

INDUSTRY COMMISSION  
SUBMISSION TO THE  
NCC ON  
THE NATIONAL ACCESS  
REGIME:  
A Draft Guide to  
Part IIIA  
of the Trade Practices Act

January 1997



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### **Forming the Productivity Commission**

The Industry Commission, the former Bureau of Industry Economics and the Economic Planning Advisory Commission have amalgamated on an administrative basis to prepare for the formation of the Productivity Commission. Legislation formally establishing the new Commission is before Parliament.



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## ABBREVIATIONS

|            |   |
|------------|---|
| ABARE      | Australian Bureau of Agriculture and Resource Economics             |
| ACCC       | Australian Competition and Consumer Commission                      |
| AGA        | Australian Gas Association  |
| AGL        | Australian Gaslight Company Ltd                                     |
| BIE        | Bureau of Industry Economics  |
| CBM        | coal bed methane  |
| COAG       | Council of Australian Governments                                   |
| CPA        | Competition Principles Agreement                                    |
| ECP        | efficient component price   |
| GBE        | government business enterprise                                      |
| GJ         | giga-joules   |
| IC         | Industry Commission   |
| IPART      | Independent Pricing and Regulation Tribunal (NSW)                   |
| NCC        | National Competition Council (the Council)                          |
| NSW        | New South Wales   |
| NSW Regime | New South Wales Access Regime for Natural Gas Distribution Networks |
| TJ         | tera-joules   |
| TPC        | Trade Practices Commission  |
| US         | United States of America  |

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## SUMMARY

This submission focuses on a new and complex arm of regulation and legislation arising from competition policy reform — the national access regime. Under the new arrangements, a third party can seek access to significant infrastructure through a number of avenues, two of which — declaration and certification — depend upon recommendations to the Minister by the National Competition Council (NCC). This submission presents the Commission’s preliminary views on some key aspects of the NCC processes as outlined in *The National Access Regime: A Draft Guide to Part IIIA of the Trade Practices Act*. It also addresses key issues associated with the New South Wales Government’s request to the NCC to certify the New South Wales Access Regime for Natural Gas Distribution Networks (NSW Regime) as ‘effective’.

The Commission’s major concern is that, if declaration and certification recommendations are determined along the lines suggested in the NCC’s Draft Guide, there could be an unwarranted widening of the scope for mandating access to infrastructure services. This concern reflects the fact that, while access regulation can be an extremely useful pro-competitive tool, it can also impose costs on infrastructure providers. Indeed, a national regime which mandates access to non-natural monopolies could, by casting doubt on future returns, stifle new investment. This could have the perverse effect of reducing competitive pressures, thus undermining competition policy objectives.

### Declaration

Before recommending declaration, the NCC must be satisfied that certain criteria are met. Those criteria upon which the Commission has commented can be viewed as relating to four tests:

- a competition test;
- a natural monopoly test;
- a national significance test; and
- a public interest test.

#### *The competition test*

Defining the ‘market’ is central to determining whether access will promote competition. Although assessments are required on a case-by-case basis, markets should not be defined too narrowly. In this context, the Commission supports the NCC’s decision to consider long term substitution possibilities

when assessing markets. However, to streamline the process, the NCC could adopt a two stage approach. As a means of screening applications it could, initially, use a narrower market definition and only proceed to a broader and potentially more meaningful definition if this initial hurdle is ‘jumped’.

The Commission considers that access should only be granted if it would promote ‘substantial’ rather than ‘non trivial’ competition in a related market. If the NCC believes that the present wording of the Act prevents such an interpretation, amendments to the legislation should be considered.

#### *The natural monopoly test*

The NCC suggests that this clause in the legislation could be interpreted in a way that results in non-natural monopoly infrastructure being subject to a national access regime. However, in practice, it considers that the public interest test would reduce the likelihood of this outcome.

The Commission accepts that the public interest test could constrain, but not necessarily preclude, declaration (or certification) of the services of non-natural monopoly infrastructure. However, even the NCC’s willingness to consider wider parameters than natural monopoly could send the wrong signals to investors. In particular, it could increase uncertainty about returns and lead to unforeseen negative impacts on competition. The Commission believes that, from a policy perspective, mandatory access arrangements in a national access regime should *only* be applied to infrastructure with natural monopoly characteristics.

#### *The national significance test*

The Commission supports the NCC in going beyond a literal interpretation of the criterion for establishing national significance. The Commission believes the focus should be on the relative magnitude of benefits accruing to the nation from mandating access to the service of the facility, rather than on the size or the significance of the facility itself. More specifically, the test should focus on the significance of the expected benefits to the nation of promoting competition in related markets.

#### *The public interest test*

The Commission agrees with the NCC that economic efficiency is the key to assessing the public interest test. However, the Commission is concerned that broader criteria set out in the Competition Principles Agreement (CPA) will also be considered and, in some circumstances, could override efficiency criteria. These wider criteria — such as those relating to social welfare, equity and environmental goals — are better pursued by other arms of governments using



policy instruments which directly target these objectives (eg social security payments, taxation measures and environmental policies).

## **Certification**

When considering whether the NSW Regime or any other state or territory access regime is effective, the NCC is required to apply tests set down in the CPA. Key aspects of the certification tests relate to:

- natural monopoly;
- effective competition in related markets; and
- the role of negotiation and arbitration.

### *Natural monopoly*

The Commission does not have access to the data necessary to comprehensively assess the natural monopoly characteristics of the NSW natural gas distribution system. However, it appears that the network is characterised by significant economies of scale and scope. Prima facie, it has natural monopoly characteristics. Notwithstanding this, it may be viable in the future for a third party to develop a pipeline facility to bypass part of the NSW distribution network. The potential threat of bypass places a degree of competitive discipline on monopoly infrastructure providers. Hence, it is important that bypass options are not constrained by access regulation.

### *Effective competition in related markets*

The Commission believes that access to the NSW distribution system will provide the potential for increased competition in both up and down stream markets. For example, the introduction of an effective NSW Regime, coupled with recent regulatory and market developments, will increase the likelihood of competition between natural gas producers within a gas basin, as well as between producers in different basins.

There is also potential for more intense competition in the downstream energy market, in particular between electricity and gas. For downstream markets where there is no economic alternative to using natural gas, access should offer greater opportunity for users to seek out more favourable terms and conditions.

### *The role of negotiation and arbitration*

Commercially negotiated access to a monopoly infrastructure facility which is 'essential' to another market will not always produce efficient outcomes. This is because, abstracting from the threat of mandatory access or arbitration, the

monopoly service provider will only voluntarily negotiate an access price if it is no worse off as a result of the negotiations.

The CPA provides for arbitration when firms cannot reach a negotiated outcome. In principle, this could lead to more efficient outcomes. However, in practice, there would be incentives to avoid arbitration and enter into an arrangement to share the monopoly rents.

Prescribed access tariffs may be useful in overcoming some of the negotiation problems discussed above. However, the determination of such tariffs can be complex. And there is the potential for these tariffs to entrench monopoly prices.

The Commission's preferred approach is a combination of commercial negotiation and arbitration, coupled with prescribed tariffs. This approach is similar to that discussed by the NCC and implemented in the NSW Regime. However, the Commission favours treating any prescribed tariffs incorporated in access arrangements — such as the reference tariffs in the Access Undertaking in the NSW Regime — as upper bounds for negotiation and not as operative access tariffs.<sup>1</sup> If negotiations fail, the arbitrator should, at least in the early stages of the regime, consider access prices that are below this upper bound. Because of the potential for a conflict of interest, the arbitrator should be independent from the regulator who approved the prescribed access tariffs.<sup>2</sup> The complexity of the task and the considerable judgement required points to the need for careful selection of the arbitrator.

It should also be recognised that Australia's access markets are in their infancy. Consequently, prescribed access tariffs determined in the early stages will almost inevitably reflect very imperfect information. Additionally, what is appropriate in the early stages of access policy may not be appropriate in the future. Thus, mechanisms for on-going monitoring, error correction and adaptation should be built into any access code and the arbitration process.

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<sup>1</sup> In the NSW Regime, the reference tariffs are intended to be used for negotiating access charges, but may also be used directly as the access tariff. The arbitrator is required to take account of the reference tariffs, but is not bound by them.

<sup>2</sup> A less satisfactory alternative would be to ensure internal separation of the two roles within the one entity.

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# 1 INTRODUCTION

A new era in Australia's microeconomic reform agenda commenced on 12 April 1995 when the Commonwealth, state and territory governments formally agreed to extend the coverage and depth of competition policy through the implementation of a new national competition reform package. The package covers wide ranging reforms of a legislative and non-legislative nature (see Box 1).

This submission focuses on a new arm of regulation and legislation arising from competition policy reform — the national access regime. The need for access regulation arises because, in some markets, effective competition will not evolve unless competitors have access to the services of certain infrastructure.

While the introduction of mandatory access regulation for certain facilities is new in the Australian context, laws and regulations of this type are not without precedent. For example, in the United States the roots of the essential facilities doctrine reaches back to 1912. Some international approaches to establishing and regulating access are discussed in IC (1995a).

Under Part IIIA of the Trade Practices Act, a third party can seek access to the services of certain infrastructure through one of the following three mechanisms. A third party may:

- request that the National Competition Council (NCC) recommend that the Minister *declare* access to the services of particular infrastructure facility. If the infrastructure facility is declared, the infrastructure operator and the third party are required to try to negotiate mutually acceptable terms of access.<sup>1</sup>
- seek access through an *effective* access regime already in existence. (If an access regime is already in existence, the Premier or Chief Minister of a state or territory, respectively, may request the NCC to certify that the regime is 'effective'.)
- seek access based on the terms and conditions of a legally binding undertaking made by the infrastructure operator and registered with the Australian Competition and Consumer Commission (ACCC).

These three mechanisms for gaining access are illustrated in Figure 1.

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<sup>1</sup> If the parties cannot agree on the terms and conditions of access, there is scope for the parties to seek legally binding arbitration.

**Box 1: Elements of the national competition policy package**

The competition policy package consists of three intergovernmental agreements.

The Conduct Code Agreement sets out the basis for extending the application of the *Trade Practices Act 1974* (TPA) and the consultative processes for making modifications to competition law and appointments to the Australian Competition and Consumer Commission (ACCC). It also commits each State and Territory to pass legislation to enable the Commonwealth's new legislation to take effect.

The *Competition Principles Agreement* establishes agreed principles on: structural reform of public monopolies; competitive neutrality between the public and private sectors; prices oversight of government enterprises; an access regime for nationally significant infrastructure; a program of review of legislation restricting competition; and consultative processes for appointments to the National Competition Council (NCC).

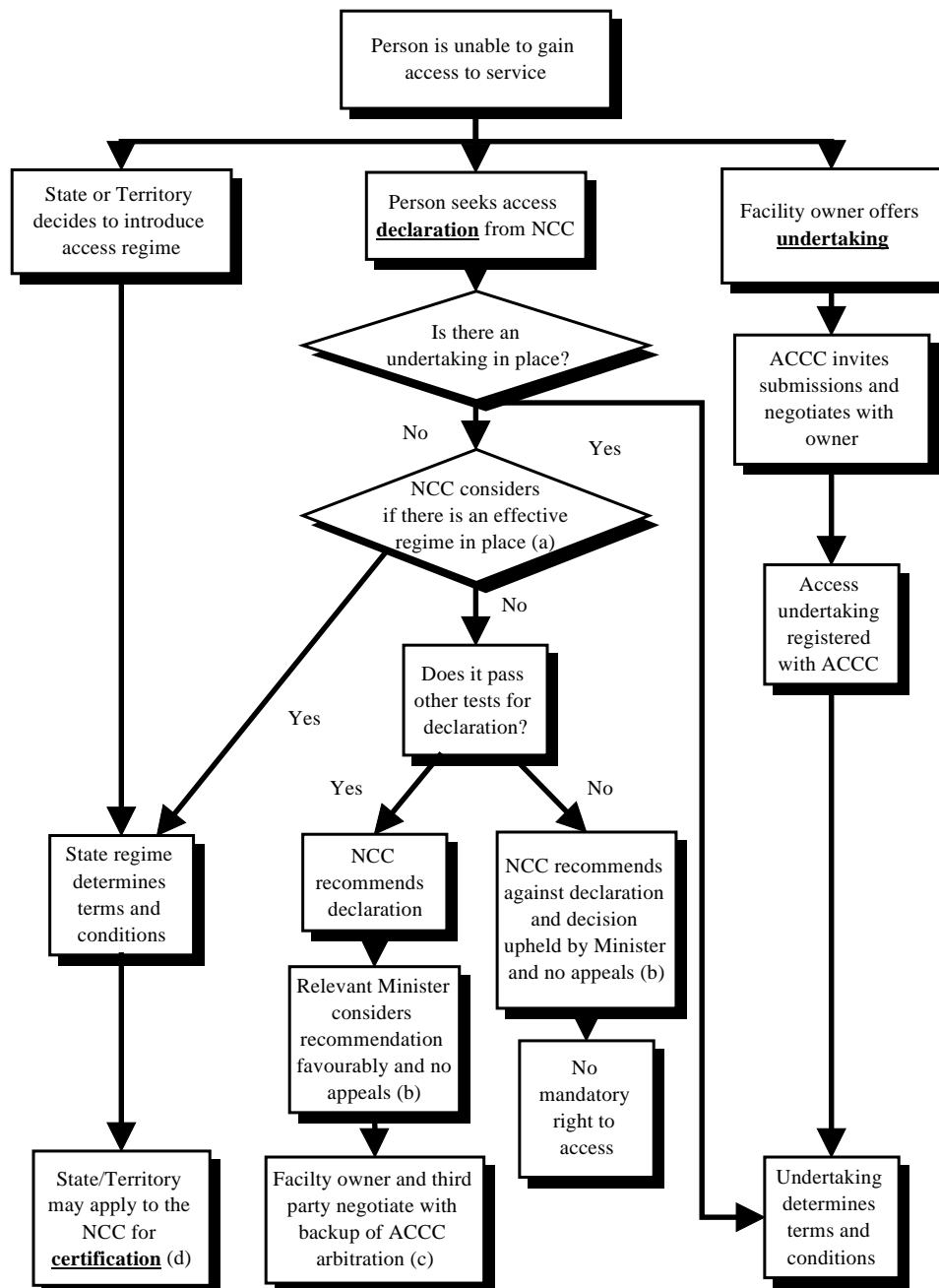
Under the *Agreement to Implement the National Competition Policy and Related Reforms*, the Commonwealth will provide competition payments in return for states and territories meeting agreed obligations set out in the Competition Principles Agreement and the Conduct Code Agreement, as well as commitments to electricity, gas, water and road transport reform.

The Commonwealth *Competition Policy Reform Act 1995* is a key element of the package of competition policy reforms. The Act:

- amends the competitive conduct rules of Part IV of the TPA and the provisions that exempt specific forms of conduct from these rules;
- inserts provisions into the TPA extending the coverage of the competitive conduct rules to the unincorporated sector and to state and territory GBEs;
- creates a new part of the TPA — Part IIIA — establishing a new national regime for access to services provided by 'nationally significant' infrastructure facilities;
- amends the *Prices Surveillance Act 1983* to allow price monitoring and, in certain circumstances, extend prices oversight to State and Territory-owned business enterprises; and
- creates two new institutions responsible for overseeing and providing advice on the implementation of the policy package: the ACCC and the NCC.

*Source:* IC 1995b, Appendix H.

Figure 1: Three mechanisms for gaining access



- (a) Effective regimes may also include regimes established under other Commonwealth legislation such as the regime for the Moomba–Sydney gas pipeline. However, there is no process for the NCC to certify such regimes.
- (b) The provider or the applicant who sought the declaration can seek a review by the Australian Competition Tribunal of the Minister’s decision.
- (c) There are subsequent rights of appeal to the Australian Competition Tribunal and the Federal Court.
- (d) If the NCC certifies a State/Territory regime as effective, the regime cannot be declared.

Source: IC 1995a.

In August 1996, the NCC (1996a) released *The National Access Regime: A Draft Guide to Part IIIA of the Trade Practices Act*. The Council indicated in the Draft Guide that the views expressed were preliminary and reflected the Council's thinking at an early stage in the process of administering Part IIIA. The Council indicated that it was keen to receive feedback on this Guide and the issues and views it contains.

The efficient implementation of a mandatory access regime requires consideration of many complex legal, technical and theoretical issues. In many instances, the appropriate approach to particular issues will become clear over time as applications for access are dealt with by the NCC and the ACCC. This submission presents the Commission's preliminary views on the NCC's interpretation of some key aspects of Part IIIA's declaration and certification procedures, as outlined in the Draft Guide. It builds on the views expressed in the Industry Commission's Information Paper *Implementing the National Competition Policy: Access and Price Regulation* (IC 1995a). However, in the time available, it has not been possible for this submission to discuss a number of important factors which impinge on access assessments (eg the valuation of assets for access pricing).

This submission does not cover all aspects of the declaration or certification procedures. It concentrates on four key criteria set out in section 44G (2) of the Trade Practices Act and some key clauses relating to certification in the Competition Principles Agreement. The Commission is also mindful of the recent application to the NCC requesting that it certify the effectiveness of the New South Wales Access regime for Natural Gas Distribution Networks. The discussion of the certification issues is, therefore, frequently couched in the context of the New South Wales gas code application.

The following chapter covers the assessment of the declaration criteria. Chapter 3 discusses the certification criteria in the context of the New South Wales Access Regime for Natural Gas Distribution Networks.

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## 2 DECLARATION: THE ASSESSMENT CRITERIA

Under Part IIIA of the Trade Practices Act (TPA), a business seeking access to an infrastructure service can request the National Competition Council (NCC) to recommend that the Minister declare the service. If declared, the parties are required to negotiate terms and conditions of access. In the event that negotiations fail, the parties can seek legally binding arbitration.

Before recommending declaration, the NCC must be satisfied that a number of criteria or tests are satisfied. Section 44G(2) of the TPA requires that the Council be satisfied:

- (a) that access (or increased access) to the service would promote competition in at least one market (whether or not in Australia), other than the market for the service;
- (b) that it would be uneconomical for anyone to develop another facility to provide the service;
- (c) that the facility is of national significance, having regard to:
  - (i) the size of the facility; or
  - (ii) the importance of the facility to constitutional trade or commerce; or
  - (iii) the importance of the facility to the national economy.
- (d) that access to the service can be provided without undue risk to human health or safety;
- (e) that access to the service is not already the subject of an effective access regime;
- (f) that access (or increased access) to the service would not be contrary to the public interest.

The following discussion focuses on criteria (a) — the competition test, (b) — the natural monopoly test, (c) — the national significance test and (f) — the public interest test. The Commission considers declaration criteria (d) — the safety test — requires specific technical assessments and, thus, can only be determined on a case-by-case basis. The remaining criterion, (e) — the effectiveness test — is covered in the context of the certification discussion in Chapter 3.

### 2.1 Criterion a — the competition test

*... that access (or increased access) to the service would **promote competition** in at least one **market** (whether or not in Australia), other than the market for the service;*

Two issues are critical to any assessment of this criterion:

- what level of competition would be promoted by access to the infrastructure service? and
- what is the appropriate definition of the market?

### 2.1.1 'promote competition'

In determining its approach to competition for this criterion, the NCC has contrasted the treatment of competition in Part IIIA and Part IV (which deals with anti-competitive behaviour) of the TPA. In this context, the NCC comments that 'Part IV is stronger than Part IIIA as it deals with conduct that substantially lessens competition in the market' (1996a, p. 19). The NCC concludes that, in the context of access, a *trivial* increase in competition would not pass the promote competition test. But, on the other hand, the Council argues that access would not need to *substantially* promote competition. The implication is that a non-trivial increase in competition would be sufficient to satisfy this criterion.

It is not clear that a threshold lying between 'trivial' and 'substantial' will be particularly useful. In legal discourse, 'substantial' is often used synonymously with 'non-trivial'. However, if the NCC's interpretation were in law found to have some independent meaning, the Commission believes that, from a policy perspective, 'substantial' will, in most circumstances, be the better test. This view reflects the fact that accepting the promotion of a non-substantial increase in competition as being satisfactory for this criterion widens the scope of potentially declarable services. In these circumstances, there will be increased potential for the costs of access to negate the expected benefits. Box 2 outlines some of the potential costs of mandatory access to infrastructure.

The need to limit access to situations where there are clear net gains is fairly widely accepted. For instance, the Hilmer Committee supported legislated mandatory access where 'such a clear public interest exists, but not otherwise' (1993, p. 248). The Committee also noted it was:

... conscious of the need to carefully limit the circumstances in which one business is required by law to make its facilities available to another. Failure to provide the appropriate protection to the owners of such facilities has the potential to undermine incentives for investment (1993, p. 248).

Similarly, King and Maddock argue in the Australian context that:

... interpreting the promotion of competition as simple encouragement is too weak. This interpretation will not weigh any possible benefits from encouraging competition against likely costs (1996a, p. 77).



The United States courts in considering the application of their essential facilities doctrine also appear to require more than a non-substantial increase in competition. Tye notes USA courts ‘have generally defined an essential facility as one where the harm to competition must be “severe” ...’ (1991, p. 404).

**Box 2: Costs of regulation**

Regulation of access to the services of essential facilities has costs as well as benefits. Regulation can be costly in a number of ways.

First, the risk of changes in the regulatory environment can increase perceptions of sovereign risk and deter new investment. More specifically, there is a risk that unexpected regulatory change will affect the value of existing assets and increase uncertainty about expected returns from future investments.

Second, regulation can impose significant administrative, and compliance and transactions costs. For instance, the regulated firm must devote resources to supplying the regulator with information, and the regulator must in turn have means for independently verifying that information, perhaps by making comparisons with similar enterprises in other markets, or by developing models of the enterprise’s cost structure. The resources devoted to lobbying the regulator constitute another cost. In addition, access regulation can impose costs by interfering in relationships between firms.

Third, significant costs can arise through regulatory failure (that is, inefficient or inappropriate regulatory practices). For instance, if access prices are set too low, facility owners may not adequately invest in new or replacement capital.

Costs arising from regulatory failure and increased perceptions of sovereign risk are less transparent and more difficult to assess than administrative and compliance costs.

*The Commission’s view*

It is not clear that it is appropriate to use the substantial lessening of competition requirement under Part IV of the TPA to ascertain the degree of competition increase required under Part IIIA. These two parts of the TPA operate independently and serve very different purposes.

The Commission has previously argued that this criterion would be satisfied if access to a service would promote a ‘substantial’ and not a ‘trivial’ improvement in the nature of competition in an up or down stream market (see IC 1995a). Underlying this finding is the view that the gains from additional competition may need to be significant to offset costs that could stem from mandating access.

The Commission maintains this view and recommends that criterion (a) should be interpreted as requiring an access declaration to lead to a *significant* or *substantial* increase in competition.<sup>1</sup> Such an interpretation does not seem to be inconsistent with the plain meaning of the competition test. However, if the NCC believes that the present wording of this test constrains it from making such an interpretation, then consideration should be given to amending the legislation to permit such an interpretation.

### **2.1.2 'in at least one market other than the market for the service'**

As discussed above, criterion (a) requires that competition should be promoted in a related market. In discussing the term 'market', the NCC notes that section 4E of the TPA says:

For the purposes of this Act, unless the contrary intention appears, "market" means a market in Australia and, when used in relation to any goods or services, includes a market for those goods or services and other goods or services that are substitutable for, or otherwise competitive with, the first-mentioned goods or services.

This legislative definition in many respects represents a good working definition of most aspects of a market. However, the definition should be understood to encompass the dynamism of markets. As the Commission has noted:

Most markets are characterised by differentiated products and geographical boundaries that often involve a time dimension because substitutes are developed continuously for many products (IC 1996, p. x).

The Council indicates it will consider *long run* substitution possibilities in both production and consumption when assessing whether access will promote competition in a particular market (NCC 1996a).<sup>2</sup> For example, the NCC considers that its approach to substitution possibilities could lead to

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<sup>1</sup> The only exceptions to this may be if the market in which the competition was expected to be promoted is very large. In this instance, a 'non trivial' promotion of competition *may* be sufficient (see discussion relating to criterion c).

<sup>2</sup> The Council also drew attention to a Trade Practices Tribunal discussion, in *Re Queensland Cooperative Milling Association Ltd* (1976) 25 FLR 160 at 190, of the nature of a market. This discussion suggested that the degree of substitution can be gauged from the cross-elasticity of demand or supply. This is a commonly accepted approach to determining the relationship between goods or services. However, as noted by the Commission (IC 1994), traditional approaches which consider, for example, that a firm facing high (low) demand elasticities is subject to a high (low) degree of competition can sometimes be flawed. This point is also considered in the context of the energy market in Chapter 3.

considerations of the level of competition between substitute energy sources, such as gas and electricity.

The influence of imperfect substitutes on a market can be considerable, particularly in the longer run, and the NCC's intention to follow such a course is appropriate. Examining long run substitution possibilities should also help guard against too narrow a definition of markets.

While the Council's interpretation of markets appears to be generally appropriate, there are also some indications in the Draft Guide which imply that, in some instances, market definitions adopted by the NCC could be too narrow. For instance, it states that:

Overall, the Council will adopt the framework followed by the courts, the ACCC and the Tribunal. This involves an assessment of the product, geographic, functional and temporal dimensions of markets (1996a, p. 21).

The framework adopted by some of these bodies has sometimes led to market definitions that could be construed as unduly narrow. For example, in *Arnott's Ltd and Ors. v Trade Practices Commission* (1990) ATPR 41-061, the Federal Court, while rejecting there were separate markets for sweet and chocolate biscuits, also rejected a broader market definition which accepted that biscuits competed in the market for snack foods (see IC 1996, p. 19–22). Similarly, in its 1987 report on biscuit prices, the Prices Surveillance Authority also focused on a market for biscuits but noted that:

... the range of substitutes for manufactured biscuits may cover most snack foods, including nuts, cakes and cake mixes, confectionery, and preserved fruits, ice-cream, and other bakery products such as pastries (PSA 1987, p.11).

### *The Commission's view*

The adoption of too narrow a view of markets could lead to access declarations that are not in the best interests of the broader community. The likelihood of this outcome occurring would be increased if the NCC decides to strictly follow market definition principles or precedents flowing from Part IV judgements and decisions.

The Industry Commission has previously argued the merits of assessing the different dimensions of markets when determining market definitions (see for example IC 1992, IC 1995a and IC 1996). Such an assessment will often lead to a relatively broader definition than might otherwise be reached. This would also be consistent with the approach advocated by the Hilmer Committee report. In principle, the broader the definition of a market, the less likely that the services of facilities which are not natural monopolies providing an essential service will be declared. That said, the Commission recognises that markets can be defined

too broadly. In practice, the determination of market boundaries will need to be considered on a case by case basis.

The Commission also recognises that defining relevant markets is complex and can be extremely demanding, particularly if empirical analysis is required. For these reasons, a narrower definition of markets could be justified as a *first* step in the consideration of this criterion. The Commission, in the context of Part IV of the TPA, identified a two stage solution to the market definition problem (IC 1992, p. 16). Following this two stage approach, the NCC could use a relatively narrow market definition as an initial hurdle for screening applications for declaration. Only if this hurdle is jumped would the NCC need to adopt a broader and potentially more meaningful, but often more complex, definition of the market. If this first hurdle is not ‘jumped’, it is unlikely that the facility could ‘jump’ the second hurdle.<sup>3</sup>

## 2.2 Criterion b — the natural monopoly test

*... it would be uneconomical for anyone to develop another facility to provide the service.*

This test, in conjunction with criterion (a), underpins the rationale for mandatory access to the services of infrastructure.

### 2.2.1 Rationale for mandating access

The Hilmer Committee recommended the implementation of mandatory access to certain infrastructure services because:

In some markets the introduction of effective competition requires competitors to have access to facilities which exhibit natural monopoly characteristics, and hence cannot be duplicated economically (1993, p. 239).

The Hilmer Committee<sup>4</sup> considered mandatory access was most appropriate:

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<sup>3</sup> Following this two stage approach, the NCC on receipt of an application to declare the services of, say, an urban rail network could first consider the narrow market — the urban passenger rail market. If the application fails on this count (ie there is already a substantial level of competition in this narrowly defined market), there would be no need to proceed any further with more complex analysis of markets. However, if the application for declaration passed this initial hurdle, it would be necessary for the Council to assess whether the relevant market is broader — such as the total market for urban passenger transport.

<sup>4</sup> The Hilmer Committee also noted that:

... in relation to major infrastructure facilities such as electricity transmission grids, major gas pipelines, major rail-beds and ports, *but not* in relation to products, production processes or most other commercial facilities (1993, p. 251, emphasis added).

The link between natural monopoly and access was also enunciated in the second reading speech of the Bill covering the access provisions now incorporated in the TPA. In that speech, the (then) Assistant Treasurer said:

The notion underlying the regime is that access to certain facilities with natural monopoly characteristics, such as electricity grids or gas pipelines, is needed to encourage competition in related markets, such as in electricity generation or gas production (Gear 1995, p. 7).

The legislative test associated with this criterion has been interpreted by the NCC as, in certain circumstances, going beyond that of natural monopoly.

The NCC acknowledges that ‘the policy intent underlying the access regime is to focus mainly on what economists call “natural monopoly” situations’ (1996a, p. 22). However, it notes that criterion (b) may also apply to situations other than natural monopoly. It suggests that monopolies which control an essential or unique primary input or resource; or have an exclusive right of production (for example, through trademarks or patents) are examples of non-natural monopolies which could be the subject of a declaration application and potentially satisfy this criterion. (In this context, the Commission notes that Section 44B(e) of the TPA states that, under the National Access Regime, services do not include the use of intellectual property, except to the extent that it is an integral but subsidiary part of the service.) The NCC also suggests that some monopoly infrastructure could feasibly satisfy this criterion ‘because of natural, economic or technological advantages associated with the initial establishment of the infrastructure facility’, even though it may be feasible to establish multiple facilities (1996a, p. 24).

While the NCC has suggested it will be prepared to accept broad interpretations of this criterion in certain circumstances, it is of the view that:

... declaration should be confined to circumstances in which the normal dynamics of innovation and investment, or the other regulatory remedies available, will not be sufficient to counteract a monopolistic position held by an infrastructure operator (1996a, p. 22).

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As a general rule, the law imposes no duty on one firm to do business with another. The efficient operation of a market economy relies on the general freedom of an owner of property and/or supplier of services to choose when and with whom to conduct business dealings and on what terms and conditions. This is an important and fundamental principle based on the notions of private property and freedom to contract, and one not to be disturbed lightly (1993, p. 242).

The Council believes that a broad interpretation of this criterion will, in practice, be constrained by other criteria, in particular, criterion (f) — public interest.

### *The Commission's view*

From a policy perspective, the Commission believes that consideration of mandatory access in a national access regime is only warranted in circumstances where infrastructure has natural monopoly characteristics.

Many of the activities covered in the non-natural monopoly situations envisaged by the NCC could be considered as symptomatic of competitive rather than uncompetitive behaviour. Firms in competitive markets are always seeking ways to differentiate their product or service in a way which allows them to earn above normal profits. Firms, for example, may seek some unique location for their operation which gives them a competitive edge — for example, a ferry terminal or restaurant close to the Sydney Opera House. Alternatively, firms may seek to differentiate their product by way of trademarks or internalise the benefits of research and development by way of patents.

The Commission accepts that the public interest test — criterion (f) — could constrain, but not necessarily preclude, a broader interpretation of criterion (b) leading to a declaration recommendation.<sup>5</sup> Nonetheless, the Commission is concerned that widening the potential infrastructure eligible for declaration considerations by the NCC could have deleterious effects on risk-taking in the Australian economy. In particular, investment incentives may be reduced if firms operating non-natural monopoly infrastructure are concerned that their property rights could be eroded. Even the NCC's indication of a willingness to consider wider parameters than natural monopoly for declaration could increase uncertainty about future returns from investment and lead to unforeseen negative impacts on competition. For example, it could actually reduce the potential for competition if it discouraged investment in an additional facility on the grounds that it may subsequently be declared for access.

While access regulation can be an extremely useful tool in the appropriate circumstances, it is only one of many pro-competitive tools. Other tools include the application of Part IV of the TPA (which deals with restrictive practices), the introduction of prices oversight, price regulation or deregulation. In many circumstances, one of these alternative tools may be a lower cost and more efficient alternative to mandatory access for dealing with competition issues associated with non-natural monopolies.

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<sup>5</sup> This issue is discussed in more detail in the context of criterion (f).

The Commission acknowledges that the wording of the current legislation could, if read literally, be interpreted as going further than natural monopoly. Nonetheless, it strongly urges the NCC to ensure that all other remedies to limit or prevent anti-competitive behaviour have been canvassed before it finds that services of non-natural monopoly infrastructure satisfy this criterion. A finding that the services of non-natural monopoly infrastructure do not meet this criterion would not preclude the Council from recommending to the relevant minister that other pro-competitive action be considered to prevent monopolistic behaviour.

### **2.2.2 Identifying natural monopoly**

The NCC intends to use the existence of *pervasive* economies of scale as the key indicator of a natural monopoly. It notes that the notion of economies of scale is a relative concept. When assessing economies of scale, the Council intends to take account of the definition of the relevant market, market demand, the particular technology employed to supply a service and the rate of technological innovation in an industry.

The Commission agrees that all of these factors can influence whether a particular facility is a natural monopoly (see Box 3). However, identification of a natural monopoly is not always clear cut. Infrastructure used in one market may exhibit natural monopoly characteristics, but the same infrastructure employed in another market may not. For example, in a small regional community a local Olympic swimming pool could exhibit natural monopoly characteristics. On the other hand, the same swimming pool in a large city may not.

The difficulty in identifying natural monopolies is highlighted by the debate on whether local telephone services are, or were, a natural monopoly. For example, Rosston and Teece (1995) express doubt that local telephone networks are now, or indeed ever have been, natural monopolies. King and Maddock note:

It is unclear whether local telephony is or is not characterised by natural monopoly technology. The same can be said for many other industries that have traditionally been classed as natural monopolies. For example, it is not obvious that gas transmission is a natural monopoly. Judgement of natural monopoly status requires a close examination of the relevant technology. This has not occurred in Australia, but overseas studies suggest that the evidence is, at best, ambiguous (1996a, p. 75).

As noted above, the NCC argues that ‘a key indicator of natural monopolies is the existence of *pervasive* “economies of scale” ’ (1996a, p. 23).<sup>6</sup> Intuitively, economies of scale and natural monopoly are enhanced by the existence of substantial fixed costs, many of which may be ‘sunk’. Technically, the appropriate test for the existence of natural monopoly is whether the relevant firm’s cost function is ‘strictly subadditive’. Subadditivity takes into account economies of both scale and scope (see Box 3). Sharkey argues that ‘if there are economies of scope, then it is reasonably certain that the cost function is subadditive if there are also scale economies’ (1982, p.202).<sup>7</sup>

Natural monopoly technology may also change over time. For example, King and Maddock believe that:

... the development of a microwave based network by Microwave Communications Incorporated in the US led to the undermining of AT&T’s status as a natural monopoly service provider in the 1980s (1996a, p. 74).

Other industries may also move away from (or to) natural monopoly characteristics due to advances in technology and/or shifts in demand. Natural monopoly, in the context of natural gas distribution, is considered in Chapter 3.

When setting the expiry date for individual declarations, the NCC should try to take into account the rate of technological change and the nature of demand and supply.<sup>8</sup> Periodic reviews of declared infrastructure will allow for the possibility that such factors can change the natural monopoly status of infrastructure.

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<sup>6</sup> The Commission interprets the Council’s use of the term ‘pervasive economies of scale’ as relating to the strength or intensity of economies of scale.

<sup>7</sup> However, Panzar provides a somewhat contrived counter-example which demonstrates that if both economies of scale and fixed costs are very small, economies of scale and economies of scope, together, do not guarantee subadditivity (1989, p.26).

<sup>8</sup> The NCC would also need to consider the costs and benefits of reassessing further access claims within relatively short time frames.



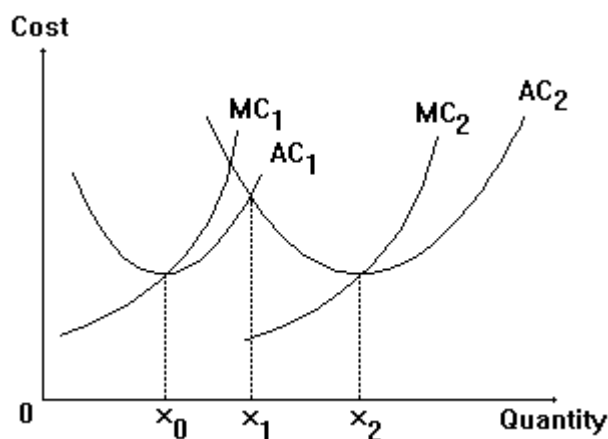
### Box 3: The theory of natural monopoly

Put simply, natural monopoly occurs when one firm can supply a market at a lower cost than two or more firms. A single product natural monopoly is generally characterised by an average cost function that is declining over the relevant range of demand.

In the single product case, strong economies of scale are sufficient for natural monopoly. However, most firms produce a range of products, especially if outputs in different locations are viewed as different products. For example, in the case of electricity, power transmitted to town A through a grid could be considered a different product to power transmitted to town B which is 100 km further along the same grid. For the multiproduct firm, declining average costs for all products is not a sufficient or necessary condition for natural monopoly. A multiproduct natural monopoly exists if one firm using cost minimising technology can produce the entire industry output cheaper than two or more firms over the relevant output range. In this case, the firm's cost function is said to be subadditive. Subadditivity can derive from economies of scale or scope or organisation.

In a multiproduct firm, subadditivity may occur in the absence of declining average costs over certain ranges of the industry's output. Subadditivity 'refers to a particular point on the cost surface ... because costs may be subadditive at one output level and not at another' (Baumol *et al* 1988, p. 17). Therefore, the existence of a natural monopoly is also dependent on the level of demand. In practice, testing for subadditivity is complex and information intensive. Information about the entire cost function is necessary. Technology and the level of demand are important determinants of natural monopoly.

In the figure below, all firms have identical average cost curves represented by  $AC_1$ . If there are two producers in the market, the average and marginal cost curves for the industry would be represented by  $AC_2$  and  $MC_2$ . In this example, the industry is a natural monopoly for outputs up to  $x_1$ . One firm can produce more cheaply than two. In the output range  $x_0$  to  $x_1$ , there is subadditivity but rising average cost. For output ranges above  $x_1$ , such as  $x_2$ , two firms can produce more cheaply than one firm.



Note: For further information, see Baumol *et al* (1988), Panzar (1989), Tirole (1992) and King and Maddock (1996a).

## 2.3 Criterion c — the national significance test

... *that the facility is of national significance, having regard to:*

- (i) the size of the facility; or*
- (ii) the importance of the facility to constitutional trade or commerce<sup>9</sup>;  
or*
- (iii) the importance of the facility to the national economy.*

The Council indicates that the three sub-tests set out in the criterion will be treated as exhaustive.<sup>10</sup> Nonetheless, the Council has taken a relatively broad interpretation of two of these sub-tests in its Draft Guide.

The Commission supports the need to take a broad rather than a literal interpretation of these sub-tests. The basis for this view is that, if the tests are interpreted literally, the focus will be on the asset per se — that is, the facility — rather than on the economic significance of making it subject to an access regime. Such a focus could see the test passed even though the contribution to trade and commerce or the contribution to the national economy *from mandatory access* is insignificant.

The Commission believes the test should be focused on the relative magnitude of benefits accruing to the nation from mandating access to the service of the facility. More specifically, the test should focus on the significance of the expected benefits to the nation of promoting competition in related markets. The significance test is therefore, to some extent, a ‘rider’ on criterion (a).

In regard to the NCC’s interpretation of the three sub-tests, the Commission makes the following points.

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<sup>9</sup> ‘constitutional trade or commerce’ ... means any of the following:

- a) trade or commerce among the States; or
- b) trade or commerce between Australia and places outside Australia; or
- c) trade or commerce between a State and a Territory, or between two Territories.

<sup>10</sup> The Commission notes that the criterion does not require the NCC to take the view that sub-tests (i) to (iii) are exhaustive. The Commission believes that treating the test as exhaustive may be premature — the most appropriate interpretation of the national significance test will ultimately emerge from the NCC’s experience and any case law that develops around the criterion.

### 2.3.1 Size of the facility

The Council concedes that sub-test (i) is unlikely to be conclusive in many instances and therefore it will place greater importance on sub-tests (ii) and (iii). It states that:

... while the physical dimension of the infrastructure may in some instances indicate that a facility is of national significance, in others it is unlikely to be conclusive (1996a, p. 26).

The Commission agrees with the NCC's view. There is little evidence to suggest that the physical dimensions of a facility will reflect its importance to the nation.

### 2.3.2 Importance of the facility to constitutional trade or commerce

In assessing the importance of the facility to constitutional trade or commerce — sub-test (ii) — the Council will:

... consider the monetary value of trade which is dependent on the *service* in question. The Council will also consider the wider importance of an infrastructure service to trade or commerce in related markets (1996a, p. 26).

#### *The Commission's view*

The Commission sees merit in considering the expected monetary value of *new (or additional)* trade or commerce arising in related markets following mandated *access* to the service in question. An assessment of the importance of such trade or commerce can then be gauged by considering its significance relative to the status quo.

In some circumstances, however, information constraints may make such an assessment difficult. For example, it may be difficult to assess the future value of pay TV services from a satellite which is currently only providing telephone services.

### 2.3.3 Importance of the facility to the national economy

The Council, when assessing the importance of the facility to the national economy — sub-test (iii) — will:

- ... particularly examine the market in which access would promote competition
- ... [and] would generally consider national significance to be established if:
  - such a market provides substantial annual sales revenue to business in it; and

- providing access would be likely to substantially promote competition (1996a, p. 26).<sup>11</sup>

### *The Commission's view*

The Commission believes that the NCC is correct in deciding to examine the market in which access would promote competition when considering this sub-test. However, the Commission believes that sales revenue is not always a good measure of a market's contribution to the economy. A more meaningful measure of a market's contribution can be obtained by determining the market's contribution to national value added.<sup>12</sup>

The Commission also agrees with the NCC's decision to link a measure of market size to the increase in competition promoted in that market by mandating access. The combination of these two measures gives the Council a good measure for the national importance of mandating access.

In practice, the promotion of competition would in most instances need to be substantial if this test is to be passed.<sup>13</sup> However, a substantial promotion of competition in isolation may not be sufficient to pass this test. For example, even though an application may pass the substantial promotion of competition test in criterion (a), the market in which the competition is promoted could be non-significant from a national perspective and, hence, the application would fail this test.

A further complication of sub-tests (ii) and (iii) is that they do not define a time period for assessing significance. For example, in terms of the importance to constitutional trade or commerce, there is no indication of the time period over which the value of trade associated with a particular facility should be determined. For sub-test (iii), however, the NCC has indicated a time period of one year. Examining trade values, sales revenues or value added for, say, one year, may not provide the necessary insights on the importance of the facility. It may take some time for a market or the new business associated with mandatory access to reach peak levels. The Commission believes that the NCC will need to assess this issue on a case-by-case basis.

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<sup>11</sup> The Council considers that 'over time, precedents will be established which will indicate the Council's views on what amounts to substantial annual sales revenue and the creation of new markets' (1996a, p. 26).

<sup>12</sup> Value added measures the contribution of a market or industry to gross domestic product.

<sup>13</sup> Note that the Council's Draft Guide indicates promoting a non-substantial increase in another market would meet criterion (a), but not this test.

## 2.4 Criterion f — the public interest test

*... access (or increased access) to the service would not be contrary to the public interest.*

The NCC states that criterion (f) addresses matters that have not already been dealt with under the other criteria. However, it is likely that in many instances the satisfaction of the previous criteria would impact on the public interest, for example, the promotion of competition in another market — covered by criterion (a).

The test is stated in the negative — that is, *not* contrary to the public interest. Thus, provided all other criteria are satisfied, a neutral assessment of public interest would be sufficient for the NCC to recommend declaration.

The NCC notes that public interest is not defined in the Act. This situation is by no means unique. For example, McEwin (cited in IC 1995a, p. 25) reports that *public interest* was mentioned 386 times in a search of 1167 Commonwealth Acts and 566 regulations without the term being defined. While there is also no legislative definition of the term *public benefit*, it has been used in the TPA merger test and in the evaluation of authorisations of anti-competitive agreements.

According to the Council's Draft Guide, economic efficiency will be a key means for assessing public interest. However, the NCC also states that it 'does not consider the public interest and economic efficiency to be synonymous, and will give consideration to matters other than economic efficiency' (1996a, p. 29). The NCC offers a number of other matters that could be considered as being in the public interest. This list is based on section 1(3) of the Competition Principles Agreement which provides:

- (3) Without limiting the matters that may be taken into account, where this Agreement calls:
  - (a) for the benefits of a particular policy or course of action to be balanced against the costs of the policy or course of action; or
  - (b) for the merits or appropriateness of a particular policy or course of action to be determined; or
  - (c) for an assessment of the most effective means of achieving a policy objective;

the following matters shall, where relevant, be taken into account:

- (d) government legislation and policies relating to ecologically sustainable development;

- (e) social welfare and equity considerations, including community service obligations;
- (f) government legislation and policies relating to matters such as occupational health and safety, industrial relations and access and equity;
- (g) economic and regional development, including employment and investment growth;
- (h) the interests of consumers generally or of a class of consumers;
- (i) the competitiveness of Australian business; and
- (j) the efficient allocation of resources.

While Part IIIA of the TPA provides the legal foundations on which access issues must be considered, the CPA provides non-legislative general principles against which certain aspects of competition policy may be considered. Accordingly, it is not clear to what extent the list in clause 1(3) of the CPA must be followed when assessing the public interest criterion for third party access. Also, wording in clause 1(3) such as ‘shall, where relevant be taken into account’, appears to offer the NCC scope for limiting the consideration of these criteria when considering public interest in relation to access.

Indeed, in a recent publication, the NCC recognises that, in some circumstances, an extensive evaluation based on clause 1(3) of the CPA would not need to be undertaken. It argues, in relation to governments’ obligations of implementing agreed competition reforms in return for competition payments that:

... where the net benefit to the community from a reform measure is clear, the Council does not see a requirement for governments to conduct a formal assessment of the public interest in terms of subclause 1(3) (1996b, p. 10).

### *The Commission’s view*

The Industry Commission believes that decisions regarding what constitutes the public and, hence, what constitutes public interest, should be considered from an economy-wide perspective. This means taking into account *all* the benefits and costs that arise from future transactions flowing from the access. These include benefits accruing to private parties — such as a business and its employees — and benefits passed on to consumers in the form of, say, lower prices.

The Industry Commission believes that economic efficiency considerations should drive any assessment of public interest concerns. Efficiency gains in themselves can help achieve general welfare objectives through lowering costs and prices, providing greater choice to consumers, and contributing to growth and, hence, employment opportunities.

Indeed, the efficient allocation of resources (item j of clause 1(3)) — or economic efficiency — is crucial in achieving improvements in a number of the other matters listed in the clause. For example, by achieving an efficient allocation of resources, the scope for economic development will be maximised. Similarly, an efficient allocation of resources will help ensure that firms' owners/managers/employees receive the market signals which encourage actions to maximise the competitive position of Australian industry. That said, we must be mindful that access arrangements are only one of many tools available to ensure economic efficiency.

Some matters covered in section 1(3) of the CPA — such as ecologically sustainable development and social welfare and equity considerations — cover policy areas much broader than infrastructure access. Trying to achieve these types of policy objectives through a public interest criterion associated with third party access to infrastructure services creates the possibility for greater complexity and confusion to arise in assessment procedures. Objectives, such as those relating to social equity, would be best pursued through other policy measures. For example, the Commonwealth Treasury argues that:

Governments have means of promoting fairness of income distribution including transfer payments and taxation systems and via programs to provide subsidised goods and services. Competition policy, on the other hand, is a very blunt instrument for achieving fairness of outcomes; if equity considerations were allowed to override...efficiency goals...competition policy could make the community poorer in the aggregate sense. This would act to reduce the level of income available to redress income distribution via transfer payments and the taxation system (Department of the Treasury 1991, p. 6).

The Industry Commission therefore recommends that the NCC use caution if considering multiple, and what might be potentially conflicting objectives, to assess public interest. Trying to achieve other major policy objectives indirectly, rather than tackling them through more appropriate and targeted policy instruments puts at risk the goal of achieving the most appropriate third party access outcomes.

The Commission acknowledges that the inclusion of clause 1(3) in the public interest test may mean that in some (probably rare) circumstances, the NCC could be hesitant to recommend declaration of a facility. For example, it may be appropriate to delay mandating access until the introduction of certain environmental controls to ensure economically sustainable development, or to deal with any economic adjustment issues affecting equity or regional development. Thus, application of clause 1(3) of the CPA could, in some circumstances, defer access rather than foreclose the prospect of access indefinitely.

The issue of public interest as it applies to competition policy via the CPA is complex and is currently the subject of an inquiry being undertaken by the Commonwealth Parliament. The Industry Commission also plans to undertake further research into the potential impact of the CPA clause 1(3) principles.



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### 3 CERTIFICATION AND THE NSW GAS CODE

The national access regime is intended to operate concurrently with other access regimes. However, the national regime can override a state, territory or private sector access regime if the alternative access regime is not 'effective'. To avoid declaration of infrastructure services which are covered by a state or territory's access regime, the Premier/Chief Minister can request that the NCC certify the regime as effective.<sup>1</sup>

When considering whether a state or territory's access regime is effective, the NCC is required to apply principles set down in the Competition Principles Agreement (CPA) — clauses 6(2) to 6(4). The NCC has outlined its views on these principles in its Draft Guide to Part IIIA (NCC 1996a). The NCC has requested submissions on this Guide.

In October 1996, the Premier of New South Wales formally requested the NCC to certify the State's *Third Party Access Code for Natural Gas Distribution Networks in NSW* (NSW Regime).<sup>2</sup> As part of its assessment, the NCC has called for submissions on the effectiveness of the NSW Regime.

This section comments on some key aspects of the certification tests. In doing so, elements of the NSW Regime are also considered. The following clauses of the CPA are considered in some detail:

[6](3) For a State or Territory access regime to conform to the principles set out in this clause, it should:

- (a) apply to services provided by means of significant infrastructure facilities where:
  - (i) it would not be economically feasible to duplicate the facility;
  - (ii) access to the service is necessary in order to permit effective competition in a downstream or upstream market, ...

[6](4) A State or Territory access regime should incorporate the following principles:

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<sup>1</sup> There is no equivalent certification process for Commonwealth or private sector access regimes.

<sup>2</sup> AGL's distribution network supplies about 96 per cent of the NSW natural gas market. The Council of the City of Wagga Wagga and the Albury Gas Company supply the remainder.

- (a) Wherever possible third party access to a service provided by means of a facility should be on the basis of terms and conditions agreed between the owner of the facility and the person seeking access.
- (b) Where such agreement cannot be reached, Governments should establish a right for persons to negotiate access to a service provided by means of a facility.
- (c) Any right to negotiate access should provide for an enforcement process. ...

### 3.1 Clause 6(3)(a)(i)

*It would not be economically feasible to duplicate the facility.*

Australian Governments' rationale for implementing third party access regimes for the services of certain infrastructure facilities is to encourage competition in other, related markets. The concern underlying third party access stems from the natural monopoly characteristics of these facilities. As noted in Chapter 2, natural monopoly characteristics depend on a number of factors, including the costs associated with existing technologies and the level of demand.

Clause 6(3)(a)(i) of the CPA introduces the concept of natural monopoly into the certification process by requiring that it not be *economically feasible to duplicate the facility*. This clause is a stronger test than Declaration criterion (b), which requires only that the development of another facility be *uneconomic*.

In its Draft Guide, the Council recognised the difference between the relevant Certification and Declaration tests but stated that:

... the Council's view is that they have a similar objective. Accordingly, the Council expects that both the National access regime and State and Territory access regimes, where effective, will focus principally on infrastructure services provided by natural monopolies. *That said, the regimes might not necessarily be limited to natural monopolies* (1996a, p.47, emphasis added).

The wording of clause 1.9(b) of the NSW Regime closely mirrors the wording in the Part IIIA Declaration test, rather than the CPA's clause 6(3)(a)(i). The Regime requires that the regulator, when assessing whether a pipeline should be covered by the code, must be satisfied:

... that it would be uneconomical for anyone to develop another Pipeline to provide the Services catered for by that Pipeline... (clause 1.9(ii)(b)).

As noted in Chapter 2, the Commission believes that, from an economic policy perspective, mandatory access arrangements should *only* be applied to infrastructure with natural monopoly characteristics. The potential costs associated with mandatory access form the basis for this view (see Box 2). The

discussion in section 3.3 on negotiating and regulating access highlights some of the administrative costs associated with access.

### **3.1.1 Is the NSW natural gas distribution network a natural monopoly?**

As noted in Chapter 2, subadditivity is the over-riding test of a natural monopoly. The chapter also indicates that, in the single product case, economies of scale are sufficient for subadditivity. However, a multi-product natural monopoly generally requires the existence of both economies of scale and economies of scope.

The AGL Gas Company's natural gas distribution network is made up of a series of interconnected pipeline systems which graduate the pressure and volumes required by different types of gas customers (Gas Council of NSW 1996). The network supplies at least five services — these services reflect the pressure of the gas supplied to different customers.<sup>3</sup> As shown in Figure 2, the vast majority of the network's customers are served by the medium to low pressure system. However, the Gas Council of NSW notes that the capacity of the medium and low pressure pipelines in isolation is not sufficient to transport gas for these customers. Additional capacity needs to be supplied by the higher pressure pipelines. Hence, in the AGL distribution network, the higher pressure, larger capacity pipelines are an integral part of the supply chain for all customers. These interdependencies between customer groups use of the network suggests the AGL network enjoys economies of scope.

The Gas Council of NSW also notes that the AGL system:

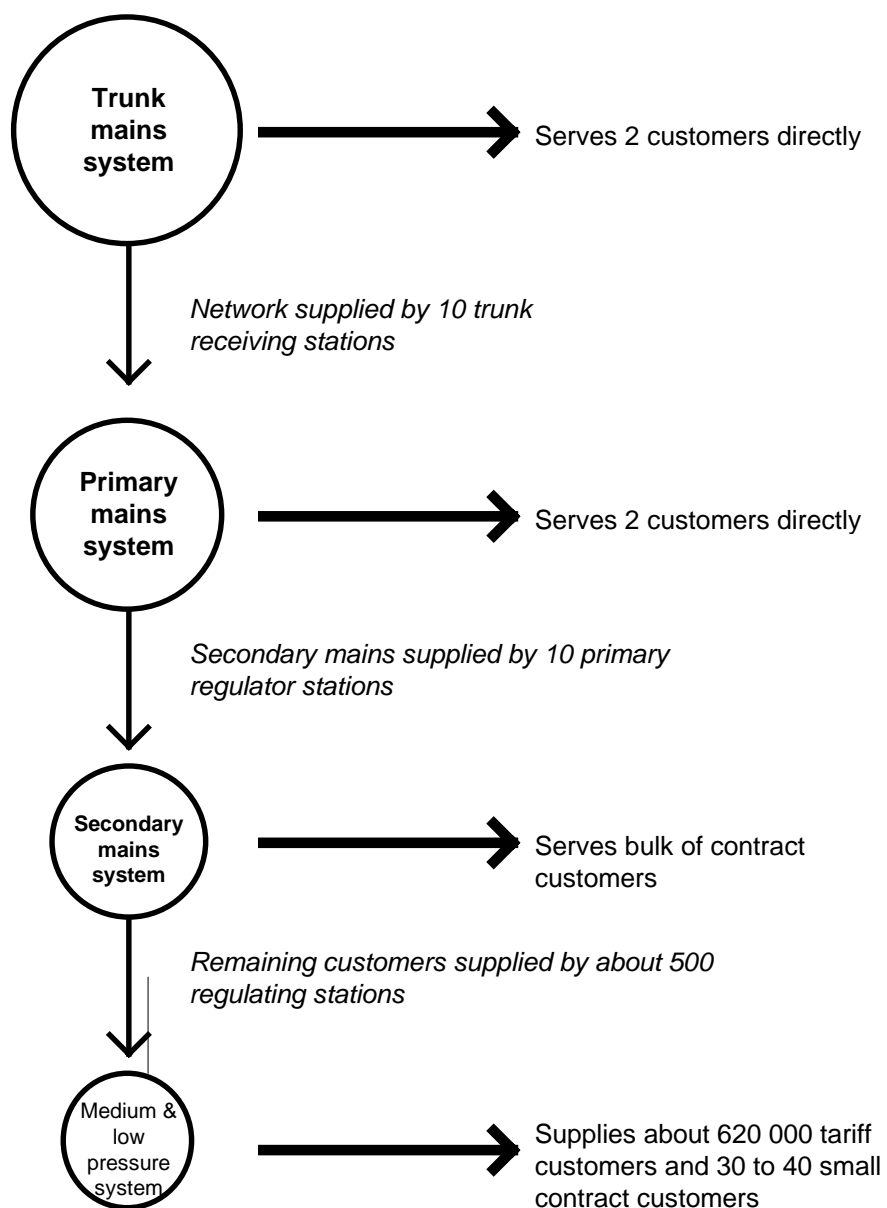
... does not include any gas compression facilities; sufficient pressure is provided ... at the city gate at Wilton. There are therefore virtually no variable operating costs on the network (1996, p.13).

The existence of virtually zero variable costs associated with individual customers throughput suggests that the network currently has no capacity constraints and most likely enjoys economies of scale.

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<sup>3</sup> The number of services supplied would be much larger if each service provided to a different region was considered as an individual service.

**Figure 2: The AGL Gas Company distribution network**



Source: based on Gas Council of New South Wales (1996).

A relatively simple, but certainly not conclusive, indication of whether infrastructure has natural monopoly characteristics is to see if duplication is normal commercial practice elsewhere. The Commission is not aware of any

substantial duplication of gas distribution markets in the recent past.<sup>4</sup> However, in Australia's case, current and recent past regulation of gas distribution may have contributed to this outcome. For example, until 1990 the New South Wales Gas Act gave an exclusive right of supply to the licensee of the gas franchise area.<sup>5</sup> This regulation effectively prohibited any duplication or bypass of the distribution network, regardless of its economic viability.

In the United States (US), Breyer (1982) argued that gas distribution companies are natural monopolies. More recently, De Vany and Walls have observed that private gas distribution systems and public utility systems often operate in parallel in the US. They argue that:

One reason they do this is to get better terms and reliability than the local distributor can give them. Another is to cover parts of the region the distributor's system does not. Yet another is to augment the coverage where the distributor's coverage is inadequate (1995, pp. 21-22).

However, in most instances these parallel networks 'do not duplicate an existing line; they partly parallel the route and usually extend or redirect the route as well' (De Vany and Walls 1995, p. 22). In addition, it needs to be recognised that the US gas market has very different characteristics to the Australian market. In its recent gas industry and market study, the Industry Commission noted that:

Over time, [Australian] gas markets have tended to grow and deepen. However, in comparison with gas markets in North America, the extent of this deepening and the rate at which it has occurred has been heavily constrained in Australia by regulation, the size and low population density, the distance between its major centres of population and industry and the distance between those centres and Australia's major gas reserves (IC 1995c, p. XXVI).

The non-regulatory constraints of size and population density impact on an important variable in any analysis of natural monopoly — the level of demand.

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<sup>4</sup> There was some limited duplication or overlap of gas distribution networks in Melbourne in the nineteenth century. For instance, by 1872, Melbourne was served by three gas utilities. The boundaries of these utilities overlapped, as the legislation establishing the companies did not allocate exclusive monopoly rights. The three utilities eventually amalgamated to form the Metropolitan Gas Company.

<sup>5</sup> Natural monopoly characteristics of distribution and government support for the maintenance of non-commercial cross-subsidies have been the traditional rationale for legislation prohibiting duplication. However, there has been a change in approach in recent years. Governments are now more likely to take the view that, if the incumbent is a sustainable natural monopoly, entry will almost always be unprofitable and, therefore, regulation that restricts entry is unnecessary. Hence, to the extent that substantial sustainable entry occurs, there is a good chance that the monopoly is not natural, or is no longer natural.

The ‘depth’ of the Australian and New South Wales markets is clearly substantially less than that in major US gas markets.

In the case of NSW, a relatively short period of time has passed since the removal of the exclusive distribution rights. In addition, alternative sources of gas have not been readily available, mainly due to inter-state barriers to trade. Hence, it is theoretically possible that the lack of another distribution network in NSW need not imply that duplication is uneconomical in the sense that the network is a natural monopoly. On the other hand, as discussed above, it must be recognised that natural gas distribution networks, such as the AGL Gas Company network, involve substantial, lumpy investments. Hence, it is likely that, for the current level of demand and capacity ranges, substantial economies of scale and/or scope will prevail in distribution in the market serviced by the AGL Gas Company for the foreseeable future.

The Commission does not have access to the data necessary to comprehensively assess the natural monopoly characteristics of the NSW natural gas distribution system. However, it believes that, *prima facie*, there are strong grounds to suggest that this distribution network has natural monopoly characteristics.

Notwithstanding this, given the right economic circumstances, it may be viable for a third party to develop a pipeline facility to bypass part of the NSW distribution network.<sup>6</sup> Bypass will occur if the benefits of building an alternative facility exceed the cost of access to the existing facility. The US experience suggests that bypass will occur if the service provided by the incumbent pipeline owner does not meet users’ requirements, in terms of (say) quality or coverage. Alternatively, a firm may choose to bypass a facility if the bundled gas and transportation tariff or the access price charged by the incumbent do not reflect costs — that is, they are too high. King (1995) argues that bypass in this latter case can be *inefficient*.

In NSW, contract gas consumers<sup>7</sup> subsidise the tariff market (IPART 1996a). As a result of submissions to IPART from end users, the extent of this cross-subsidy is currently the subject of debate. IPART, with a view to substantially eliminating this cross-subsidy, plans to test alternative estimates against analysis it has commissioned (1996b). If non-commercial cross-subsidies are removed,

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<sup>6</sup> Bypass in its narrow sense involves a pipeline investment to avoid using all or part of the distribution network. Bypass in the broader sense could involve a user electing to produce the service or product itself. For example, by internal production of synthetic natural gas.

<sup>7</sup> AGL’s customer base comprises Tariff customers who use less than 10 terajoules of gas per annum and Contract customers who use more than 10 terajoules and negotiate directly with the distributor.

and providing that there are no monopoly rents earned in distribution or retail gas supply, any bypass that might occur would be efficient. Bypass and effective competition are discussed in Section 3.2. The implication of negotiation and the development of efficient access prices is discussed in Section 3.3.

### **3.2 Clause 6(3)(a)(ii)**

*... apply to services provided by means of significant infrastructure facilities where ... access to the service is necessary in order to permit effective competition in a downstream or upstream market.*

The NCC provides no guidance as to how it will judge whether competition is ‘effective’ or not, although the issues paper asks which markets would be enhanced by competition. It also notes in its Draft Guide that it plans to make long term production and consumption substitution possibilities a key consideration when defining markets. The Commission agrees with this framework for defining the markets in question.

#### **3.2.1 Effective competition**

Hilmer suggests that, while defining effective competition is difficult, it is a central question in competition policy. He suggests that the concept can be considered as competition in a form which is likely to produce economic efficiency — productive, allocative and dynamic — but concedes that:

*... answers to questions of how many competitors are “enough”, whether the threat of new entrants is adequate to produce competitive outcomes ... depend on the view taken with respect to effective competition (1995, p. 7).*

Hilmer notes we must decide whether competition is a ‘delicate flower’ or a ‘tough weed’. Certainly, different views exist on how many firms in competition with one another is enough to provide efficiency gains. These views range from a requirement that there needs to be a large number of small firms competing head to head (a ‘delicate flower’), to the view that competition can still be effective where only a few participants exist in a market, and one may even have dominance (a ‘tough weed’).

#### *Constraints on market power*

In the Commission’s view, efficiency gains from achieving more effective competition are at the crux of this criterion. However, it needs to be recognised that effective competition can be achieved in the absence of direct competition, through contestable markets and substitutes.

The theory of contestability — which focuses on the *threat* of competition — suggests that, in some circumstances, markets will operate efficiently without visible competition between two or more firms taking place. For example, Hylton, in a discussion on essential facilities, argues that the threat of competition can force a monopolist to price below the monopoly price. He states that in the United States:

Most judicial opinions assume that the firm which has access to the facility is avoiding competition by denying access to another firm. However, this view fails to recognise that the “outside” firm is already providing competition. ... The decision by the incumbent not to share access with a competitor does not mean that the incumbent is able to operate free from competition (1991, p. 1253).

This argument is based on the proposition that an incumbent facility owner will not want to fully utilise its short term market power if there is the potential for higher cost firms to enter the market at the monopoly price. In these circumstances, a monopoly supplier is unlikely to fully exercise its market power. It could, for instance, elect to price at a level just below that required for new entrants to be viable. This price may be higher than that in a perfectly competitive market, but lower than the full monopoly price.

The threat of bypass is a source of contestable competitive pressure. King notes that ‘the ability to bypass places a degree of competitive burden on the facility owner which would otherwise not exist’ (1995, p. 19). US experience supports this point. For example, Broadman and Kalt examined a number of cases where bypass was considered in response to uncompetitive local distribution company (LDC) price structures. They found that:

... the mere prospect of new entry can engender improvements in LDC rates and services that out-compete a proposed bypass and therefore eliminate the need for building bypass facilities (1989, p. 195).

Hence, depending on the extent of monopoly, potential entrants can threaten bypass in order to negotiate more favourable access terms with the facility owner.<sup>8</sup> Even if bypass options are not taken up, it can contribute to the promotion of effective competition in downstream markets for gas and for energy.

The Commission believes that, for an access regime to be effective, the potential for bypass should not be constrained. In its view, the NSW Government’s decision to permit bypass in the NSW Regime was appropriate.

In practice, some owners of infrastructure facilities with large fixed or sunk costs, such as gas pipelines and the like, may not face the threat of entry or

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<sup>8</sup> In these circumstances, *actual* bypass may never occur.



bypass. However, similar constraints on an incumbent's pricing behaviour may be imposed if there are substitution possibilities. For example, excessively high charges for gas distribution services may encourage many industrial users to substitute electricity for natural gas. The possibility of competitive pressures being exerted by producers of substitute goods has important implications for market definition and the affect access might have on competition in these markets.

### **3.2.2 Will competition be promoted in related markets?**

Although case by case assessments will be required, the Commission believes it is important that markets are not defined too narrowly. To this end, it is appropriate that the NCC has indicated it will take substitution possibilities and technology changes into account.<sup>9</sup>

Formally identifying substitution possibilities and the potential for technological change is a task that requires considerable analysis. With this in mind, the Commission has advocated a two stage process for assessing the likely implications of access on markets (see Chapter 2). There are potential cost and time savings from following a two stage process. For example, if the NCC considers a broader market definition is appropriate for a particular application, the more complex analysis needed to make such a definition is only undertaken if it assessed that access would give rise to significant benefits under a more narrowly defined market test.

The following discussion provides an overview of some matters the NCC might wish to examine when considering whether access will permit effective competition in up or down stream markets.

### **3.2.3 Upstream markets**

In the context of the NSW gas distribution network, upstream markets include:

- natural gas production (including coal bed methane); and
- gas transmission services.

#### *Natural gas production market*

Presently, large scale commercial quantities of natural gas are not produced in NSW. Consequently, the state is dependent on interstate supplies, predominantly

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<sup>9</sup> The definition of markets in the context of access is discussed in Chapter 2.

from the Cooper Basin in South Australia. This gas is transported via the Moomba to Sydney transmission pipeline to the City Gate, where AGL's distribution network — the subject of the NCC's certification assessment — begins.

Importantly, all NSW supplies of natural gas from the Cooper Basin are contracted by AGL under a 30 year contract with the consortium of South Australian Cooper Basin producers. The contract expires in 2006 although, as contracted volumes will decrease from 2002, renegotiation is anticipated prior to this date (Gas Council of NSW 1996, pp. 10, 69). The contract contains some anti-competitive arrangements which were authorised by the TPC/ACCC in 1986, and were therefore protected from legal proceedings under the relevant sections of the *Trade Practices Act 1974*. Since 1975, these arrangements, among others, have been exempt from trade practices action in South Australia by the *South Australian Cooper Basin (Ratification) Act 1975*.

An example of the authorised anti-competitive arrangements is contained in the Letter of Agreement. This contains a clause requiring AGL to give the Cooper Basin producers the first right of refusal for supply over and above the existing agreed volumes, provided the price and terms of sale are no less favourable than AGL could obtain elsewhere. Such clauses can discourage new upstream entrants. For example, if they have access to non-committed reserves, incumbent producers can use their exclusive rights to match the price of any competitor and prevent it supplying gas to AGL.

The TPC/ACCC commenced a review of the authorisation in September 1994. It subsequently revoked the original authorisation and granted a substitute authorisation. The substitute authorisation, among other things, removed the protection for the first right of refusal arrangements under the TPA. This decision was based on an assessment that the costs associated with this arrangements were no longer outweighed by the public benefits. However, in April 1996, the Cooper Basin producers filed an application with the Australian Competition Tribunal for a review of the ACCC's decision. This will be heard in March 1997.

The Industry Commission expressed concern that the *Cooper Basin (Ratification) Act 1975* would still provide significant protection to the arrangements between the Cooper Basin producers and AGL, even if the substitute authorisation were upheld (1995c, p. 79). The Commission understands that, in accordance with the legislative review provisions of the CPA, the South Australian Government is to review this legislation by the end of 1998.

Putting aside the contractual problems associated with the Cooper Basin producers, there is still a distinct possibility of competition between gas producers. For example:

- According to the Gas Council of NSW, in the short to medium term natural gas could conceivably be supplied from a number of alternative sources. It contends that:

...[there is] the likelihood of new transmission pipelines being constructed in Victoria, NSW and Queensland. The Council is particularly encouraged by BHP/Westcoast and EAPL/GTC proposals to connect the Bass Strait fields with the NSW market. If either or both of these pipelines proceeds this would introduce ongoing competition for supply to NSW between two different basins (1996, p. 15).

- The IC reported in its 1995 gas markets study that a round of vigorous interbasin competition was developing as some major take-or-pay contracts matured. In particular, it noted that BHP was seeking to contract to supply gas customers in Sydney without having secured supply through the distribution network at the time.
- The recent resolution of the Bass Strait producers Resource Rent Tax dispute with the Victorian Government will increase the potential for inter-state trade in Victorian-sourced natural gas.<sup>10</sup> The removal of this constraint may also stimulate further exploration for gas in the Bass Strait. Any addition to gas reserves in the Bass Strait will increase the likelihood of gas being supplied to NSW users.

The introduction of an effective NSW third party access code for natural gas distribution networks, coupled with these recent developments, increases the likelihood of competition between the Cooper Basin and Bass Strait producers.

### *Coal Bed Methane*

An alternative source of natural gas is coal bed methane (CBM).<sup>11</sup> Australia's CBM reserves have been estimated to be the fourth largest in the world, with almost all basins located in NSW and Queensland (AGA 1996a). A large quantity of CBM is available in NSW — close to major demand centres and existing pipelines. According to the AGA, the transportation of CBM along existing natural gas pipelines should not be a difficult or costly matter:

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<sup>10</sup> Under the new arrangements, Bass Strait producers will no longer be constrained from selling gas inter-state.

<sup>11</sup> Coal bed methane is natural gas trapped within coal seams. Its usually comprises a mixture of methane, carbon dioxide, hydrocarbons and sometimes nitrogen.

Issues of gas quality are unlikely to pose much of a problem. Most coal seam methane streams will, with only minor treatment, plus compression, meet pipeline natural gas standards and will be a readily saleable commodity (1996a, p. 35).

A 1995 study of the viability of CBM production in NSW concluded that unit costs in the early years of CBM production would not match the current city gate price for natural gas. However, the study concluded that outside of the main centres and the central west — such as the north east of NSW to the Queensland border — CBM would be of ‘profound regional significance’ as prices would be competitive with current natural gas charges (Brown et al, cited in AGA 1996a, pp. 37-38). The AGA study concluded that, at the present time, greater potential existed for CBM development in Queensland and some niche markets in NSW.

Provided there is access to the current gas pipeline infrastructure, a number of industry sources are very positive about the potential for CBM to compete with producers of traditional natural gas. For example, according to Pacific Power:

Extensive exploration for coal bed methane is in progress and if successful will have the potential to significantly increase competition in the energy market. The coal bed methane exploration areas are located near to existing pipeline infrastructure. Non-discriminatory access to these pipelines will be essential to ensure coal bed methane can be traded equally with conventional gas through market based arrangements (quoted in IC 1995a, p. 52).

While the viability of CBM in NSW may be fairly limited in the shorter term, it is important that its potential as a substitute source of natural gas be considered in the NCC’s assessment of the promotion of upstream market competition.

### *Gas transmission market*

Currently, the NSW market is serviced by the transmission pipeline from Moomba to Sydney. An access regime applies to this pipeline. However, at this stage, the pipeline has only one customer — AGL — who is also a major shareholder in the pipeline company. Effective access to the NSW distribution network will increase the potential for other parties to seek access to the Moomba to Sydney transmission pipeline.

In addition, effective access to the NSW distribution network should improve the viability of any future investments in gas transmission pipelines linking the Victorian and New South Wales markets. For example, if investments in pipelines connecting Albury and Wagga Wagga or connecting Bass Strait and Sydney eventuate, there will be the potential for direct competition to evolve between the major gas transmission pipelines. The improved viability of these

transmission pipelines will increase the level of competition (from a direct and contestable view point) between the Cooper Basin and Bass Strait.

### *Concluding comments on up stream markets*

Access past the city gate can be an important element in the promotion of effective competition in related upstream markets. As noted by DeVany and Walls:

If ... buyers cannot gain access to move their gas through the local distribution grid, then their ability to make gas deals in the fields and use open access to transport gas over the long-haul pipeline will be insufficient to get the gas to their point of use. Open access on the long-haul interstate pipeline may offer no benefits to customers behind the local distributor's city gate if the gate is closed and locked (1995, p. 68).

The above discussion points to the likelihood that access to the AGL distribution network will promote competition between gas producers in the Cooper Basin. The construction (or viability of construction) of transmission pipelines linking the Victorian and NSW markets also creates the opportunity for competition between gas basins as supply contracts expire. Effective access to the NSW distribution network should improve the viability of interstate pipeline linkages and intensify competition. Future competitive pressures for gas production might also come from CBM production, although this does not appear to be an immediate threat to traditional gas producers supplying the Sydney market.

An effective access regime for NSW distribution should also facilitate greater use of the access available for the Moomba to Sydney transmission pipeline.

### **3.2.4 Downstream markets**

Downstream markets broadly consist of the chemical feedstock market and the market for 'energy' (comprising demand for industrial, commercial and residential uses).

#### *Chemical feedstock market*

Natural gas, which normally has two main constituents — ethane and methane — competes with coal, oil and naphtha as a chemical feedstock. Gas transported from the Cooper Basin comprises: 88.5 per cent methane; 8.0 per cent ethane; 2.1 per cent carbon dioxide; 1.2 per cent nitrogen; and 0.2 per cent propane (AGA 1995).

Methane is used to produce ammonia, and when converted to ammonium nitrate, is used in products such as fertilisers. There is no economic alternative to using methane gas to produce ammonia. However, the obvious advantage to ammonia producers of access to the NSW distribution system is that it offers greater opportunity to seek better supply terms and conditions. For example, supplies of methane could be sought directly from gas producers, with pipeline transportation purchased directly from transmission and distribution pipeline owners. Alternatively, gas can be bought as a bundled good from a gas distributor.

### *Energy market*

The market for natural gas as a source of energy can be viewed as a ‘gas market’ or more broadly to encompass all forms of energy (for example, electricity, coal and fuel oil). The geographic nature of the market also needs to be considered. The discussion below considers natural gas in these different contexts.

#### *The natural gas market*

The downstream market for natural gas in NSW is supplied by three monopoly distributors.<sup>12</sup> The main down stream natural gas market consists of industrial, commercial and residential users of natural gas. Users normally fall into two distinct groups: tariff customers and contract customers. Tariff customers mainly consist of smaller commercial and industrial users, as well as residential consumers. While relatively small numerically, the contract market is by far the largest user group, comprising large industrial firms as well as hospitals and the like. Larger industrial and commercial gas users in NSW consume about three-quarters of the total gas supplied.

The effect that access to the NSW gas distribution network will have on the natural gas market is likely to vary, at least in the short term, across customer groups. For example, some customers in the contract market may purchase or, alternatively, threaten to purchase, their gas supplies directly from producers and pay access fees for pipeline transport. As a result of access, these same users could even have greater choice in the gas basins from which they can purchase. For these large contract users, access should promote more effective ‘gas to gas’ competition.

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<sup>12</sup> AGL supplies around 96 per cent of the gas market in NSW, its network extends to Sydney, Newcastle, Wollongong, the Central Coast and a number of country areas in the state. The Wagga Wagga City Council and the Albury Gas Company distribute the remaining 4 per cent.

Even with an effective access regime in place, households and smaller natural gas users are likely, in the short term at least, to have no alternatives but to purchase natural gas from the monopoly distributor. For these users, major changes may not occur until, or if, an alternative distributor enters the market.

However, an analysis of the natural gas market in isolation may not give a true picture of the level of competition in the NSW natural gas market. For a more precise indication of the level of competition, as well as the effects of access in downstream markets, it is also necessary to consider substitution possibilities. That is, there is a need to consider the broader market for energy.

#### *The broader energy market*

To varying degrees, natural gas can substitute for a range of fuels including coal, oil and electricity. It can substitute for electricity in a variety of end uses such as space heating, hot water and temperature control for commercial and industrial applications. Because substitution between energy sources often involves the acquisition of new equipment/appliances, the rate of substitution will often reflect the remaining life of existing assets as well as relative energy prices.<sup>13</sup>

In its analysis of the NSW electricity market, the Commission found that Pacific Power—which supplied over 90 per cent of the NSW electricity market in 1995—operated in two distinct market segments (IC 1995d). One segment comprised an ‘exclusive’ electricity market. The other segment was a broader ‘shared’ market in which electricity competed vigorously with other forms of energy, particularly natural gas. Based on information in Pacific Power’s 1994 Draft Strategic Plan, the Commission estimated that natural gas and other substitutes competed for around 40 per cent of the total NSW electricity market.<sup>14</sup>

Many large energy users are able to directly negotiate with energy suppliers and obtain more favourable terms and conditions than those offered to smaller energy users. In many cases these large users hold long term supply contracts

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<sup>13</sup> Nonetheless, the annual turnover of some domestic appliances is quite high. For example, in 1993, about 7 per cent of water heaters were replaced in the Melbourne metropolitan area.

<sup>14</sup> The Gas Council of NSW contends that gas faces significant barriers to market entry because it entails connection costs (whereas electricity will always be connected) (1996, p. 11). To reduce these barriers, energy providers have offered price incentives to attract customers. For example, AGL recently offered new domestic consumers in the ACT the first year of gas supply free of charge.

with local energy distributors. The impact of access on these large energy users will depend on a number of factors including:

- the length of the long term contracts; and
- their ability to switch from, say, electricity, to gas.

In the context of contractual length and price responsiveness, the AGA (1992, p. 92) noted that, at any one time, only part of the nation's industrial sector is responsive to price changes, because the remainder is locked into long term contracts. The AGA considers that the price sensitive portion of the market varies across states, from very high in New South Wales to zero in the Northern Territory.

Many large users are also committed to long term infrastructure investments in technologies that require a specific energy fuel. For these users, the cost of conversions could be substantial, including plant modification, downtime while conversion takes place, construction of storage facilities for alternative fuels, renegotiating planning permits, changes in staff requirements, dealing with the different burning characteristics of other fuels (such as different output emissions), and so on. These costs represent significant short-term barriers to substitution and, accordingly, may confer significant market power on current energy providers.

However, some large energy users may be able to substitute quite easily. In fact, it is technologically possible for some industrial processes to switch between fuel sources reasonably easily, for example, in electricity generation. However, this is relatively rare in Australia, and more common in countries like the United States. This capacity provides such users with significant power when negotiating with energy suppliers.

Cross-price elasticities can be important indicators of the responsiveness of demand for one product to changes in the price of another. The higher the cross-price elasticity, the greater the substitutability of the products. The Commission briefly reviewed some of the empirical data available in this area, but found little consensus.

Little empirical research covering the New South Wales energy market has been published in recent times. Two studies — Truong (1985) and Woodland (1993) — examined the NSW manufacturing sector, but most other studies use national data. Both the NSW studies estimated that cross-price elasticities between gas and electricity were fairly low and negative — suggesting a level of complementarity. Importantly, Woodland found that elasticity estimates for gas varied over industry subdivisions, indicating that elasticities depend crucially upon the industry.



More recent studies have been inconclusive — the results varying markedly in both size and sign. This is attributable to a number of factors, including differing methodologies, levels of data aggregation and differences in the sectors covered by each study. The most recent empirical work, a study by ABARE commissioned by AGA, presented estimates of national energy demand between 1973-74 to 1993-94 (AGA 1996b). It concluded that the residential sector faces a higher cross-price elasticity than the other two sectors. In fact, the industrial sector was found to have a cross-price elasticity of zero. Consistent with Woodland's conclusion, ABARE noted that the industrial sector result masked a high degree of substitution within certain industrial classifications. The most notable industry showing high substitution possibilities was mining, where the cross-price elasticity of gas demand with respect to changes in electricity prices was estimated at 1.47. A similar result was estimated for the commercial sector. Importantly, ABARE acknowledges that:

... further changes in variables such as electricity and gas prices and the availability of natural gas have emerged since 1993-94 and more changes are expected. The changes in the energy market, together with changes in the technology for using gas in a variety of applications, are likely to result in further changes to the nature of gas demand. It is possible that over the longer term, gas demand may become more price responsive than indicated by the estimates presented in this report (AGA 1996b, pp. 27).

The elasticity studies reported above are based on price data (and consequent behaviour) that has prevailed in highly regulated and/or government operated energy markets. As a result, the degree of substitution as measured by cross-price elasticity measures can be flawed. In the case of NSW, AGL has provided gas supply to the majority of the market as a regulated monopoly for many years. Until recently, electricity supply has been provided on a similar basis. Given these facts, it is not inconceivable that recorded elasticities actually reveal more about the market power of energy suppliers than they do about the degree of substitution.<sup>15</sup> Hence, when assessing market power in the context of access

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<sup>15</sup> The so called, 'Cellophane fallacy' is a case where the elasticity of demand proved to be inconclusive evidence of the extent of market power. In this landmark case:

... the Supreme Court held that du Pont did not have significant market power ... because it had many reasonably good substitutes for its product, Cellophane. This holding has been criticised in the economic and legal literature on the grounds that du Pont had, in fact, exercised market power by raising price substantially and that it was the substantial elevation of Cellophane's price above the competitive level that brought it into competition with products ... in this case ... the elasticity of demand was significantly greater at the monopoly equilibrium than at the competitive equilibrium, so evaluating it at the monopoly equilibrium led to a significant underestimate of market power (Froeb and Werden, 1992, p. 241).

to infrastructure, elasticities of demand and supply, while useful tools, should be viewed with some caution.

### *Concluding comments on down stream markets*

Estimating ex-post the increase in competition in downstream markets attributable to an effective NSW distribution access regime is complex. That said, the Commission believes that access to the distribution network will enhance competition. For example, for markets where there is no economic alternative for using natural gas — such as in the production of ammonium nitrate — access will offer greater opportunity for users to seek out more favourable terms and conditions. As the discussion above suggests, access will also increase the likelihood of greater price competition occurring in the gas market, particularly for larger gas users. Competition should also be promoted between electricity and gas suppliers — although the promotion of competition in this case will vary depending on the characteristics of different users.

### **3.3 Clause 6(4)(a) to (c)**

Clause 6(4)(a) in the CPA requires that, wherever possible, third party access to the services of a facility covered by a State or Territory's access regime should be on the basis of terms and conditions agreed between the owner of the facility and the person seeking access. However, subsequent clauses 6(4)(b) and 6(4)(c) require that, where such agreements cannot be reached, governments should establish a right for persons to negotiate access, and this right should provide for an enforcement process.

In its Draft Guide to Part IIIA, the Council raised concerns about the efficacy of negotiating access. The Council said that:

While clause 6(4)(a) indicates a preference for the commercial negotiation approach (that is, no regulatory intervention), the Council recognises that limiting commercial negotiations particularly in relation to access charges and essential conditions for access, could sometimes promote better policy outcomes. In particular, it could help to:

- constrain an existing infrastructure operator's market power;
- reduce uncertainty; and/or
- produce more “workable” outcomes (1996a, p. 48).

Similarly, the application for certification of the NSW Regime expressed concern that ‘AGL’s monopoly of gas distribution networks in NSW creates the potential for inequities in commercial negotiations between AGL and those parties seeking access’ (NSW Government 1996a, p. 8).

In relation to the NSW Regime, the Council (1996c, p. 16) asks whether:

- the NSW Regime provides an environment for commercial negotiation?
- the Regime unnecessarily restricts the ability of parties to reach agreement on terms and conditions?
- any restrictions on commercial negotiation in the regime would be justified in the market for natural gas distribution? For example, might such restrictions promote better policy outcomes by constraining market power, reducing uncertainty or limiting the need for dispute resolution?

Theory sheds some light on when concerns about negotiating access are warranted. The following section reviews some of the relevant literature.

### **3.3.1 Negotiation and access to ‘essential’ infrastructure**

Negotiation of a contract price — often between parties with differing bargaining strength — is a normal occurrence in many markets. The housing market and the second hand car market are both examples of markets where negotiation is common. High value contracts for specialised goods or services, such as an advertisers contract with a large food retail chain, are also commonly associated with price negotiations between the parties. In other markets, such as the retail fruit and vegetable market, transactions costs have made negotiations the exception rather than the rule. In these instances, prices are set by the competitive market’s ‘invisible hand’. In the circumstances discussed above, there is a presumption that the price satisfies the requirements of each party and helps to achieve an efficient outcome from a resource allocation perspective.

In contrast, outcomes associated with commercially negotiated access to a monopoly infrastructure facility which is ‘essential’ to another market will not always lead to the most efficient allocation of resources. As discussed in Appendix A, there may even be some circumstances where commercial negotiation can lead to *less efficient* outcomes than might occur with an unregulated vertically integrated monopoly. This can occur when one of the parties has monopoly power over access and the user of the infrastructure service has monopoly power in the downstream market — the so-called ‘double marginalisation’ problem (King and Maddock 1996a).

The crux of the commercial negotiation problem is the market power held by the owner of the ‘essential’ facility (the service provider). Abstracting from the threat of mandatory access or arbitration, the service provider will only voluntarily negotiate an access price if it is no worse off as a result of the negotiations.

Voluntarily negotiated access will be mutually beneficial to the negotiating parties if the profits arising from the sharing arrangement exceed those earned by the service provider before access was permitted. That is, there is a 'rent surplus'. In this circumstance, negotiated access will only be beneficial to consumers if it leads to lower costs which are passed on in final prices. However, if there are no constraints on market power (ie competitive pressures are low), any lower costs arising from shared access may not be passed on to consumers. Hylton argues that the potential for this outcome will be reduced:

... the larger the number of firms sharing access to the cost-reducing facility, and the harder it is for participating firms to monitor each other's activities, the greater the incentive to compete in price (1991, p. 1253).

King (1995), Maddock (1995) and King and Maddock (1996a) argue that the service provider will have strong incentives to establish an access pricing regime that leads to monopoly prices in the downstream market. This situation is likely to eventuate regardless of whether or not the owner of the essential facility operates in the downstream market. King notes, however, that this result will not hold if:

- prices in the downstream market are set by substitutes; or
- prices in the downstream market are set by regulation; or
- the access demander is the sole consumer of all the downstream market goods.

King and Maddock (1996a) argue that the parties will always be able to design a set of contracts, admittedly sometimes complex contracts, which will allow them to maximise monopoly profits. This can occur regardless of the number of parties negotiating access. They do, however, suggest caution in analysing their results. They point out that the negotiating parties may not know with certainty how many firms will seek access, or for that matter, when they will seek access. Firms will also have different degrees of information about the market's potential profits and the level of competition in the downstream markets.

Hylton (1991) also argues that it would be very hard, and some times impossible, to determine the access fee necessary to ensure all monopoly rents are captured.

In all the circumstances considered in Appendix A, the monopolist service provider aims to appropriate all, or at least a large proportion of, any monopoly rents available in the downstream market. That is, the service provider will attempt to charge the full opportunity cost of the profits foregone if it operated as a monopolist (or continued to operate as a monopolist) in the downstream

market — this is sometimes referred to as the efficient component price (ECP) of access (see Box 4).

The Explanatory Memorandum accompanying the *Competition Policy Reform Act 1995* suggests that Parliament did not consider access based on the ECP rule as appropriate. The Memorandum explains that, when arbitrating disputed access, the ACCC must take account of:

- (a) the legitimate business interests of the provider and the provider's investment in the facility; .....
- (d) the direct costs of providing access to the service;

The memorandum notes that it was intended that reference to 'legitimate' and 'direct costs' in the legislation would:

... 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 (Amiti and Maddock 1996, p. 289).

**Box 4: The efficient component price (ECP) rule**

Baumol and Sidak (1994) put forward the ECP rule in their analysis of access prices for telecommunications. The rule assumes that pricing of access to reflect the opportunity cost to an integrated supplier of provision will ensure that only the most efficient firms will seek access. That is, only those firms who can operate in the downstream market at cost levels equal to or below those of the incumbent firm will seek access. The rule was used as a defence by New Zealand Telecom in the Clear Communications V New Zealand Telecom Access Case. The appeal court rejected the defence. However, the defence was accepted on further appeal to the Privy Council.

The effectiveness of the ECP rule in achieving efficient outcomes has been the subject of some dispute. In particular, there is concern that the competition policy objective of moving away from monopoly outcomes will not be achieved. This concern is also echoed in King and Maddock's analysis of the commercial negotiation of access. Pricing under the ECP rule will entrench monopoly unless the downstream market prices, and hence opportunity costs for the monopolist offering access, do not reflect monopoly rents. Tye and Lapuerta (1996) argue that Baumol and Sidak's analysis assumes that these rents had been successfully regulated away.

Tye and Lapuerta highlight that, if there are monopoly rents being earned access under ECP conditions will not lead to competitive or efficient outcomes. They correctly argue:

... new entrants into competitive markets do not indemnify incumbents for the loss of business revenue. It is the intrinsic nature of competition that the incumbent's position will be eroded (1996, p. 437).

### 3.3.2 Regulated pricing of access

Prescribing access prices or reference tariffs are alternatives to commercial negotiation. The NCC has indicated some support for indicative tariffs and reference tariffs for access in its Draft Guide to Part IIIA. The NCC states that the most common meaning of an indicative tariff is a schedule of tariffs 'which give an indication of the prices which might be expected for a particular infrastructure service — similar to recommended retail prices. They are not legally binding' (1996a, p.50). The NCC also notes that the term 'reference tariff' has more than one interpretation:

... under one interpretation, a reference tariff is published for one particular type of service, and then parties use it as a "reference point" when seeking to determine the appropriate tariff for other, related infrastructure services. They

may have a regulatory role, such as imposing a maximum price for the particular service and/or setting broad principles for the negotiation of access prices.

... under another application, a reference tariff is a published tariff which is binding only if a formal dispute resolution process is invoked (1996a, p. 50).

Indicative tariffs and reference tariffs may be useful in overcoming some of the negotiation problems discussed above. However, the determination of such tariffs can be complex.

The Commission believes that indicative and reference tariffs should be treated with caution. The reason for this is twofold: first, significant information asymmetries exist and, second, added complexities arise when tariffs have been set in accordance with a rate of return/revenue requirement prior to the development of an access market. As noted by DeVany and Walls in the context of regulated gas prices:

A source of planning inefficiency in regulated monopoly is that the regulated price of gas contains stale and irrelevant information, mostly about historical and sunk costs. The prices are not forward looking. Because future gas demands are unknown, expectations must be formed to guide decisions and there must be a stable basis for correcting error. Prices supply this information and the incentive for error correction is in profits. Regulators do not have the means to discover price and they blunt the incentives for error correction and adaptation (1995, p. 21).

These concerns apply equally to regulated access prices.

The problems inherent in determining reference or indicative tariffs are highlighted in the following discussion of the NSW Regime.

### *The NSW Regime*

The NSW Regime involves a combination of regulated prices (for published tariff customers who purchase a bundled good) and reference tariffs for access which reflect estimates of the asset base and a sustainable revenue requirement.

The NSW Regime requires that a 'declared' facility must submit an 'Access Undertaking' to the Independent Pricing and Regulatory Tribunal (IPART) for approval. The Undertaking, amongst other things, should cover one or more reference tariffs. Reference tariffs must correspond to a well defined 'reference service'. Negotiations take place within the parameters set by the Access Undertaking, there is no restriction on the reference tariff being used directly as the access tariff. If the parties elect to negotiate tariffs, the reference tariffs set the maximum tariff rate for the reference services. If the parties cannot agree on terms and conditions within the Undertaking parameters, they may seek out

arbitration. The arbitrator is required to take account of the reference tariffs, but need not be bound by them (NSW Government 1996a).

Section 8 of the NSW Regime sets out the pricing principles for the declared gas network.<sup>16</sup>

AGL has been declared under the code and has submitted an Undertaking to IPART for approval. The reference tariffs in the AGL Undertaking were developed by AGL in conjunction with IPART (AGL 1996). While such collaboration may assist in overcoming information asymmetries, it can expose IPART to criticism on the grounds that it has not acted independently. Ideally, the assessment of reference or indicative tariffs should be undertaken separately from the infrastructure provider's development of those tariffs.

In its draft determination on AGL's Undertaking, IPART indicated particular concern in achieving a 'reasonable balance of interests' in relation to the network owner's revenue requirement and the interests of network users as a whole. According to IPART (1996a, p. 1), 'a "reasonable" revenue requirement will cover the efficient costs of operating the network together with an "appropriate" return *of* capital (depreciation) plus return *on* capital to the network owner'. The reference tariffs for the period to 30 June 1997 in AGL's Undertaking involve tariffs initially set in the context of this reasonable revenue requirement, linked to an appropriate rate of return. A CPI-X price cap set at the same rate as the industrial published tariff price cap will then apply to the initial reference tariff rates.

The Commission acknowledges that it is important that an access code allows the infrastructure owner to earn an appropriate rate of return on its investments. It is well recognised that failure to earn an appropriate rate of return can have a deleterious effect on future infrastructure investments. However, the economic literature also recognises that there are many pitfalls in the application of both rate of return and CPI-X regulation (for a brief summary, see BIE 1995).

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<sup>16</sup> The NSW Regime's reference tariff is intended to provide "competitive outcomes" for users and prospective users which are consistent with four criteria. These criteria include:

- (i) providing the Service Provider with a commercial sustainable revenue stream which is consistent with an appropriate return on Capital Base;
- ...
- (iii) not distorting investment decisions in Pipeline transportation systems, or in upstream and downstream industries;
- (iv) the level and structure of the Reference Tariff being efficient (NSW Government, 1996b, p. 26).



Of particular concern for the NSW Regime is the assumptions required to determine the reasonable revenue requirement, the appropriate valuation of the asset base and the level of the rate of return applied to that base.

The determination of a reasonable revenue requirement requires information on future demand — prices and quantities. However, estimating future demand for the distribution network is fraught with difficulties, particularly when an access regime is being put in place. This is because an *effective* access regime could feasibly change demand for AGL's current gas distribution service.

In estimating this revenue requirement, IPART (1996a) assumes a growth rate of 2 per cent per annum in the tariff market and no revenue growth in the contract market as cross-subsidies are wound back. However, it is not clear that it has been possible to adequately take account of the impact of the access regime on throughput.<sup>17</sup> Another important consideration in making these assessments is that the prices that form the basis of this estimate appear to be based on regulated prices. Price regulation aims to remove any monopoly rents and provide the incumbent monopolist with a reasonable (competitive) return on its capital. However, monopoly regulation is an imprecise science and it is unlikely that regulated prices truly reflect competitive outcomes. To the extent that AGL's regulated prices contain monopoly rents, the reasonable revenue requirement estimate will be overstated.

The Initial Capital base used as the basis of the reasonable rate of return to AGL:

... falls above the depreciated historical cost, and below the Depreciated Optimised Replacement Cost (DORC). The DORC was determined by AGL in reference to its financial and engineering records. The Tribunal then engaged JP Kenny Pty Limited, an independent engineering consultant, to review the optimised replacement cost analysis.

The Tribunal determined that the Initial Capital Base was the investment in the business that would be supported by the sustainable revenue stream generated by tariffs consistent with the price path. That is, the present value of the total net revenues was discounted to an appropriate cost of capital (IPART 1996a, p.20).

Determining appropriate pricing levels and structures, and establishing adequate returns on investment for a government-owned business or a privately-owned regulated business is a difficult task. The best method of estimating asset values involves the adoption of market valuations. However, the market for infrastructure is 'thin'. IPART's approach of basing the asset value on the net present value of the expected future revenue stream is consistent with economic

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<sup>17</sup> The expected revenues from a new contract forecast to come on line over two fiscal years was included in the analysis.

efficiency when markets are competitive and demand projections are accurate. However, special care needs to be taken when this approach is applied to markets which are regulated and/or have natural monopoly characteristics.

The Commission notes that IPART believes that its 'range of indicators approach' diminishes the importance of asset valuation. Nevertheless, care should be taken when much of the advice on these alternative indicators is provided by the incumbent.

The Commission does not have the necessary information to undertake a detailed assessment of the reference tariffs proposed by AGL. However, it draws attention to the points raised by Amiti and Maddock (1996) and discussed below. Care should be taken to ensure that the reference tariffs proposed in the required Undertakings do not entrench monopoly pricing elements, as it will discourage the use of the facility by third parties and render the access regime ineffective.

As noted above, and in Appendix A, King and Maddock (1996a) argue that access tariffs which enshrine monopoly rents are likely to be complex and non-linear.<sup>18</sup> AGL's Undertaking proposes a complex multi-part reference tariff. The complexity of this tariff is particularly interesting given that the Gas Council and IPART note that there are virtually no variable operating costs on the network. The proposed reference tariffs comprises:

- a monthly administration charge; and
- a complex, up to three part capacity charge which is levied on the basis of maximum daily quantity and kilometres per annum. There are four tariff structures for this capacity charge which depend on the trunk section. The sections are Wollongong, Sydney, Central Coast and Newcastle; and
- a site charge.

By contrast, AGL's industrial and commercial published gas tariffs, which cover the costs of gas and a distribution charge for customers taking more than 45GJ per quarter, involve an administration charge and block tariff structure.<sup>19</sup> The one tariff schedule applies to all areas of NSW except Newcastle and the Lower Hunter and Yass. To illustrate the differences in complexity, Box 5

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<sup>18</sup> The Commission acknowledges that complex tariffs need not always imply monopoly rents are enshrined in the pricing structure. In some circumstances, efficient pricing of infrastructure may also involve complex pricing arrangements.

<sup>19</sup> In most cases the tariff for industrial scheduled tariff customers is a decreasing block with three blocks in the tariff.

shows the access tariff structure and the industrial and commercial tariff structure for Sydney.

**Box 5: A comparison of the proposed Sydney zone access tariff and the industrial/commercial tariff structure applicable to Sydney<sup>a</sup>**

**Sydney zone access tariff — annual charge**

Contract administration charge = \$4,183 per annum for delivery of less than 100TJ or  
= \$8,388 per annum for delivery of 100TJ or more

Plus site-specific charge = (varies with type of meter),

Plus a capacity charge for contract maximum daily quantity (MDQ).

MDQ is made up of:

- Base Tariff (B) = \$488.775 per GJ of MDQ per annum;
- Distance Coefficient (C) = \$24.475 per GJ of MDQ per annum per km; and
- Zone Tariff (Z) = \$580.432 per GJ of MDQ.

**Industrial/commercial tariff structure — quarterly billing<sup>b</sup>**

Standing charge at each nominated delivery point per billing period = \$30.00

Throughput charges, \$/GJ of gas delivered to the nominated delivery point:

- \$7.732 applicable to first 150GJ delivered; and
- \$5.547 applicable to excess above 150GJ.

<sup>a</sup> The Access tariff rates are those proposed to apply in the period to June 30 1997. The industrial/commercial tariff rates are for customers as at 30 June 1996.

<sup>b</sup> This tariff applies to all areas of NSW except Newcastle and Lower Hunter and Yass.

Source: AGL 1996

As noted above, the Commission does not have the necessary information to make a detailed assessment of these reference tariffs. Nevertheless, it is clear that the structure is relatively complex. In these circumstances, it is important that the regulator ensures that they do not enshrine monopoly rents.

IPART (1996a), in its draft determination, indicated that, subject to the public consultation process, the reference tariffs along with the rest of the Undertaking would most likely be accepted. However, through the consultation process IPART obtained information which cast doubt on some of the assumptions used in the development of the reference tariffs. For example, concerns were raised about the level of cross-subsidy and the projections of revenue and demand. Consequently, IPART (1996b) has called for additional information from AGL and will undertake further investigations by way of consultancies and

benchmarking. IPART anticipates that the Undertaking will undergo significant changes before it is approved.

The consultation process undertaken by IPART and the consequent decision to obtain further information should improve the rigour of the reference tariffs. That said, the reference tariffs, by their nature, will continue to be based on imperfect information. Hence, there remains the strong possibility that some monopoly rents will be reflected in the reference tariffs.

### **3.3.3 The role of arbitration**

Under the competition policy rules, a firm negotiating access to a facility is likely to seek arbitration rather than accept a negotiated price based on ECP principles. Indeed, the threat of arbitration should encourage the service provider to share the monopoly rents associated with the related market or, alternatively, be prepared to share a larger proportion of the rents with the other party. However, efficiency gains may not be achieved in this case as monopoly rents remain. The prospect of sharing monopoly profits provides an incentive for firms to avoid arbitration.

King and Maddock (1996b) — using game theory — found that a vertically integrated monopolist negotiating access to its essential facility is unlikely to seek out arbitration. This is because the expected returns from arbitration are lower than the returns from negotiation. On the other hand, there are circumstances when an access seeker, particularly an impatient access seeker, will prefer to seek out arbitration rather than continue the negotiations. King and Maddock find that the returns from the arbitration process are dependent on the expected or previous approach taken by the arbitrator. They find that, if the arbitrator takes too great an account of the public interest, the discount rate of the negotiating parties is increased. In this case, the parties will be more likely to reach an un-arbitrated agreement that divides monopoly profits. However, if the arbitrator is more generous to the firms seeking access, the parties are more likely to agree on outcomes that could provide substantial benefits — in the sense that prices in the downstream market may fall below the vertically integrated monopoly level.

Amiti and Maddock consider a situation where an integrated monopolist entrenches an ECP structure in the access arrangements for its downstream leg prior to structural separation. They suggest that:

Such a strategy seems likely to be legal [under Part IIIA of the Trade Practices Act] as the access price was charged to the incumbent's own downstream arm before the emergence of possible entry (1996, p. 290).

Such action could potentially avoid the spirit of the legislation and the facility owner could achieve the monopoly result. Amiti and Maddock go on to argue that such a pricing structure may hinder or even preclude entry from any potential competitors.

Arbitration in these circumstances may not lead to an access price lower than the ECP based price because the access charge is the 'market' price paid by the downstream incumbent. In this situation, arbitrators of access will need to carefully scrutinise any existing access arrangements before accepting them as a valid basis for arbitrating new third party access conditions.

The NCC notes that dispute resolution procedures form the cornerstone of any access regime. The Commission believes that an efficient dispute resolution process is a key element in an effective access regime. Clause 6(4)(i) of the CPA specifies eight factors which should be taken into account by the dispute resolution body.<sup>20</sup> The Commission believes that in arbitration most weight should be put on the criteria covering the economically efficient operation of the facility and the benefit to the public from having competitive markets. In applying these criteria, the Commission believes that an effective arbitration system should also recognise that arbitrated access prices should reflect as closely as possible reflect efficient pricing principles.

While arbitration is a crucial element in a access regime, it must be recognised that arbitrated prices to some extent must be considered as second best. In the absence of market power, the preferred situation would be to obtain a commercially negotiated price. An alternative approach may be to allow arbitration within the context of regulated commercial negotiation.

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<sup>20</sup> These factors cover:

- (i) the facility owner's legitimate business interests;
- (ii) the costs to the owner of providing access;
- (iii) the economic value to the owner of any additional investment in the facility made by the party seeking access;
- (iv) the interest of all persons holding contracts;
- (v) firm and binding contractual obligations of the facility owner or other parties already using the facility;
- (vi) the operational and technical requirements necessary to safely and reliably operate the facility;
- (vii) the economically efficient operation of the facility; and
- (viii) the benefit to the public from having competitive markets.

### 3.3.4 Regulated commercial negotiation and arbitration

Under the current NSW Regime, the reference tariffs are intended to be used for negotiating access, but could also be used directly for determining access charges. The Commission does not agree with this approach. It believes that any prescribed tariffs incorporated in access arrangements, such as those in Undertakings in the NSW Regime, should only be treated as upper bounds for negotiation. They should set the ceiling price for negotiations rather than becoming operative access tariffs. Underlying this view is a concern that prescribed access tariffs could include substantial monopoly rents (see discussion above).

If the prescribed access tariffs act as an upper bound in pricing, they are more likely to achieve the spirit of the commercial negotiation requirement in clause 6(4)(a) of the CPA. For instance, using them as the upper bound would help reduce the problems associated with negotiating access with a monopolist. However, the success of this approach will need to be carefully monitored. Changes in the level of competition in related markets could provide one indication of whether the negotiated or arbitrated prices entrench monopoly.

Consistent failure of regulated negotiation can also suggest that the estimation of prescribed access tariffs needs to be reviewed. It needs to be recognised that Australian access markets are in their infancy and, as a consequence, access prices determined in the early stages may not adequately reflect conditions in an evolving and dynamic market. Access pricing systems, including arbitration, should be flexible enough to adjust to market developments. In this context, it is important that arbitrators bear in mind clause 6(4)(f) of the CPA which specifies that access to a service for different persons need not be on exactly the same terms and conditions.

In circumstances where negotiations fail, the arbitrator should, at least in the early stages of the regime, consider access tariffs that are *below* the prescribed access tariffs. This is consistent with clause 6.5 of the NSW Regime which requires that the arbitrator should have regard to reference tariffs but *need not* be bound by them.

There is, however, some potential for a conflict of interest in the NSW Regime's approach to arbitration. This is because IPART, as the regulator, approves the reference tariffs in the Undertaking, but then as arbitrator must consider the appropriateness of these tariffs for access. Ideally, the arbitrator should be independent from the regulator. At a minimum, IPART should ensure internal separation of the two conflicting roles. The Commission notes that IPART can elect to appoint an arbitrator. If this route is followed, IPART should appoint an arbitrator who is not a Tribunal member. The complexity of

the task and the considerable judgement required points to the need for careful selection of the arbitrator.

### **3.3.5 Other alternatives to regulated access prices**

Alger and Toman (1990) and DeVany and Walls (1995) propose allocating property rights for pipeline capacity as an alternative to regulated access prices in the US gas markets. DeVany and Walls see the monopoly problem in gas pipelines as an organisational problem. They argue for the imposition of fully tradeable transportation rights in pipeline capacity and propose the following instruments for organising the gas pipeline industry:

Create a property right in transportation capacity. This right would be an undiluted interest in pipeline capacity on which other users could not intrude. The holder of transportation capacity owns the right to ship volumes up to the capacity limit over the specified segment on which the right is held. Injection and withdrawal points apply to every point on the segment. The right is assignable in part or whole to others for whatever term they wish, up to the limit of the term of the right. The right can be combined or subdivided in all dimensions (1995, p. 116).

DeVany and Walls argue that this approach dissipates monopoly power as ownership of the pipeline's transportation capacity is decentralised. Each individual holder of capacity makes choices on the use or transfer of the capacity which maximises their own profits and welfare. In taking these actions they do not consider whether the prices received by other capacity holders will be affected. Once this regulatory regime is put in place, pipeline access prices are determined by the market — they no longer need to be the subject of price regulation. The success of this approach will be enhanced if markets are of a substantial size with a large number of participants.

In Australia, the property rights approach would require the infrastructure owner to divest a substantial proportion of its rights to capacity in the natural monopoly. It is important to remember that the regulatory origins of the United States market are historically very different from those that formed the Australian gas markets (see Box 6). In addition, the market for natural gas in the United States is relatively deep. The NSW gas market is relatively shallow at this point in time. Nevertheless, the gas market could substantially change as the regulatory barriers, particularly in the eastern states, are removed.

The Commission believes that the NSW Regime currently warrants a combination of regulated commercial negotiation and arbitration. However, this may not be the case in the future if markets deepen. In this context, it is important for access regimes to be monitored to assess their continuing

relevance. What is appropriate in the early stages of access policy may not be appropriate in the future. The US gas industry experience shows that the situation can change quickly once heavy handed regulations are removed (see Box 6).

**Box 6: The United States natural gas industry**

The production of natural gas in the US is primarily based in the south-west. The industry, although principally in the hands of the private sector, has been subject to substantial legislation at the production, transmission and distribution stages. The field price of gas was deregulated in the late 1970's. However, transmission pipelines, which operated as gas merchants (selling a bundled product made up of gas and transmission services), continued to be regulated until the late 1980's.

Regulatory changes in the late 1980's saw the transmission pipelines progressively move to a situation of open access, with the pipeline's merchant and transportation functions being separated. At this time, competitive gas markets did not exist. The industry was organised as a collection of geographically separated monopolies. Typically:

- a single pipeline linked a field and city gate;
- entry was blocked;
- transportation and gas were bundled;
- gas buyers and gas producers did not have access to one another; and
- gas purchases and supplies were made under long term contract.

Since the introduction of open access, this rigid structure has been transformed from geographical monopolies to a network across the country. A spot market for gas has developed. By 1990, it was possible to make a delivery throughout most of the network and a natural gas futures market had opened on the New York Mercantile Exchange.

The rate of change from pipeline owned gas to customer-owned gas was dramatic. Between 1982 and 1987, pipeline-owned gas decreased by 60 per cent and transmission of customer-owned gas increased by 180 per cent. By 1987, two-thirds of the gas transmitted inter-state was owned by customers. This level had increased to 85 per cent by 1991. Pipeline owners now primarily operate as coordinators of transmission demands. New companies have also emerged that offer new services using the pipelines unbundled transmission and storage.

Over time, the US markets for natural gas have become strongly integrated. Open access pipeline transportation and partial bypass at the city gate have brought prices at most, but not all, city gates into line with prices in the fields. However, there are still some remaining regulatory barriers to pipeline integration and access through some city gates is not yet sufficiently open.

*Source:* DeVany and Walls (1995) and Rosston and Teece (1995).



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## APPENDIX A: WILL NEGOTIATED ACCESS PRODUCE EFFICIENT PRICING OUTCOMES?

The literature on access to ‘essential facilities’ has in the main assumed that access, once mandated, will lead to more efficient outcomes in related markets. This presumption is often based on the premise that the service provider and the service demander will negotiate an access price which satisfies each parties’ requirements, but also leads to the most efficient outcome from a resource allocation perspective.

However, Hylton (1991) and King and Maddock<sup>1</sup> argue that this presumption is not necessarily valid. This appendix examines the arguments presented by these authors and draws out when commercial negotiation between the parties will and will not lead to efficient outcomes.

### Hylton (1991)

Given low transaction costs, which describes the situation of firms bargaining over access to a cost reducing facility, one might think that access-sharing will take place only when it is socially desirable. However, this intuition is probably wrong. Firms bargaining over access to a cost-reducing facility may not take consumers’ interests into account. Thus, there is little reason to believe that observed patterns of voluntary sharing are socially efficient (p.1255,).

Assume initially that Firm A — a profit maximising vertically integrated firm — has access to a cost-reducing facility which cannot be economically duplicated.<sup>2</sup> Firm A uses the services of its cost-reducing facility as an input to produce widgets, which have no substitutes. Firm A supplies the entire market for widgets and sets the price such that marginal revenue equals marginal cost — that is, Firm A sets its price at the level expected of a monopoly.<sup>3</sup>

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<sup>1</sup> See for example, King (1995), Maddock (1995) and King and Maddock (1996).

<sup>2</sup> The reasons for this may be many and varied. For example, Firm A may have access to a patent which protects its technology from duplication. Alternatively, Firm A may have access to technology which, given the relevant demand, allows it to produce the entire industry demand at a lower cost than any other combination of firms — in this instance, Firm A operates a natural monopoly.

<sup>3</sup> If there had existed some perfect or even imperfect substitute for widgets then Firm A’s ability to monopoly price would be constrained. Final market prices for widgets may also

Firm B requests access to the service of Firm A's cost-reducing facility. Once Firm B gains access to the services of this cost-reducing facility, it can compete in the market for widgets. Firm A would only *voluntarily* allow Firm B access if permitting access did not harm Firm A's profit situation. Given that, after gaining access, Firm B plans to compete in the market for widgets, voluntary access to the facility seems implausible. However, in certain circumstances such a situation can arise.

One such situation would be if Firm B fully compensated Firm A for the total value of profits it foregoes as a result of allowing access. In this situation, Firm A would be indifferent about allowing access to Firm B. However, such an outcome is risky — particularly since full compensation requires perfect information.

Another situation would be if Firm A was better off as a result of allowing access to Firm B. That is, Firm B's payment for access and Firm A's expected profit after access occurs, exceed Firm A's expected profit without access. Firm B will find this payment to Firm A economic if its expected economic profit as a result of gaining access is not negative.

Hence, commercially negotiated voluntary access to the service of a cost-reducing facility will only take place when joint profits are either equal to, or greater than, the expected profits if access had not occurred. Hylton argues that for access in this situation to be *mutually beneficial* to both firms, the joint profits of Firm's A and B must exceed those of Firm A in the absence of access. That is, there is a 'rent surplus'. This situation occurs if shared access enhances the facility's cost advantage such that the joint costs of Firms A and B are lower. In this instance, price in the final market could fall and quantity could rise. This latter case may arise if, for example, Firm B's access allowed both firms to enjoy greater economies of scale.

The important finding from Hylton's analysis of voluntarily negotiated access is that in most instances, negotiated access will not be beneficial to consumers. The incumbent will only voluntarily negotiate access if it is no worse off than before access occurred. Voluntarily negotiated access will be mutually beneficial to the negotiating parties if the profits arising from the sharing arrangement exceeds the profits earned by the incumbent before access was permitted. In this circumstance, negotiated access will only be beneficial to consumers if it leads to lower costs, which are passed on in final prices. If the

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be constrained if alternative higher cost technologies are available (see Hylton (1991)). In this latter case, entry using these higher cost facilities would need to be relatively costless.

two firms collude, the resulting lower costs may not be passed on. Hylton argues that the potential for collusion will be reduced:

... the larger the number of firms sharing access to the cost-reducing facility, and the harder it is for participating firms to monitor each other's activities, the greater the incentive to compete in price (1991, p. 1253).

The form of the access payment from Firm B can also have an important bearing on whether Firm A voluntarily agrees to access. For example, an upfront lump sum payment will not ensure that Firm B prices at a monopoly level after entry. Hylton considers that a per-unit access tariff would ensure that Firm B prices 'appropriately', but notes that it would be very hard, and some times impossible, to determine the appropriate level of the tariff. For example, it may be difficult to measure how sharing access will diminish the future stream of rents to Firm A. King (1995) argues below that a two-part tariff would ensure that the new entrant(s) price at the monopoly level. King and Maddock's considerations on the negotiated access issue are discussed below.

### King and Maddock's thesis

The development of Australia's competition policy reforms had led to a substantial debate concerning the implications of these reforms for infrastructure pricing and economic efficiency. King and Maddock have been important players in this debate. The following sections outline some of their views on the efficacy of commercial negotiation of access to infrastructure that is essential for the provision of a good in a downstream market.

### Maddock (1995)

Negotiated access prices will probably not produce any benefits to consumers although they may alter the share of profits to each firm ( p. 27).

Maddock examines the situation where, initially, a vertically integrated monopolist operates a natural monopoly upstream leg (A-B) which is an essential input into a downstream leg (B-C). The marginal costs of both legs and the monopoly selling price are shown in Figure A1. The situation depicted shows the integrated monopolist earning an 'economic rent' or monopoly profit of four units.

**Figure A1: An integrated monopolist**

A ————— B                      B ————— C

Marginal cost<sub>A-B</sub> = 3 units

Marginal cost<sub>B-C</sub> = 3 units  
Marginal cost<sub>A-C</sub> = 6 units

**Selling price = 10 units**

**Monopoly profit = 4 units**

Source: Derived from Maddock (1995)

Maddock then assumes that structural separation of the monopolist occurs as a consequence of competition policy reforms. That is, each stage operates as a single monopoly with no collusion.

Maddock argues that a monopolist operating the A-B leg will normally try to recoup at least some of the monopoly profit foregone as a consequence of structural separation. The upstream monopolist will therefore attempt to charge an access price above marginal cost, as shown in Figure A2, say, four units.<sup>4</sup> Faced with this access charge, the firm in the downstream monopoly market must charge a price greater than the integrated monopolist price. In the extreme case, the downstream monopolist will also charge monopoly prices and reduce quantity below the integrated monopoly level — the double marginalisation problem (see King and Maddock 1996).

#### Figure A2: Structurally separated monopolists

**A ——— B**

Marginal cost<sub>A-B</sub> = 3 units  
Monopoly rent<sub>A-B</sub> = 1 unit

**B ——— C**

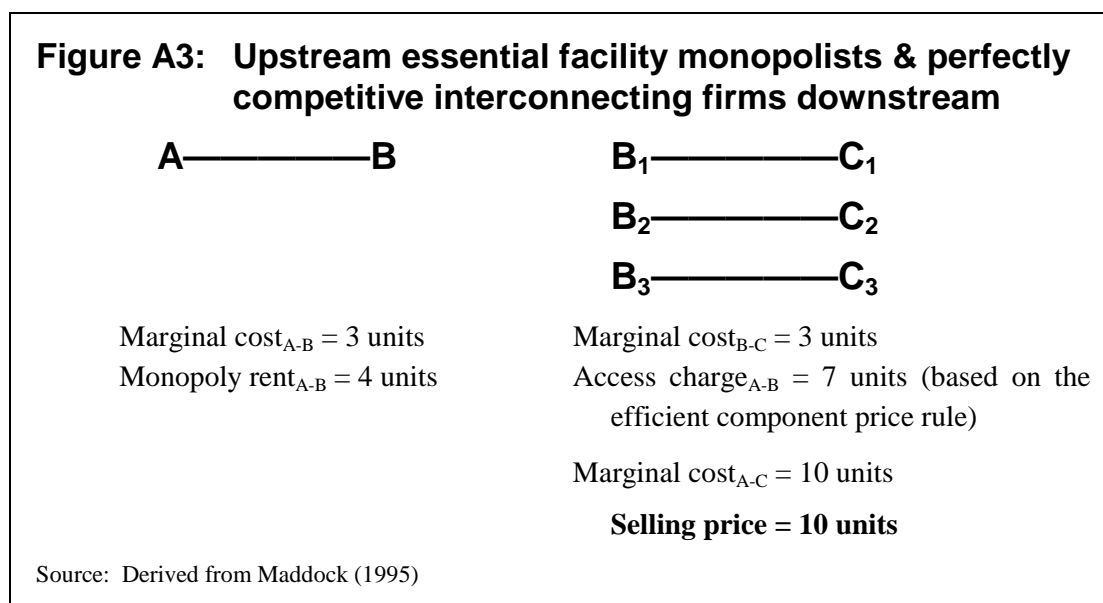
Marginal cost<sub>B-C</sub> = 3 units  
Access charge<sub>A-B</sub> = 4 units  
Marginal cost<sub>A-C</sub> = 7 units  
**Selling price > 10 units**

Source: Derived from Maddock (1995)

Furthermore, Maddock argues that a monopolist will normally attempt to charge the full opportunity cost of the profits foregone as a result of the reform — the efficient component price (ECP) of access. In this situation, the upstream monopolist will endeavour to charge an access fee equal to its marginal cost

<sup>4</sup> King (1995) argues that the upstream monopolist will endeavour to capture all the economic/monopoly rent associated with the upstream and downstream markets and not the one unit assumed in Figure 2. Maddock (1995) argues the upstream monopolist will attempt to capture all rents associated with the upstream market. The access charge shown in Figure 2 assumes the upstream monopolist only obtains a part of the monopoly rents from negotiated access.

plus the economic rent derived if it continued to operate as a vertically integrated monopolist, that is, seven units (as shown in Figure A1). In these circumstances, even if the downstream market became fully competitive as a result of access arrangements and price reflected marginal cost, there is no reason to expect that consumer welfare will be improved relative to the situation of the vertically integrated monopolist — that is, the selling price is still 10 units. This situation is depicted in Figure A3.



Maddock recognised the potential under the Competition Principles Agreement and competition policy reform legislation for a party wanting access to the services of a monopoly facility to seek arbitration. For this reason, he considered that:

... the upstream firm will probably give up some of its profits in order to get the other firm to agree and thus avoid arbitration. Since this solution will only occur if bargaining between the firms settles on the most profitable joint solution, the product price may actually fall below 10 [the integrated monopoly price], but that price is the one towards which the Hilmer solution [negotiated access] will tend (p.27).

### King (1995)

... there will be strong pressures in any negotiated access price agreement towards monopoly pricing in the final goods market. This should not be surprising — the negotiations are not simply going to deal with how to divide up a fixed “pie” but also how to maximise that “pie” in the first place ... it is

unlikely that negotiated pricing regimes for access are likely to lead to socially desirable prices in the final goods market (pp. 15-16).

King assumes that:

- the owner of the facility providing the service to which mandatory access is sought does not compete in the final goods market; and
- there is no asymmetric information.

King argues that the service provider will seek to negotiate a contract with a downstream third party which allows it to accrue monopoly rents from the final goods market. A two-part tariff with the up-front payment equal to the monopoly profits and the second part reflecting short-run marginal cost would achieve this result — particularly if the tariff is set so high that it deters other purchasers.<sup>5</sup>

King notes, however, that the service provider need not discriminate between potential purchasers of the facility's service — all the provider needs to do is offer access on equal terms. The more potential purchasers, the lower their bargaining power in the absence of collusion. The larger the number of potential purchasers, the more opportunities for the service provider to earn all the monopoly profits. If there is only one potential purchaser, the monopoly rents will be shared.

King's analysis suggests that the owner of an 'essential facility' will have strong pressures to establish an access pricing regime that leads to monopoly prices in the downstream market. This situation is likely to eventuate regardless of whether or not the owner of the essential facility operates in that market. King notes that this result will not hold if:

- prices in the downstream market are set by substitutes; or
- prices in the downstream market are set by regulation; or
- the access demander is the sole consumer of all the downstream market's goods.<sup>6</sup>

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<sup>5</sup> King argues that if the access provider used a price per unit rather than non-linear tariffs, the resulting monopoly in the final goods market would be worse than under the two part scenario presented here because it could lead to double marginalisation in the downstream market.

<sup>6</sup> In this latter case, negotiations will only affect the distribution of profits.

### **King and Maddock (1996)**

Superficially the private negotiation approach would seem far preferable to the heavy handed regulatory model ... We believe, however, that it is unlikely to produce any significant social gains. Firms will negotiate access prices and conditions that suit them, not those which increase social well being (p. 97).

Not surprisingly, King and Maddock reach similar conclusions to those put forward by King (1995) and Maddock (1995). They argue that the negotiating parties, regardless of their number, will always be able to design a set of contracts which will allow the parties to maximise monopoly profits. Contracts in some instances could be very complex and involve non-linear prices. These prices could include up-front fees in conjunction with rising or falling block tariffs.

However, they point out that the results should not be overstated. For example, the negotiating parties may not know with certainty how many firms will seek access and firms will have different degrees of information about the markets potential profits and the level of competition in downstream markets.

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