP between the donor CSP and the recipient CSP as follows. Each CSP should be responsible for:

- all system set-up and maintenance costs;
- any additional call conveyance costs; and
- customer transfer costs

incurred in their own network to meet their obligations under the Numbering Plan to provide NGNP.

The Commission is of the view that allocating costs in this manner provides an appropriate balance of the following matters:

- the implications for entry and competition in the provision of non-geographic services;
- the incentives for CSPs to select efficient solutions to provide NGNP;
- the incentives for efficient porting of non-geographic numbers;
- the implications for industry-wide costs of non-geographic services;
- the incentives for CSPs to provide the appropriate quality of NGNP;
- the ability of end-users to reap the rewards of investments in their non-geographic numbers; and
- the ability of CSPs to recover the costs of providing NGNP.

As such, the Commission is of the view that this allocation of costs, will, in the usual case, best promote the legislative criteria the Commission is required to consider if it is required to arbitrate a dispute over the terms and conditions of NGNP.

Attachment A: Submissions received

SingTel Optus

25 September 2003

Telstra

3 October 2003