



The “uneconomic to develop” criterion after *Duke*

9 August 2001

Abstract

This paper discusses the role and proper interpretation of the “uneconomic to develop” criterion for mandated access under the National Third Party Access Code for Natural Gas Pipelines and under Part IIIA of the Trade Practices Act 1974 (Cth) (the “TPA”) in the wake of the Australian Competition Tribunal’s decision in the *Duke Eastern Gas Pipeline* case.

It argues that, by rejecting a market-based reading of the “uneconomic to develop” criterion, the *Duke* decision reduces the efficacy of that criterion as a filter against inefficient mandating of access. By contrast, an appropriate interpretation of the criterion would endorse the testing of the substitutability of services provided by the facility being considered for mandated access.

This paper also considers the Productivity Commission’s current *Review of the National Access Regime* and makes a specific recommendation for redrafting the declaration criteria under Part IIIA of the TPA that should militate against the possibility that access will be granted in inappropriate cases.

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1 Introduction

In its Position Paper on the *Review of the National Access Regime*, the Productivity Commission (the “Commission”) signalled the possibility of a fundamental overhaul of the declaration criteria under Part IIIA of the Trade Practices Act 1974 (Cth) (the “TPA”).¹ It also made recommendations for reform of the criteria for certification of State and Territory access regimes pursuant to Clause 6 of the Competition Principles Agreement.

Shortly before the release of the Position Paper, the Australian Competition Tribunal (the “Tribunal”) handed down its decision in *Duke Eastern Gas Pipeline* (“*Duke*”).² The decision in *Duke* raises significant issues about the interpretation of the criteria for determining whether pipelines should be subject to regulation (or “covered”, in the relevant nomenclature) under the National Third Party Access Code for Natural Gas Pipelines (the “Gas Code”). In particular, the decision has important implications for the extent to which the “uneconomic to develop” test under the Gas Code operates as a guard against the imposition of access regulation where a competitive market solution can be relied upon. The close similarities in the drafting of the coverage criteria under the Gas Code and the declaration criteria under Part IIIA of the TPA mean that the decision in *Duke* has obvious and immediate implications for the Commission’s recommendations for reform of the declaration criteria under Part IIIA.³

Less evidently, however, but no less importantly, the decision in *Duke* has important implications for the Commission’s recommendations for reform of the certification criteria under Clause 6 of the Competition Principles Agreement. Most infrastructure assets in Australia are regulated under certified State and Territory access regimes, making strong and economically sound certification criteria a crucial element in ensuring that regulation is not extended into areas of the economy where market failure does not warrant it.

¹ Productivity Commission, *Review of the National Access Regime*, Position Paper, 29 March 2001.

² [2001] ACompT 2 (4 May 2001).

³ Given the Commission’s proposals to amend the declaration criteria under Part XIC of the TPA to more closely reflect the declaration criteria under Part IIIA of the Act (Productivity Commission, *Telecommunications Competition Regulation*, Draft Report, March 2001, AGPS, Canberra, pages 8.10-8.23), the implications of the *Duke* decision discussed in this paper will have ramifications for the Commission’s proposals for Part XIC of the TPA.

By extension as well, the decision in *Duke*, and its consequences for the interpretation of the “uneconomic to develop” test, has further implications for future Commonwealth access regimes that are modelled closely on Part IIIA of the TPA (for example, the telecommunications-specific access legislation under Part XIC of the TPA and the access provisions of the Airports Act 1996 (Cth)). The Commission has recommended that all Commonwealth access regimes be required to be certified in the same manner as State and Territory access regimes pursuant to Clause 6 of the Competition Principles Agreement. Unless the decision in *Duke* is clearly understood, and its implications properly assessed, there is a risk that new Commonwealth legislation that uses the “uneconomic to develop” test as a test for mandated access under an access regime will expose certain services to access regulation, even in the absence of clear and significant market failure.

1.1 Overview of paper

This paper discusses the role and proper interpretation of the “uneconomic to develop” criterion under Part IIIA of the TPA in the wake of the decision of the Tribunal in *Duke*. It argues that the decision in *Duke* has revealed the existence of a serious flaw in the drafting of Part IIIA that leaves open the possibility of inappropriate declaration of services.⁴ The paper concludes with a specific recommendation for redrafting the declaration criteria under Part IIIA of the TPA that should militate against the possibility that access will be granted in inappropriate cases. It also concludes with a recommendation that the Commission consider the implications of *Duke* - and the need (as revealed by that decision) for improved legislative drafting in access regimes - in its review of the telecommunications specific access regime under Part XIC of the TPA, and in relation to its recommendations for amendments to Clause 6 of the Competition Principles Agreement.

The paper reiterates the now well-accepted proposition that a policy of granting excessively liberal third party access can impose significant costs. Moreover, given that third party access implies price regulation, and given that the social costs of setting access prices too low or too high are asymmetric (so that the cost of monopoly pricing is smaller than the cost of regulatory under-pricing), this paper argues that community welfare is maximised by erring against allowing access in marginal cases.

This asymmetry of costs, and the policy value of erring against the granting of access in marginal cases, in turn underscores the importance of maintaining strong and effective “filters” against regulatory intervention under Part IIIA and other access regimes, such as the Gas Code. This paper argues that the “uneconomic to develop” test was intended to be an important filter against

⁴ Henry Ergas, the Managing Director of the Network Economics Consulting Group Pty Ltd, appeared as an expert witness on behalf of the applicant in the *Duke* proceedings. The views expressed here, however, are not necessarily those of the applicant in *Duke*.

inappropriate regulatory intervention, but that following the decision in *Duke*, it is in need of amendment to ensure that it fulfils its intended purpose.

It is argued that for the “uneconomic to develop” criterion to act as an effective filter against inappropriate regulatory intervention, it must be interpreted as a test of whether a firm has such substantial market power over the supply of a service as to confer the capacity to act as a bottleneck to effective competition in dependent markets – that is, in markets in which firms can only compete if they have access to that service. This implies an interpretation that stresses the importance of the service being incapable of being substituted against – that is, an interpretation that requires a demonstration that there is no alternative, in an economic sense, to obtaining the service from the facility in question. Necessarily, this approach involves assessing the market in which the service of the facility is being offered and examining the availability of substitute sources of supply within that market.

The paper argues that if the “uneconomic to develop” test is not interpreted in this manner, there is a high probability that access to facilities will be granted in cases in which it is not economically efficient to do so. To a very large extent, this consequence arises from the practical inability of any of the other declaration/coverage criteria (including the “promotion of competition” criterion) found under Australian access regulation to remove the loophole created by an inappropriate interpretation of the “uneconomic to develop” test. More specifically, even putting aside some important limits in the drafting of the “promotion of competition” test,⁵ this paper argues that the “promotion of competition” criterion is open to subjective interpretation, as it inherently relies on the weighting of a complex of considerations. In contrast, whether a facility is or is not a bottleneck is a question amenable to structured and narrow inquiry, and one that can be informed by some strong presumptions.⁶ As a result, the bottleneck test is especially well-placed to act as a filter against over-reaching regulation, and can provide a degree of certainty in that respect to all parties involved in access issues.

This paper’s argument that the “uneconomic to develop” test in Part IIIA needs to be amended arises from the Tribunal’s rejection in *Duke* of a market-based interpretation to the “uneconomic to develop” test. In considering this decision, it is important to be clear as to the exact nature of the disagreement between the parties to the *Duke* proceedings about the meaning of the “uneconomic to develop” test, and the import of the decision itself.

⁵ The promotion of competition criterion refers to the impact of access in “another” market, and hence is poorly placed to capture the impact of access on competition in the market in which the service at issue in declaration or coverage decisions is being provided.

⁶ It can, for example, be presumed that a facility that provides services for which there are one or more substitute sources of supply is not a bottleneck, unless those alternative sources are severely capacity constrained.

This disagreement does *not* centre on whether a “service” can be defined independently of a “market”, as the National Competition Council (“NCC”) has argued in its most recent submission to the Commission.⁷ In effect, it is clear, and has long been accepted in competition policy analysis,⁸ that the identification of the good or service at issue can be a prior step to the process of market definition. As a result, it would not be sensible or desirable to take issue with the Tribunal’s view that the definition of a service can occur as a matter of factual inquiry, rather than necessarily being a matter of economics.⁹

Rather, the crucial issue is whether the “uneconomic to develop” test can be given any meaningful interpretation independently of an economic assessment of the availability of substitutes. Here it is important to stress that, in the proceedings and subsequently, the NCC seems to accept that *some* consideration of substitution possibilities is relevant;¹⁰ what it does not accept is that the assessment of substitution possibilities ought to be informed by an analysis of the relevant market – that is, ought to reach as far as those substitutes that are sufficiently close to prevent a hypothetical monopolist over the service from effecting a small but significant and non-transitory increase in price above the competitive level.¹¹

The practical effect of this (assuming the approach has been accepted by the Tribunal) is to leave it entirely unclear quite *how* the range of relevant substitutes ought to be defined. This opens the possibility that the approach adopted to this question will ensure that the “uneconomic to develop” criterion is almost trivially met.

⁷ National Competition Council, *Review of the national access regime: Submission in response to the Productivity Commission’s position paper*, July 2001, page 11 and the following pages.

⁸ See, for example, the discussion of the “separate product” test in respect of tying analysis. Phillip E Areeda, and Herbert Hovenkamp, (1996) *Antitrust Law: An Analysis of Antitrust Principles and Their Application*, Little, Brown and Company, Boston, volume X, at ¶1742c and follows.

⁹ There are nonetheless instances in which economic considerations play an important role in the specification of the service at issue – for example, in determining whether a bundled service can meaningfully be broken down into its constituent parts. Phillip E Areeda, and Herbert Hovenkamp, (1996) *Antitrust Law: An Analysis of Antitrust Principles and Their Application*, Little, Brown and Company, Boston, volume X, at ¶1757.

¹⁰ See, for example, National Competition Council, *Review of the National Access Regime: Submission in Response to the Productivity Commission’s Position Paper*, July 2001, at page 32.

¹¹ In competition analysis, this procedure is described as a “SSNIP” or “price elevation” test. For a description of the SSNIP test and the process for implementing it, see paragraphs 5.44 to 5.48 of the ACCC’s *Merger Guidelines*, June 1999, AusInfo, Canberra.

As this paper demonstrates, the Tribunal's decision in *Duke*, and its latest interpretation by the NCC, robs the "uneconomic to develop" test of any practical bite because, wherever a facility has excess capacity, it can and will meet the test. This is profoundly problematic, as it amounts to, or at least creates the scope for, a significant expansion in regulatory discretion. This seems in marked contrast to the other, also very significant, element in the Tribunal's decision in *Duke* – namely, its sharp rejection of the NCC's arguments in respect of criterion (a) (the "promotion of competition" test). The Tribunal makes it clear that it cannot simply be assumed that access or increased access will promote competition; rather, it must be demonstrated that the provider of the service at issue has the ability and incentive to distort competition in the dependent markets.

Unfortunately, however, the fact that the "promotion of competition" test is necessarily somewhat loose in its interpretation and implementation creates a risk of its being viewed as quite a low hurdle; and recent references by the NCC to the test as being met if the provider of the service at issue merely has market power suggest that this risk is a real one. The net effect of *Duke* would then be to increase the likelihood of regulatory over-reach.

The costs such over-reach can give rise to, and the appropriate policy response, are the central focus of this paper.

1.2 Structure of paper

The structure of this paper is as follows:

- section 2 provides the relevant background to the access regimes under the Gas Code and Part IIIA of the TPA;
- section 3 discusses the role and efficacy of "filters" against inappropriate regulatory intervention in competition law, and highlights the particular necessity for substantial hurdles to mandated access. It argues that, ideally, the "uneconomic to develop" test should set a high threshold for regulatory intervention. It also argues that a high threshold is socially efficient, given the asymmetric costs in granting access to facilities too liberally as opposed to not granting access at all;
- section 4 discusses how the "uneconomic to develop" test should be interpreted to best support its role as a regulatory filter against inappropriate granting of access to certain facilities. It is demonstrated that market definition - that is, the process of identification of economically-relevant substitution possibilities - is an unavoidable aspect of the test;
- section 5 is a summary of the *Duke* case, including a summary of the Tribunal's decision and reasoning;
- section 6 compares the Tribunal's interpretation of the "uneconomic to develop" test in *Duke* with the interpretation set out in sections 3 and 4. In particular, it points out that, because the

Tribunal has implicitly rejected an approach to the “uneconomic to develop” test that encompasses consideration of all economically-relevant substitution possibilities, the way is now open for inappropriate declaration of services under Part IIIA of the TPA, under regimes certified within the terms of clause 6 of the Competition Principles Agreement and under the Gas Code; and

- finally, section 7 discusses the implications of the decision in *Duke* for policy reform of the national access regimes under Part IIIA of the TPA, clause 6 of the Competition Principles Agreement and the Gas Code.

2 Background on relevant access regimes

This section examines the background to the access regimes under Part IIIA of the TPA and the Gas Code. It will readily be seen that the two regimes are closely related, both in drafting and origin. As a result, while the decision in *Duke* relates strictly to the Gas Code, it is likely that it will influence the Tribunal’s interpretation of the regime under Part IIIA of the TPA and inform decision-making with respect to declarations by the NCC.

The introduction of a generic national access regime in Australia was a key recommendation of the 1993 report of the Committee of Inquiry in its *National Competition Policy Review* (the “Hilmer Report”).¹²

At the time of the Hilmer Report, a policy of mandating access to certain facilities existed within the jurisprudence or statutory law of a number of countries, although it was most famously manifested in the “essential facilities” doctrine in the United States. The basic economic proposition behind mandated access in the United States and other countries that recognised some version of the “essential facilities” doctrine was that, in certain markets, effective competition required competitors to have access to the services of facilities that exhibited natural monopoly characteristics and hence could not be duplicated economically. Without mandated access in such circumstances, it was feared that competitors would be unable to obtain a necessary input for the goods or services provided by them and competition would, as a result, be distorted. Facilities of the kind to which compulsory access is granted are commonly referred to as “essential facilities” or, more evocatively, “bottlenecks”.¹³

¹² Independent Committee of Inquiry into Competition Policy in Australia, *National Competition Policy: Report by the Independent Committee of Inquiry into National Competition Policy in Australia*, 1993, AGPS, Canberra.

¹³ As discussed below, the better description of the facilities appropriate for mandated access is “bottleneck facilities”. Historically, however, courts, regulators and legislators have tended to describe

The Hilmer Report considered that there was little prospect of introducing effective competition in certain markets unless firms were able to gain access to so-called “essential facilities” that provided services which formed inputs into the goods and services they provided. This was especially, but not exclusively, the case when crucial facilities or services were provided by vertically integrated monopolies, often in government ownership.

The Hilmer Committee recommended introduction of a system of statutory access rights in Australia, because:

- Australian courts had apparently rejected the proposition that Australian law (in section 46 of the TPA) recognised an “essential facilities” doctrine as it existed in United States antitrust jurisprudence¹⁴ and, in any event;
- there were limits on, and uncertainty surrounding, the application of the doctrine as it applied in the United States.

The Hilmer Report’s recommendations were adopted, albeit in modified form, with the introduction of the access regime in Part IIIA of the TPA.¹⁵ The Explanatory Memorandum to the legislation implementing Part IIIA states that:

“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 electricity generation or gas production. Access to such facilities can be achieved if a person seeking access is successful in having the service ‘declared’ and then negotiates access with the service provider.”¹⁶

The legislative scheme set out in Part IIIA provides for three main approaches to the mandating of access:

- declaration of a service by the Minister, based on recommendations of the NCC;
- certification of existing State and Territory access regimes as “effective access regimes”; and

such facilities as “natural monopoly facilities” or “facilities with natural monopoly characteristics”. This is probably because the “natural monopoly” concept is a much older and well-known concept in economics. For a detailed discussion of the distinction between a natural monopoly and a bottleneck, see section 4 of this paper.

¹⁴ *Queensland Wire Industries Pty Ltd v Broken Hill Proprietary Co Ltd* (1989) 167 CLR 177.

¹⁵ Part IIIA was introduced by the Competition Policy Reform Act 1995 and came into operation on 6 November 1995.

¹⁶ Competition Policy Reform Act 1995.

- acceptance of access undertakings by the Australian Competition and Consumer Commission (the “ACCC”).

Under the first approach, a service may only be declared if the Minister is satisfied of each and every one of the following matters:¹⁷

- (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) access to the service can be provided without undue risk to human health or safety;
- (e) access to the service is not already the subject of an effective access regime;
- (f) access (or increased access) to the service would not be contrary to the public interest.

The development of the Gas Code was motivated by the same policy concerns underlying the introduction of Part IIIA of the TPA. In February 1994, the Council of Australian Governments agreed to remove impediments to free and fair trade in natural gas. The Natural Gas Pipelines Access Agreement, entered into by the Commonwealth, States and Territories on 7 November 1997, developed out of this 1994 agreement. Its objective was to establish a uniform national framework for third party access to natural gas pipelines that would:

- facilitate the development and operation of a national market for natural gas;
- prevent abuse of monopoly power;
- promote a competitive market for natural gas in which customers would be able to choose suppliers, including producers, retailers and traders;

¹⁷ Section 44(G)(2) of the TPA.

- provide rights of access to natural gas pipelines on conditions that were fair and reasonable for both service providers and users; and
- provide for resolution of disputes.

A central part of this process was the development of a National Gas Access Regime, which applies to natural gas transmission and distribution pipeline services. The National Gas Access Regime comprises the Gas Pipelines Access Law (GPAL), which provides the legal framework for the regime, supporting State and Territory legislation and regulations and the Gas Code. Access to a natural gas pipeline is mandated when it is "covered" by the Gas Code.

Section 1.9 of the Gas Code provides that pipelines may be "covered" upon fulfilment of conditions that are almost identical to the criteria for mandated access under Part IIIA of the TPA, that is:

- (a) that access (or increased access) to Services provided by means of the Pipeline would promote competition in at least one market (whether or not in Australia), other than the market for the Services provided by means of the Pipeline;
- (b) that it would be uneconomic for anyone to develop another Pipeline to provide the Services provided by means of the Pipeline;
- (c) that access (or increased access) to the Services provided by means of the Pipeline can be provided without undue risk to human health or safety; and
- (d) that access (or increased access) to the Services provided by means of the Pipeline would not be contrary to the public interest.

The similarities between Part IIIA of the TPA and the Gas Code are obvious. Both developed because of a perceived need to ensure access to essential facilities in those markets where access was necessary to ensure effective competition. Furthermore, Part IIIA of the TPA and the Gas Code express the policy behind access through legislative criteria for the mandating of access that are framed in very similar language, that is:

- criterion (a) under both regimes deals with the requirement that declaration should promote competition in another market; and
- criterion (b) under both regimes sets out a test to restrict declaration to those facilities with natural monopoly or bottleneck characteristics. However, while Part IIIA views the facilities relevant to the test as being any that can provide the service at issue, the Gas Code limits the relevant scope to other pipelines.

3 Regulatory “filters”

The “uneconomic to develop” test under the Gas Code and Part IIIA of the TPA is one of a number of hurdles that must be met before a relevant facility may become the subject of mandated access. The way this test is interpreted (in conjunction with the other relevant criteria, such as the “promotion of competition” criterion) determines the “height” of the threshold for regulatory intervention via mandated access. To put it a different way, the “uneconomic to develop” test is a “filter” that permits the application of the access regime in certain cases, but not in others.

This section elaborates on the concept of regulatory filters and considers the implications of viewing the “uneconomic to develop” criterion as a regulatory filter. It also considers how the “uneconomic to develop” criterion should be interpreted if it is to facilitate efficient access decisions.

Section 3.1 puts regulatory filters in perspective by pointing to their use in other areas of Australian and United States competition law. Also discussed are some of the efficiency rationales for employing regulatory filters.

Section 3.2 examines the proper scope of regulatory filters in general, and in the specific case of the “uneconomic to develop” criterion. In particular, it describes the facilities that should be presumptively excluded or included within a mandated access regime. In section 3.2, it is demonstrated that:

- a policy of granting third party access too liberally has substantial social costs;
- third party access implies price regulation and that the costs of setting the access price too low or too high are asymmetric, with lower access prices being associated with higher social costs;
- the asymmetry in social costs between “too high” and “too low” access prices means that it is socially efficient to err on the side of access prices that are “too high”; and
- an extension of the argument about the asymmetry in social costs under different access price scenarios is that there is an asymmetry in the costs of granting third party access too liberally or too stringently so that there are greater social costs in mandating access too liberally than in mandating it too infrequently.

Accordingly, it is concluded that the “uneconomic to develop” criterion should set a high threshold for regulatory intervention.

3.1 Regulatory filters in competition law and policy

The “uneconomic to develop” criterion is intended to ensure that facilities with particular characteristics are *presumptively excluded* or “filtered” out from the possibility of declaration under

Part IIIA or coverage under the Gas Code. The use of regulatory filters of this kind is quite common under both Australian competition law and the competition law of other jurisdictions.

One prominent example of such a filter under Australian trade practices law is found in the “misuse of market power” prohibition in section 46 of the TPA. Under section 46, only firms with “a substantial degree of power in a market” are subject to the prohibition against the taking advantage of market power for a proscribed, anticompetitive purpose.¹⁸ As a test that presumptively excludes all but those firms with substantial market power, the “substantial market power” filter is the converse of the *per se* rules under much of Part IV of the TPA (for example, the price-fixing prohibition) which *presumptively include* certain conduct within the scope of prosecutable anticompetitive conduct.

Filtering mechanisms such as these play a part, not only in statutory design, but also in the implementation of competition policy. A prominent example from United States antitrust law enforcement policy is the use of the Herfindahl-Hirschman Index (HHI) in the 1992 Horizontal Merger Guidelines issued jointly by the United States Department of Justice and the Federal Trade Commission. The HHI is the dominant mechanism used by those antitrust enforcement agencies for estimating market concentration and managing regulatory intervention. The HHI is used to derive an estimate of market concentration by summing the squares of the market shares of every firm in the market. According to the Horizontal Merger Guidelines, if the post-merger HHI falls short of 1000, then the merger will not be challenged by the authorities, even if there is preliminary evidence of a history of collusion, or there are no efficiency benefits.

The general benefits associated with the framing of clear rules are familiar and seem as applicable to filtering rules such as those considered here as they are to rules more widely.¹⁹ However, there are also

¹⁸ There is a difference here with the United States antitrust law. Thus, section 2 of the Sherman Act (26 Stat. 209 (1890) codified as amended, 15 USC §§ 1-7) condemns “every person who shall monopolize, or attempt to monopolize”, regardless of whether that person has or does not have market power. The offence of monopolisation has two elements: first, the possession of monopoly power in the relevant market; and secondly, the wilful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen or historic accident. Attempted monopolisation requires that the plaintiff provide: first, that the defendant has engaged in predatory or anti-competitive conduct; secondly, a specific intent to monopolise; and thirdly, a dangerous probability of achieving monopoly power. In other words, attempted monopolisation does not require the prior possession of monopoly power. For a useful summary of the offence of monopolisation in the United States, see the decision of the United States Court of Appeal in *U.S. v Microsoft Corporation*, 253 F.3d 34, 50 (D.C. Cir. 2001).

¹⁹ These benefits include the fact that clear rules can: allow accumulated experience to be distilled and used efficiently; promote equality of treatment across cases; make for efficiency in the decision process; enhance the legitimacy of decisions taken; limit discretion and hence reduce the risk of bias or arbitrariness; and can strengthen democracy and accountability. See generally Baldwin R., *Rules and*

factors that have been viewed as particularly pertinent to the role of filtering rules in the competition laws. Thus, according to a recent paper on the use of decision rules such as the HHI or the *per se* rules under Part IV of the TPA,²⁰ the rules are derived from the presumption that the likelihood of anticompetitive effects is sufficiently small, and the gathering of more complete information on market power harms and efficiency benefits sufficiently difficult, costly and uncertain, that it is not economically efficient to review such transactions in the instances being filtered out.

More generally, a noted United States law and economics commentator, and now Federal Judge, Professor Frank Easterbrook, argues that it is particularly important that courts should adopt (and legislators should permit or proscribe) simple presumptions that structure antitrust inquiry because such presumptions:

- facilitate the ability of firms to plan their affairs by creating a scope of action where risk of liability is almost non-existent; and
- reduce litigation costs by designating as dispositive particular topics capable of resolution.²¹

Easterbrook acknowledges that the use of presumptions, whether of innocence or guilt, can lead to errors in judgments in particular cases. However, as he points out, some error is tolerable because *all* rules are imprecise.²² Along with the savings of decision by rule, one must accept the costs of

Government (1995) Oxford Socio-Legal Studies, The Clarendon Press, at pages 12 to 14. For the classic statement of the case against “hard and fast” rules, see however Kennedy, D., “Form and Substance in Private Law Adjudication” (1976) 89 *Harvard Law Review* 1685 and (for an attempted reconciliation of the conflicting positions) Mashaw J L, *Greed, Chaos and Governance: Using Public Choice to Improve Public Law* (1997) Yale University Press.

²⁰ Breckener, C F and Salop, S C, “Decision theory and antitrust rules” (1999) 67 *Antitrust Law Journal* 41.

²¹ Easterbrook, F., “The limits of antitrust” (1984) 63 *Texas Law Review* 1. For other articles which elaborate on the efficiency arguments for *per se* rules and filters, see Bernado, A., Talley, E. and Welch, I. (2000) “A theory of legal presumptions”, 16(1) *Journal of Law, Economics and Organisation* , and Cohen, W.M. 1997, “Per se illegality and truncated rule of reason: The search for a foreshortened antitrust analysis”, available at:<http://www.ftc.gov/opp/jointvent/persepap.htm>.

²² Indeed, at a philosophical level, it has been authoritatively argued, and now seems widely accepted, that it is inherent in the nature of a decision rule that, if it has any bite, it be under- or over-inclusive. See Schauer, F, *Playing by the Rules: A Philosophical Examination of Rule-Based Decision-Making in Law and in Life* (1991) The Clarendon Law Series: Oxford University Press, Oxford.

mistakes. On balance, if a rule is formulated correctly, the savings accruing from decision by rule exceed the costs of mistakes under decision by rule.²³

Clearly then, an important task is to determine the correct scope of a regulatory filter. For example, in the specific case of the “uneconomic to develop” criterion, the task is to determine whether it is appropriate to determine a rule specifying that certain facilities should be presumptively excluded or included within a mandated access regime; and if so, how the scope of the rule should be set. Section 3.2 addresses this question.

3.2 Determining the optimal regulatory threshold

Establishing that there is a case for relying on regulatory filters (that is, presumptively including or excluding particular fact situations) is only half the task of a policy maker. The other half of the task is to determine specifically what should be presumptively filtered out of the purview of regulation.²⁴ Before this question can be answered, this paper turns from the administrative cost aspects of legal

²³ There is significant authority for these formulations of the efficiency properties of filters and *per se* rules in US antitrust law. *Northern Pacific Railways v United States*, 356 US 1 (1958) at 5 is often cited as a classic statement of the rationale underlying *per se* analysis:

“[T]here are certain agreements or practices which because of their pernicious effect on competition and lack of any redeeming virtue are conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use. This principle of *per se* unreasonableness not only makes the type of restraints which are proscribed by the Sherman Act more certain to the benefit of everyone concerned, but it also *avoids the necessity for an incredibly complicated and prolonged economic investigation into the entire history of the industry involved, as well as related industries, in an effort to determine at large whether a particular restraint has been unreasonable* -- an inquiry so often wholly fruitless when undertaken. ...” (emphasis added)

Other examples of similar formulations are *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 US 36, 50 (1977), *NCAA v. Board of Regents*, 468 US 85, 103 (1984), *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 US 2, 9 (1984), *Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1441 (9th Cir. 1995); *Town Sound & Custom Tops, Inc. v. Chrysler Motors Corp.*, 959 F.2d 468, 486 n.24 (3d Cir. 1992); and *Air Passengers Computer Reservation Sys. Antitrust Litig.*, 694 F. Supp. 1443, 146 (C.D. Cal. 1988).

²⁴ Another way of describing the problem is this: first, the decision must be made where the line is drawn; secondly, what exceptions apply and in what circumstances; and thirdly, who bears the onus of establishing the facts necessary for either the line drawn or the exception applicable.

rules to error costs, the latter being the other component of costs that appropriately designed rules should seek to minimise.

3.2.1 Error costs generally

Error costs are the efficiency costs to society of incorrect decisions by regulators about whether and how to intervene in the market. Competition law is concerned with correcting market failures attributable to market power and/or the propensity towards anticompetitive behaviour referable to market power. The design of competition law and its implementation, like all other forms of collective action, is subject to the errors and inefficiencies that arise from imperfect information and from differences between the public interest and the private interests of those that govern the legislative, administrative and enforcement processes. In designing the competition laws, and in guiding their implementation, there is a need to weigh the social costs of falsely condemning competitive behaviour or identifying market failure (Type I error) against the costs of erroneously exonerating anticompetitive conduct or failing to correct market failure (Type II error).

In the specific context of administering mandatory access regimes in competition law, a policy of granting access too liberally is equivalent to a Type I error, because it means that the regulator has wrongly identified a case of market failure requiring intervention where there is in fact no market failure (or the costs of that failure are less than the costs of attempting to correct it). Conversely, a policy of not granting access where it should have been granted is equivalent to a Type II error, because it means that the regulator has failed to correct market failure where such market failure exists.

It has been widely noted, in the context of Part IIIA, that there are costs associated with granting access too liberally (that is, committing Type I errors) and that these costs should be properly taken into account by policy-makers. For example, in its draft guide to Part IIIA, the NCC states:²⁵

“... Access regulation can also entail costs if it is applied inappropriately or too widely. First, it may diminish incentives for businesses to invest in infrastructure facilities and thus limit, rather than enhance, overall competition and economic efficiency. Second, compelling infrastructure owners to provide access to others necessarily can impinge on their private property rights. Third, legislated access regimes are but one of several regulatory mechanisms available for countering market power. The choice of regulatory tool needs to be aligned properly with the source of the mark of power problems. If access regulation is used when better tools are available, further market distortions may arise ... Overall, the Council observes that trade-offs arise in applying access regimes. Applying

²⁵ National Competition Council, *National Access Regime - A Draft Guide to Part IIIA of the Trade Practices Act*, at page 20.

access regulation proffers benefits through greater competition. However, these benefits need to be weighed against the cost ... One of the challenges for access regulation is to balance the commercial interests of infrastructure operators with those of businesses seeking to enter and compete in upstream and downstream markets.”

Similarly, King and Maddock have written that:²⁶

“Our prognostications for the success of the competition policy reforms are pessimistic. At best the access regime will lead to small gains in some areas. However, these gains are likely to be swamped by the inappropriate application of access, by the reduced and distorted incentives for investment created by the access regime, and by the costs of negotiation, arbitration, legal dispute and regulatory oversight. The reforms being implemented at both the State and Federal level could well lead to higher overall costs with few offsetting benefits rather than to improved efficiency and lower prices ... “

Most recently, the Commission has summarised the costs of access regimes as follows:²⁷

“Access regulation can involve a significant abrogation of private property rights. Such abrogation can give rise to a range of costs, particularly if access regulation is poorly specified meaning that the implications for property rights are ill-defined. Uncertainty about the property right implications of changes to access regulation can also give rise to similar costs. The costs emanating from the alteration of property rights under access regulation can take a number of forms, including:

- Administrative costs for government and compliance costs for business;
- Constraints on the scope for infrastructure providers to deliver and price their services efficiently;
- Reduced incentives to invest in infrastructure facilities;
- Inefficient investment in related markets; and
- Wasteful strategic behaviour by both service providers and access seekers.”

²⁶ King, S and Maddock, R, *Unlocking the Infrastructure: The Reform of Public Utilities in Australia*, (1996) Allen and Unwin, Melbourne, at page 174.

²⁷ Productivity Commission, *Review of the National Access Regime*, Position Paper, Canberra, March 2001, at page 53.

Finally, it is worth noting that the Tribunal, in its *Duke* decision, emphasises that “regulation is a second best option to competition”,²⁸ because, *inter alia*, of the significant compliance costs it imposes.²⁹

3.2.2 Errors in determining access prices

The NCC and other commentators quoted above have identified the general costs of granting access too liberally as including: the high administrative costs of applying an access regime; the resources likely to be consumed in litigation; and reduced incentives to invest, attributable to both the uncertainty created over the property rights of the facility owner and the increased risk-premium incurred in raising capital. These are all direct costs associated with granting access.

However, in addition to these *direct* costs of mandating access to the facility there are further, secondary, costs, including that:

- after wrongly mandating access to the facility, the regulator may set the access price too low, such that the facility owner is unable to recoup an appropriate return on its investment;
- even if the regulator has correctly mandated access to the facility, it may still nonetheless proceed to set the access price at an inappropriately low level;
- after wrongly mandating access to the facility, the regulator may set the access price at an inappropriately high level; or
- even if the regulator has correctly mandated access, access prices may be set at an inappropriately high level (in which case the benefits of the correctly mandated access arrangement may be nugatory).

An “ideal world” would be one in which regulators, following a (correctly taken) decision to mandate access to a facility, could determine efficient access prices with certainty. In such a world, monopoly rents could be eliminated while still maintaining efficient incentives to ensure that access providers/facility owners would continue to invest in maintaining and upgrading facilities.

In practice, such ideal conditions are rarely or never attained, because regulators do not have access to sufficient information (including information on the social costs associated with the supply of the facility at issue) to be able to accurately determine efficient access prices. The information needs are substantial, and difficult to meet, even when the actual costs of the regulated firm are the focus. The

²⁸ *Duke*, at paragraph 110.

²⁹ *Duke*, at paragraph 5.

task is even more difficult when attempting to estimate the capital costs of a hypothetical, efficiently configured asset – which is the approach Australian regulators have adopted. To estimate efficient access prices in those circumstances, regulators need sufficient information to determine whether proposed new or renewal investments are “efficient”. Essentially, this involves second-guessing the decisions of the asset owners themselves. The difficulties inherent in this type of second-guessing increase the risk that regulated access prices will depart from efficient levels and hence exacerbate the error costs associated with incorrectly mandating access.

3.2.3 Relative harms of too low vs too high access prices

While there are costs associated with setting access prices too low or too high, it can be shown that the harm associated with inappropriately *low* access prices outweighs the harm associated with inappropriately *high* access prices.³⁰

This is because *even if* regulated access prices provide a reasonable return on capital for regulated facilities, the overall effect of an access regime is usually to truncate the expected returns to investors from investing in facilities subject to access regimes. A prospective investor in such facilities has to rely on an “upside” (that is, above-average returns) in successful investments to compensate for the likely “downside” of unsuccessful projects. In a workably competitive market, the investor’s expected return will be zero. However, if regulated access prices for *successful* projects provide a return to investors sufficient *only* to provide a reasonable return on capital for those projects (even with sufficient compensation for risk), then the average return across a diversified holding of projects likely to be subject to a mandated access regime would be less than the cost of capital, so that the investor would make negative returns. Thus, an even-handed approach to setting access prices may still carry the risk of a severe reduction in incentives for efficient investment in infrastructure facilities.³¹

These concerns with inadequate levels of investment are heightened in the case of infrastructure assets because:

³⁰ Here and elsewhere, references to harm or social cost are to be read in terms of loss of social surplus, that is, of consumer and producer surplus.

³¹ It is worth recalling Schumpeter’s observation that the essence of a capitalist economy is that: “Spectacular prizes much greater than would have been necessary to call forth the particular effort are thrown to a small minority of winners, thus propelling much more efficaciously than a more equal and more ‘just’ distribution would, the activity of that large majority of businessmen who receive in return very modest compensation ... and yet do their utmost because they have the big prizes before their eyes and overrate their chances of doing equally well.”: Schumpeter J, *Capitalism, Socialism and Democracy* (1942) Macmillan, London at pages 73-4.

- infrastructure providers operate within constraints that arise from the nature of infrastructure assets – in particular these assets’ long lives and their high specificity to particular uses and places (which implies a lack of fungibility). These characteristics mean that infrastructure investment, once made, is largely sunk. The parties making that investment therefore already bear a high level of risk; and
- the variable costs of operating infrastructure assets are relatively low. Thus, when revenues are forced below the level corresponding to the long-term costs of supply, capacity will remain in use as long as the allowed revenue exceeds the (relatively low) costs of continued operation. As a result, it can take many years before the full consequences of revenue inadequacy become apparent. This increases the risk of “regulatory expropriation” (since regulators can force prices below long term costs without immediate cessation of supply) and means that access prices that are set erroneously low can persist without correction for long periods of time;
- the risks of regulatory expropriation are made all the greater by the fact that the firms supplying infrastructure services are often subject to obligations to supply, and hence are required by law to make continued service available; and
- as a result, when regulated revenues are driven below long-term costs, service continues but maintenance is cut back, new investments are deferred and, over time, the quality of service suffers. Thus, under-pricing access has, over the long term, a substantial negative effect on the dynamic and productive efficiency promoted by adequate infrastructure investment.

By contrast, the costs of over-pricing access lie in the monopoly rents which incumbent facility owners may be able to enjoy as a result. These monopoly rents can impose allocative efficiency losses.³² However, as the Commission has pointed out,³³ there are natural checks and balances that prevent a situation of high monopoly rents from persisting that are not as present, or do not operate as quickly to send a signal, when access prices are set too low. In particular:³⁴

³² The ability to extract monopoly rents may also diminish the incentive for an incumbent facility owner to operate efficiently and to invest in product improvement. However, this is more relevant to public than to private providers. Even unregulated private monopolists have strong incentives to operate efficiently so as to enhance the value of their position in the market.

³³ Productivity Commission, *Review of the National Access Regime*, Position Paper, Canberra, 29 March 2001 at page 52.

³⁴ *Ibid.*

- competition, which can limit an infrastructure owner's monopoly even in an unregulated setting, will be reinforced by other competition law provisions to reduce a firm's temptation to lead an "easy life" even if it enjoys monopoly rents due to over-pricing of access;
- in some cases, non-integrated service providers will be dealing with a small number of relatively powerful users. Economic literature suggests that, in such circumstances and in the absence of collusion, prices and quantities might not diverge greatly from efficient levels;³⁵ and
- the efficiency impacts of monopoly pricing of access can be mitigated by the charging regimes for the essential input and/or final service. Ramsey-Boiteaux pricing regimes and/or the use of multi-part prices potentially entail lower efficiency costs than uniform charges.

The Appendix to this paper highlights diagrammatically the asymmetry between the costs of setting access prices too high and too low, using the example of a firm that produces only one output. It can be demonstrated that, for a range of different situations, the social costs of regulatory under-pricing are higher than the social costs of regulatory over-pricing.³⁶

Given that the harm caused by inappropriately low access prices outweighs the harm caused by inappropriately high access prices, then error costs are asymmetric in the sense that the costs (both direct and indirect) of Type I errors are higher than the cost of Type II errors. This is because with an overly liberal access regime, there is a heightened risk that inefficiently low access prices will be imposed on a greater number of facilities. Since inefficiently low access prices have greater social costs than inefficiently high access prices, this suggests that higher social welfare will result from an access regime that attempts to minimise the incidence of Type I errors (that is, one which is more reluctant to declare access than to refuse it). This in turn suggests that social welfare will be maximised by setting a high threshold on regulatory intervention in a mandated access regime.³⁷

³⁵ Particularly important here is the ability of these users to contract with an alternative source of supply.

³⁶ The single output example is not the only possibility, and is only employed for the sake of simplicity of exposition. However, the basic result carries through to the multiple output case.

³⁷ The case for this bias is strengthened when it is noted that there are a wide range of "political economy" issues that intrude on the regulatory process. For example, a principal-agent problem arises in the context of the administration of access regimes. A regulator of an access regime may have greater incentives to declare access than not to declare access for example because of the high public approval enjoyed by the consequent lowering of access prices, even if this comes at the expense of declines in service quality over the long term. By the time the long term effects manifest themselves, the regulator may have already served out his or her term and therefore might not face the full costs of these long-term effects in decision-making.

3.3 Summary

Consistent with competition law and policy practice in other contexts and jurisdictions, the “uneconomic to develop” criterion has the objective of ensuring that facilities exhibit certain characteristics before being made subject to the relevant mandated access regime. The use of this regulatory filter brings a number of efficiency benefits in the form of avoiding high administrative costs associated with deciding each application for access on its individual merits.

Additionally, the use of a stringent filter has benefits in terms of the appropriate social weighting of Type I and Type II errors. In the present context, a policy of granting access too liberally is equivalent to a Type I error because it means that the regulator has wrongly identified a case of market failure requiring or justifying intervention where there is none. Conversely, a policy of not granting access where it should have been granted is equivalent to a Type II error, because it means that the regulator has failed to correct market failure where such market failure exists (and where its costs exceed the costs of attempts to correct it).

There are a number of direct costs in providing over-liberal access, including the high administrative costs of the resulting access regime, the additional resources likely to be consumed in litigation costs and the reduced incentives to invest owing to both the uncertainty created for the property rights of the facility owner and an increased risk-premium when raising capital.

In addition to these direct costs of wrongly mandating access to a facility (that is, committing a Type I error) there is also the danger that, after mandating access, whether rightly or wrongly, the regulator may set the access price at either an inappropriately high or an inappropriately low level.

It can be demonstrated that the harm caused by inappropriately low access prices outweighs the harm caused by inappropriately high access prices. More specifically, the social cost of the reduced

Putting these arguments in the broader framework of the theory of optimal deterrence, the long term costs imposed by the regulator on society from lower access prices might be efficiently deterred if, every time the regulator made such a costly decision, he or she was punished where the disutility of the punishment (for example, in the form of a fine or reduced pay) was set equal to the social cost of the decision with an additional punitive loading imposed to reflect the risk of non-detection. For obvious reasons, it is not feasible to retrospectively punish regulators for wrong decisions. For example, it would be difficult to determine in which cases the regulator genuinely made a mistake and to calculate the optimal amount of ‘damages’ the regulator should pay to society. Nor is there any reasonable means by which this payment could be made. For these reasons, the optimal form of deterrence is simply to reduce the number of opportunities wherein the regulator might be tempted to make bad decisions. This provides another, potentially important, justification for a regulatory bias against too readily declaring access.

investment arising from inefficiently low prices will, under any plausible assumptions, be greater than the social cost of the allocative distortions associated with setting access prices too high.

By implication, if the harm caused by inappropriately low access prices outweighs the harm caused by inappropriately high access prices, then this means that error costs are asymmetric in the sense that the costs of Type I errors are higher than those of Type II errors. This is because mandating access too liberally increases the number of cases in which the access prices may be set too low. That is, with an overly liberal access regime, there is a heightened risk that inefficiently low access prices will be imposed on a great number of facilities. Given that inefficiently low access prices have greater social costs than inefficiently high access prices, this suggests that higher social welfare will result from an access regime that attempts to minimise the incidence of Type I errors (that is, one which is more reluctant to declare access than to refuse it) and hence errs in allowing access prices to be set too high. This argument establishes a *prima facie* case for a high threshold for regulatory intervention or a means of ‘filtering’ out those situations that should be outside the purview of regulatory intervention.

It was also argued that, for institutional reasons, the probability of Type I errors in decisions to regulate access is respectively greater than the probability of Type II errors, and the probability of harm due to under-pricing is greater than the probability of harm due to over-pricing. This is because the costs of “over-declaration” and under-pricing, while high, are incurred in the distant future and are difficult to link to the past decision. Such costs are thus unlikely to be sheeted home to the regulator, or those who appointed the regulator. In contrast, the political benefits to the regulator of being seen to be tough are immediate and palpable.

The next section of this paper considers the implications of this *prima facie* case for the interpretation of the “uneconomic to develop” criterion.

4 Interpreting the regulatory filter

It has been argued that, to minimise error costs and administrative costs, there is a strong efficiency rationale for using regulatory “filters” that set a high threshold for intervention in the form of compulsory access to third-parties. The purpose of this section is to consider the appropriate interpretation of the “uneconomic to develop” criterion in light of this assessment. It is argued that the “uneconomic to develop” criterion should be interpreted as applying a “bottleneck test”, and that the proper implementation of this test necessarily involves the definition of the market in which the service at issue is offered, and the identification of whether, within that market, there are or could reasonably be alternative sources of the service.

Section 4.2 summarises the use of market definition to underlie analysis of natural monopoly and bottleneck concepts in Australian and United States case law. The discussion shows that an interpretation of the “uneconomic to develop” criterion as involving definition of the market in which the service at issue is offered, and the identification of whether, within that market, there are or could

reasonably be alternative sources of the service, has a very strong precedent in the United States essential facilities doctrine.

4.1 The “uneconomic to develop” test as a “bottleneck” test

As a matter of logic, the more rigorous the conditions that must be met for a regulation to be applicable to the facts at hand, the higher the threshold that is being set for regulatory intervention. For instance, in the context of competition law generally and access regimes in particular, to presumptively exclude from regulation all facilities except those in respect of which the relevant facility owner is able to exercise market power is to set a very low regulatory threshold. This is because it is relatively easy to demonstrate the existence of *some* market power in all but perfectly competitive markets.³⁸ On the other hand, a reasonably high regulatory threshold would be entailed by a rule that specified that access could only be mandated if the firm at issue was a monopolist in the relevant market.³⁹

The point has already been made that, for the purposes of minimising administrative and error costs, an access regime should set a relatively high threshold for regulatory intervention. The question then is how that threshold might best be defined.

In the context of the “uneconomic to develop” criterion, it seems natural and consistent with the objectives being pursued by a regime of mandated third-party access to interpret the criterion as embodying a “bottleneck” test.⁴⁰ This follows from two features of the “bottleneck” test. First, rigorous conditions must be met for a facility to qualify as a “bottleneck”. Secondly, these conditions capture the essence of the goal of access regulation – the goal of allowing effective competition to be

³⁸ Economists draw a distinction between “market power” and “substantial market power”. Market power is merely the ability to have some influence over price. Only perfectly competitive markets are characterised by the complete absence of market power by any participants. In virtually all real world markets, at least some participants have some degree of market power. In workably (or effectively) competitive markets, at least some (and perhaps all) participants have some degree of market power, but no participant has substantial market power. Substantial market power (sometimes called “monopoly power”) implies a much greater degree of discretion over price and quantity than does mere market power.

³⁹ Note that a monopolist may have no incentive to distort competition in dependent markets, so that the finding that a firm is a monopolist should be a necessary, but not sufficient, condition for mandating third party access.

⁴⁰ See also National Competition Council, *Legislation Review of Clause 6 of the Competition Principles Agreement and Part IIIA of the Trade Practices Act, 1974: Submission to the Productivity Commission*, January 2001, at p 53.

introduced into dependent markets, that is, markets where firms need access to facilities that provide necessary inputs into the goods and services they provide in final markets.

A “bottleneck” test requires the existence of substantial market power to be established for mandated access to be invoked, where this substantial market power is conferred on a facility owner by virtue of the fact that:

- there are *no alternatives* to that facility and no alternatives could be economically developed; such that
- through ownership of that facility, the facility owner is able to reduce, distort, harm or hinder competition in some other market.

Thus, a bottleneck service implies a situation of little or no scope for substituting away from the service provided by the facility in question.

What does this mean in practice? To take the example of a gas pipeline being examined for possible coverage under the Gas Code, applying the test would require deciding whether it was economic to develop an *alternative* to the service provided by the pipeline. In terms of developing an alternative to the service, an existing pipeline would be providing a substitute for the service if the service provided by that existing pipeline could act as a *direct and material constraint on the pricing* of the service provided by the pipeline considered for coverage under the Gas Code. Facilities that could be shown to have viable *substitutes* in a relevant market, or where such substitutes could readily exist, would be “filtered out” of consideration for coverage under the Gas Code under this “bottleneck” approach to the “uneconomic to develop” test.⁴¹

It follows from this description of the “bottleneck” test that its proper application is inseparable from an appropriate definition of the market in which the service at issue is provided. In effect, applying this test requires a notion of economically-relevant substitution: that is, of the pressure that substitutes could exercise on a hypothetical sole supplier of the services provided by the facility at issue. This is no different from a consideration of the market in which those services are supplied, followed by an assessment of whether there exist, or could reasonably exist, viable supply alternatives within that market.

⁴¹ Again, it is stressed that meeting the test should be viewed as a necessary, but not sufficient, condition for falling within the scope of the regulated access arrangements. It would, *inter alia*, also need to be shown that the owner of the facility had an incentive to distort competition in dependent markets.

The concept of a bottleneck is related to, but differs from, that of a natural monopoly (or a facility having “natural monopoly characteristics”).⁴²

In economics, a natural monopoly industry is generally said to exist when total costs of production are lower when a single firm produces the entire market output than when any collection of two or more firms divides this output among themselves. Historically, the concept of a natural monopoly developed as a contraposition to other forms of monopoly – for example, the monopolies derived from statutory privileges.⁴³ The primary source of natural monopoly was seen as being decreasing costs over the bulk of industry output.⁴⁴

More recently, economists have defined natural monopoly as a situation characterised by subadditivity of the representative firm’s cost function. The subadditivity conditions for natural monopoly, which were first formulated by Baumol, Faulhaber and Sharkey, have the advantage that they allow more naturally for consideration of economies of scope as a factor determining efficient market structure.⁴⁵

Subadditivity is essentially a technical condition: the criterion itself does not provide any guidance as to how the test is to be applied, notably in terms of the manner in which the demand that is relevant to the test should be specified. Rather, this will inevitably depend on the purpose for which use is being made of the concept.

In practice, economists have usually been interested in whether a firm is or is not a natural monopoly as a step in determining whether it has or can exercise monopoly power. Reflecting this purpose, the main texts setting out the concept of subadditivity typically describe the test as being carried out at the level of market or industry demand.^{46, 47} The relevant test for natural monopoly then becomes whether it is efficient for only a single firm to serve the market demand curve.

⁴² See National Competition Council, *Legislation Review of Clause 6 of the Competition Principles Agreement and Part IIIA of the Trade Practices Act, 1974: Submission to the Productivity Commission*, January 2001, at pages 54 and following.

⁴³ See Hazlett, T. “The curious evolution of natural monopoly theory” in Poole, R (ed) *Unnatural Monopolies* (1985), Lexington Books, Lexington Mass., at pages 1 to 26.

⁴⁴ A firm that is experiencing rising marginal costs may still be a natural monopolist if lower total costs are incurred by allowing the firm to service the share of demand for which unit costs are rising than would be incurred if total demand were split between two firms that duplicated a fixed cost.

⁴⁵ See Faulhaber, G R, “Cross-subsidisation: pricing in public enterprise” (1975) *American Economic Review* 65: 966-77 and Sharkey, W W, *The theory of natural monopoly*, Cambridge University Press, Cambridge (1982).

⁴⁶ This reflects the fact that a monopoly is a firm that faces the entirety of the market demand curve.

Economists and other commentators have generally taken the view that a facility may be a bottleneck even if it is not a natural monopoly. For example, capacity constraints on alternative sources of supply, if sufficiently durable, may mean that the unconstrained facility is the bottleneck for competition in dependent markets. Equally, a firm may be a natural monopoly without in fact being a bottleneck – for example, because its monopoly is contestable, so that the firm lacks market power, or because it only serves final consumers and hence does not control competitive conditions in any dependent market.

Nonetheless, there is considerable overlap between natural monopolies and bottlenecks. This is because there are few natural monopoly situations where bottleneck conditions are not met and, equally, genuine bottlenecks that are not natural monopolies are rare. As a result, as a practical matter, many access cases involve natural monopolies that have an ability to exert a bottleneck influence on related markets.

Possibly reflecting this fact, “natural monopoly” and “bottleneck” have been used interchangeably in many competition law cases and by legal commentators, and this paper will also use the terms interchangeably. However, when using the term “natural monopoly” it seems clear that the concept is being used with reference to a firm’s position in a market – that is, as a way of indicating that the firm seems likely to be able to exercise a high degree of market control. As a result, an analysis of the firm’s market position has almost invariably played a key role in the assessment – because the question to be addressed is that of whether there are economically relevant, viable alternatives to the services provided by the facility the firm controls.

The importance in determining whether a facility is a bottleneck of a focus on market conditions, and hence on the proper definition of the appropriate scope for substitution, is apparent from a consideration of the United States and Australian case law that is summarised below.

4.2 The role of market definition

4.2.1 Examples from US law

The concept of “natural monopoly” plays at least two important roles in US anti-trust law. To begin with, a firm can defend itself from allegations under section 2 of the Sherman Act⁴⁸ by demonstrating

⁴⁷ See for example Sharkey, W W, *The theory of natural monopoly*, Cambridge University Press, Cambridge (1982) at pages 1 to 3.

⁴⁸ In summary, section 2 of the Sherman Act (26 Stat. 209 (1890) codified as amended, 15 USC §§ 1-7) establishes that “every person who shall monopolize, or attempt to monopolize, or combine or conspire

that the monopoly towards which a market tends is in some sense natural. Second, the issue of whether a service is provided under conditions of natural monopoly is significant in determining whether the facilities by which that service is supplied are to be viewed as “essential.”

The case law in respect of each of these roles is inevitably diverse. However, as a consideration of the leading cases shows, a common factor is the weight attached to identifying whether a firm is indeed a monopoly by considering its position in a properly defined market. In other words, “natural monopoly” has been consistently seen as a sub-set of the class of “monopolies”, so that determining whether a service is supplied under conditions of natural monopoly requires consideration of whether the firm supplying that service has a monopoly in an economic sense.

The natural monopoly defence to allegations under section 2 of the Sherman Act was established as early as the famous *Alcoa* case,⁴⁹ where Judge Hand argued that examples of monopoly whose condemnation “would be not only unfair but presumably contrary to the intent of Congress,” included situations where the market was “so limited that it is impossible to produce at all and meet the cost of production except by a plant large enough to supply the whole demand”.⁵⁰

Other leading cases under section 2 of the Sherman Act where the concept of natural monopoly has been considered include:

- *Affiliated Capital Corp v City of Houston*,⁵¹ in which there were *dicta* to the effect that cable television, like electric utilities, is generally considered a natural monopoly. The extremely high fixed costs incurred in preparing a cable television company for operation prevent the survival of competition in the relevant market. The economies of scale do not approach those of electric utilities, but it was found that the theory for both industries holds that the long-run average costs tend to fall as output increases.
- In *Mishawaka*,⁵² the Court protected competition for a market that when properly defined, was found to be a natural monopoly. The defendants (which were vertically integrated) instituted a “price squeeze”, charging an unjustifiably high price for wholesale power to the municipalities so that their ability to compete at the retail level was impaired. The price squeeze was allegedly calculated to drive the local retailers out of business and allow the defendants to replace them as sole retail supplier. The Court held that the defendants had

with any other person or persons to monopolize ... shall be deemed guilty of a felony.” The statute provides for fines and imprisonment.

⁴⁹ *United States v Aluminium Co.*, 148 F.2d 416, 429 (2d Cir. 1945) (“*Alcoa*”).

⁵⁰ *Alcoa*, note 14, at page 430.

⁵¹ 735 F.2D 1555.

⁵² 616 F.2d 976.

violated section 2 of the Sherman Act because their acts tended to “foreclose competitors from access to markets or customers ...”.⁵³

- In *Fishman v Wirtz*,⁵⁴ the Court found that “[t]he only way to tell whether a market is a natural monopoly is to see whether two firms can survive in it. Judges cannot readily compute cost functions. As a result, they ought not to abrogate antitrust rules just because one party cries ‘natural monopoly’”. Analysis of the proper scope of the market played a very important and explicit role in *Fishman v Wirtz*. The Supreme Court in this case carefully analysed the conclusion of the District Court that the relevant product market was the presentation of live professional basketball, based on the reasoning that “the demand function for professional basketball is not effected [*sic*] in any significant way by the existence of other amateur or professional sports or other forms of entertainment”.⁵⁵ The District Court also found that the relevant geographic market was the Chicago metropolitan area because “professional basketball exhibitions are presented in a local market, which, in the present case, is essentially the Chicago metropolitan area. Almost all of the fans who buy tickets and attend NBA games come from a 35 mile radius of the home arena”.⁵⁶
- Finally, in *Town of Concord v. Boston Edison Co.*,⁵⁷ it was held that retail distribution of electricity remained a natural monopoly while wholesale distribution had become quite competitive. Market definition issues were also crucial to the resolution of this case. For instance, the Court found that “[a] second, legally fatal problem with plaintiffs’ case is that they failed to show that Boston Edison possessed monopoly power in the relevant market ...”.

The proper consideration of economically-relevant substitution possibilities has been of even greater importance in the “bottleneck” or “natural monopoly” cases determined under the doctrine of essential facilities.

The essential facilities doctrine was most fully enunciated in *MCI Communications Corp. v. American Tel. & Tel. Co.*⁵⁸ in which the following tests were set out:

⁵³ *Id.* at 986, quoting *Sargent-Welch Scientific Co. v. Ventron Corp.*, 567 F.2d 701, 711-12 (7th Cir. 1977), cert. denied, 439 U.S. 822, 58 L. Ed. 2d 113, 99 S. Ct. 87 (1978).

⁵⁴ 807 F.2D 520.

⁵⁵ Liability Opinion, 1981-2 Trade Cas. at 74,756.

⁵⁶ *Id.*

⁵⁷ 915 F.2d 17, 31 (1st Cir. 1990).

⁵⁸ 708 F.2d 1081, (7th Cir. 1982), 27.

- there had to be control of the essential facility by a monopolist;
- the competitor was unable, practically or reasonably, to duplicate the facility;
- there had to be a denial of the use of the facility to a competitor (including a constructive denial through prohibitively high access prices); and
- the access seeker had to demonstrate the feasibility of providing access to the facility.

As a result, making out that the facility was indeed “essential” has always been the *sine qua non* of successful prosecution of a case under the terms of the doctrine. This has consistently involved an assessment of whether there are or could be alternative sources of supply of the services the facility provides.⁵⁹

Thus, it was at the centre of the *Terminal Railroad case*⁶⁰ (the case to which the ‘essential facilities’ doctrine is ultimately traced) that the facility at issue was a natural monopoly. As Areeda and Hovenkamp say:⁶¹

“... the particular facts of *Terminal* should be noted. The Terminal Company’s St. Louis monopoly was apparently “natural” in the double sense that *its minimum efficient scale could accommodate all the traffic*, and that topographical features of the terrain made construction of an alternative impossible or prohibitively expensive.”

Areeda and Hovenkamp also explain that:⁶²

“Even if a resource is “essential,” in the sense that the plaintiff cannot compete without it, it does not satisfy the antitrust definition if it can be obtained from another source or developed by the plaintiff itself.”

Areeda and Hovenkamp give several examples of cases in the United States in which the courts refused to find that a particular facility was a bottleneck because substitutes could be identified in a

⁵⁹ This is not to say that the relevant test has always been fully or correctly applied; rather, deficiencies in this respect provide strong grounds for a critique of the risks the doctrine creates. See generally, Areeda P, “Essential facilities: an epithet in search of limiting principles” (1989) 58 *Antitrust LJ* at 841 and following.

⁶⁰ *United States v Terminal Railroad Association*, 224 US 383 (1912).

⁶¹ Phillip E Areeda, and Herbert Hovenkamp, (1996) *Antitrust Law: An Analysis of Antitrust Principles and Their Application*, Volume IIIA, Little, Brown and Company, Boston, at ¶772. (emphasis added)

⁶² *Ibid*, at ¶773b2.

properly defined market. The authors discuss *Illinois ex rel. Hartigan v. Panhandle E. Pipe Line Co.*,⁶³ in which it was held that there was no violation under the essential facilities doctrine where others could have entered the market through alternative pipelines. Similarly, in *Flip Side Productions v. Jam Prods.*,⁶⁴ it was held that a rock concert arena was not a bottleneck where several alternative venues were available. In each of these cases, the question of whether substitution could occur was considered by examining the supply alternatives within the relevant market. If such alternatives exist, or could reasonably exist, then it can only be in exceptional cases that the facility at issue could be viewed as a bottleneck and hence as “essential”.

In those cases under the essential facilities doctrine where the concept of natural monopoly was explicitly raised, the US courts have almost invariably considered the issue of market definition. In the important *Otter Tail* case, it was found that the defendant possessed a natural monopoly. This case involved an owner of electric transmission lines (Otter Tail), who also generated power and distributed it to ultimate consumers, and who refused to supply power to municipalities that undertook to operate their own retail distribution facilities rather than franchising Otter Tail to sell directly to consumers. The Supreme Court clearly endorsed the market-based approach to finding a natural monopoly when it found that the company was a monopoly *within a particular market*:

“Each town in Otter Tail’s service area generally can accommodate only one distribution system, making each town a *natural monopoly market* for the distribution and sale of electric power at retail.”⁶⁵

The US case law also makes it clear that the concept of natural monopoly is only meaningful when applied to products or services, and not to firms as such. For instance *National Reporting Co. v. Alderson Reporting Co.*⁶⁶ clearly establishes that in US law, for the natural monopoly concept to be meaningful, it should be applied to products and services (and thus their attached markets) and not to firms or cost conditions as such. In that case, the defendant was accused of submitting a predatory bid on the court-reporting contract for the United States Tax Court, which takes periodic bidding but gives the right to only one firm at a time. The District Court found a relevant market for Tax Court reporting, which seems very narrow in view of the talents and equipment involved. The equipment necessary was easily purchased or sold and readily set up and dismantled; typing and proofreading are common skills. Although the Eighth Circuit spoke of the reporting service as a “natural monopoly,” since the Tax Court was best served by a single firm at a time, it dismissed the complaint, in essence

⁶³ 730 F. Supp. 826 (C.D. Ill. 1990), affirmed, 935 F.2d 1469 (7th Cir. 1991), cert. denied, 502 U.S. 1094 (1992), cited in Areeda and Hovenkamp, *op cit*.

⁶⁴ 843 F.2d 1024 (7th Cir), cert. denied, 488 U.S. 909 (1988), cited in Areeda and Hovenkamp, *op cit*.

⁶⁵ *Otter Tail Power Co. v. United States*, 410 US 366 (1973), at page 369 (emphasis added).

⁶⁶ 763 F.2d 1020 (8th Cir. 1985).

finding that the succession of one-year contracts was not a relevant market: “there is no finding ... that each separate year constitutes a discrete market”.

In short, it is clear from a consideration of the leading cases that, within US competition law, the terms “bottleneck” and “natural monopoly” can only be given meaning within the context of a properly defined market. A firm cannot be said to control a “bottleneck” or exercise a “natural monopoly” over the supply of a good or service if it does not control the economically-relevant substitutes to the good or service at issue.

4.2.2 Examples from Australian law

The importance of considering economically-relevant substitutes is no less clearly linked to “natural monopoly” in Australian law. The most recent example of this is the case of *NT Power Generation Pty Ltd v Power & Water Authority*.⁶⁷ In this case, the Federal Court, in the process of determining whether the Authority (“PAWA”) was a natural monopoly, said (*obiter dictum*):

“PAWA’s infrastructure constituted a natural monopoly. The Market was not in any sense contestable. The proposed access regime was expected to have made sections of the Electricity Supply Market contestable and to have imposed terms upon which PAWA could have supplied services in the Market. Until that time PAWA had a substantial degree of power in the Market.”

The issue of natural monopoly was also linked to a consideration of the scope for substitution in *Stirling Harbour Services Pty Ltd v Bunbury Port Authority* at first instance and on appeal.⁶⁸ In both cases, it was agreed that the relevant market was the market for the provision of towage services and for the right to provide such services at the Port of Bunbury. In both judgments, the Court accepted the contention that the market for the provision of towage services in the Port of Bunbury was a natural monopoly. At first instance, the Court cited the testimony of one of the expert witnesses who described the concept of a natural monopoly in a generic sense as being “... used to describe a method of production in which it is cheaper for one producer to produce the total industry output than would be the case with any other means of production”.⁶⁹

⁶⁷ [2001] FCA 334 (3 April 2001).

⁶⁸ [2000] FCA 38 (28 January 2000) and [2000] FCA 1381 (29 September 2000).

⁶⁹ [2000] FCA 38, at paragraph 50.

The judgment at first instance also produced the following definition of natural monopoly:⁷⁰

“... Assuming the relevant markets, for comparative purposes, are to be defined by reference to the provision of towage services or the right to provide them at ports in Australia, port by port, then they are for the most part markets in which the cost of entry and operation and the volume of services required are such that they will support only one provider of the relevant services. Broadly speaking, this can be equated for present purposes to the economic concept of a natural monopoly.”

The issue of market definition also arose in relation to determining the existence of a natural monopoly in the Tribunal case of *Re Applications by Australasian Performing Right Association*.⁷¹ In its review of the decision by the ACCC not to authorise certain aspects of the Australian Performing Rights Association’s conduct, the Tribunal cited (with approval) the unanimous evidence of economic experts that collecting societies possessed the characteristics that defined a natural monopoly. In particular, it cited evidence that the monopoly that collecting societies had was, in nearly all cases, due to substantial barriers to entry into the relevant market that existed because:

“... [m]any of the aspects of copyright enforcement contain a high proportion of fixed costs ... [including] establishment of the systems for monitoring users and registering works. By contrast, once these systems are in place, the incremental cost of accepting another composer or new work into the system is insignificant. If these fixed costs are high enough *over the relevant output range*, then the average costs of enforcement will be also declining and the lowest costs are incurred by society by being served by a single collecting society.”⁷²

4.3 Summary

A “bottleneck” occurs when there are no alternatives to a facility that is used to provide a service and when a person, through ownership of that facility, is able to reduce, distort, harm or hinder competition in some other market by restricting the supply of a service.

If the “uneconomic to develop” criterion is to be interpreted as involving a “bottleneck” test, this should filter out any facilities that can be shown to have viable substitutes in the market – that is, facilities that could materially and directly constrain the pricing of the facility in question. In many

⁷⁰ [2000] FCA 38, at paragraph 50 (emphasis added). It is clear from the case that the relevant output range is defined in terms of the market the Tribunal identified.

⁷¹ [1999] ACompT 3 (16 June 1999).

⁷² [1999] ACompT 3, at paragraph 288.

cases, a natural monopoly will be a bottleneck and therefore will be capable of being declared under this interpretation of the “uneconomic to develop” criterion.⁷³

This approach – in which the finding that a facility is a bottleneck presupposes the determination, either directly or indirectly, of an appropriate market definition, and then an assessment of whether there are alternative sources of the services provided by that facility in the relevant market – is entirely consistent with Australian and United States jurisprudence. So too, is the view that to be supplied under conditions of “natural monopoly”, a service must be a “monopoly”: that is, must not face economically-relevant substitute sources of supply. The *Duke* decision, has however, changed that situation. It is to that decision and its implications that this paper now turns.

5 The *Duke* decision

Sections 2, 3 and 4 of this paper established that the appropriate interpretation of the “uneconomic to develop” criterion involves setting a high threshold for regulatory intervention and that the “bottleneck” test is a good way in which to do this.

It was also established that the proper application of the “uneconomic to develop” criterion requires that a market definition exercise be conducted, because a “bottleneck” test necessitates an inquiry into economically-relevant substitutability⁷⁴ and an examination of that substitutability amounts to a consideration of market definition.

The remainder of this paper compares and contrast this approach with the Tribunal’s approach to the “uneconomic to develop” test in the *Duke* case.

5.1 Background

On 16 October 2000, on the recommendation of the NCC, the Minister for Industry, Science and Resources (the “Minister”) decided that the Eastern Gas Pipeline (“EGP”) of Duke Eastern Gas Pipeline Pty Ltd (“Duke”) should be a covered pipeline under the Gas Code. Duke subsequently

⁷³ Once again, it needs to be stressed that even the owner of a bottleneck facility may have no incentive to distort competition in dependent markets. As a result, a bottleneck is a necessary, but not sufficient, condition for imposing mandatory third party access.

⁷⁴ As noted above, by “economically relevant” substitution, we mean substitution that is sufficiently close to potentially exercise discernible discipline over the pricing discretion of a hypothetical sole supplier.

applied for a review of the Minister's decision by the Tribunal.⁷⁵ On 4 May 2001, the Tribunal handed down its decision. The Tribunal found that the EGP did not meet the criteria for coverage under the Gas Code, and made orders that the Minister's decision be set aside.

More specifically, the Tribunal found that, although criterion (b) ("uneconomic to develop") of the Gas Code was satisfied on the facts of the case, criterion (a) ("promotion of competition") was not satisfied.

5.2 Criterion (b) – "uneconomic to develop"

The Tribunal accepted an approach to service definition that had been suggested by the NCC in deciding whether it was uneconomic to develop another facility to provide a similar service to that provided by the EGP. In doing so, the Tribunal cited one of the NCC's expert witnesses in the following terms:⁷⁶

"... The service which the pipeline provides [is] a point to point service, regardless of the substitution possibilities which might exist at either end of the pipeline. ... The identification of the services provided by the pipeline arises independently of any analysis of the market or markets within which those services might be provided."

The Tribunal agreed with this approach, ultimately characterising the EGP's services for the purposes of interpreting the "uneconomic to develop" criterion as the physical transport of gas between Longford and Sydney.⁷⁷ The Tribunal took the view that this service was so defined irrespective of the substitution possibilities that might exist at either end of the pipeline.⁷⁸

One important implication of this approach to the definition of the relevant service was that it was carried over into the NCC's (and the Tribunal's) application of the "uneconomic to develop" test. The NCC submitted that it was sufficient, once the service provided by the facility in question had been appropriately categorised, to decide whether it was "economical" to develop a facility providing similar services to that facility. This in turn necessitated an inquiry into whether the EGP was a "natural monopoly technology" for production of the defined service.

⁷⁵ The Minister appeared by Counsel at the beginning of the hearing, but the role of contradictor to Duke was adopted by the NCC and by Australian Gas Pipelines.

⁷⁶ *Duke*, at paragraph 67.

⁷⁷ *Duke*, at paragraph 135.

⁷⁸ *Duke*, at paragraph 69.

However, while the NCC claimed to interpret the “uneconomic to develop” criterion as a test of natural monopoly, it adopted an unconventional definition of this concept by couching the existence of natural monopoly in terms of the presence of certain “production technology” characteristics, without attempting to define the market in which the service was provided. In particular, the NCC argued that the three characteristics of natural monopoly technology possessed by the EGP were that it: (1) was used to facilitate the long distance movement of gas over land, (2) displayed economies of scale over a large range of output of volume, and (3) was heavily capital intensive and immobile. On this basis, the NCC argued that the EGP satisfied the “uneconomic to develop” criterion because the EGP’s “production technology” exhibited natural monopoly characteristics.

Duke took a contrary stance, arguing that the “uneconomic to develop” criterion was predicated on a focus on bottleneck facilities and that the very concept of a “bottleneck” necessitated an inquiry into the availability of economically-relevant substitutes. This inquiry in turn had to consider the market in which the service at issue was provided and then assess whether substitutes were or readily could be available within that market. This approach was very much in accordance with the conventional economic understanding of bottlenecks discussed in the previous section of this paper.

The Tribunal initially appeared to favour invoking the notion of natural monopoly as applied in classical economic theory to the task of interpreting the “uneconomic to develop” criterion.⁷⁹ However, having identified the service that the EGP provided, the Tribunal accepted the NCC’s contention that the only other effective competitor to the EGP was the Interconnect.⁸⁰ It appeared to accept this simply on the basis that the Moomba to Sydney pipeline (MSP) did not supply a similarly defined service as the EGP (that is, transport of gas from Longford to Sydney).⁸¹ In other words, once the service provided by the EGP had been defined by the Tribunal, any pipeline providing a differently defined service was automatically ruled out as an effective competitor to the EGP, irrespective of the substitutability in an economic sense of the services provided by that pipeline with the services provided by the EGP. The alternative approach proposed by Duke, which the Tribunal rejected, was to test whether other pipelines provided a material and direct constraint on the pricing of the EGP, irrespective of whether they provided exactly the same service (delivery of gas from Longford to Sydney). Duke submitted that if other pipelines did provide such a material and direct constraint on the pricing of the EGP, then the EGP was not a natural monopoly or bottleneck facility for the purposes of the “uneconomic to develop” criterion and was therefore not susceptible to coverage under the Gas Code.

⁷⁹ *Duke*, at paragraphs 60 and 61.

⁸⁰ The Interconnect is a gas pipeline from Barnawartha to Wagga Wagga that interconnects the Victorian gas transmission system with the Moomba to Sydney pipeline, and through it, the Sydney gas distribution system.

⁸¹ *Duke*, at paragraph 135.

However, the Tribunal, using a narrower definition of the range of relevant substitutes – one that encompassed only those alternatives that provided the same service as the pipeline at issue – concluded that the “uneconomic to develop” criterion was indeed satisfied, because it would be uneconomic to develop the Interconnect so that it could provide the services provided by means of the EGP for foreseeable demands or to its ultimate capacity.⁸²

5.3 Criterion (a) – “promotion of competition”

In respect of criterion (a) (the “promotion of competition” in another market test), all parties and the Tribunal accepted the need for proper market definition.

The Tribunal said that the object of the Gas Code and its structure made it clear that criterion (a) did not have as its focus the factual question of whether access to the pipeline services was available or restricted.⁸³ Rather, the issue at stake was whether the creation of the right of access for which the Gas Code provides would promote competition in another market. It was accepted by all parties that, given this formulation, the appropriate test for criterion (a) was to compare the situation with coverage against the situation without and, by so doing, evaluate whether there was a more than trivial increase in competition in an upstream or downstream market in the latter which would justify coverage.

In contrast to its conclusions on criterion (b) (the “uneconomic to develop” criterion), the Tribunal rejected almost all of the NCC’s arguments that the “promotion of competition” test was satisfied. The Tribunal accepted that the EGP did not have sufficient market power in the South East Australian gas market to hinder competition in another market. Thus, the Tribunal concluded that it was not convinced that coverage would promote competition in either upstream or downstream markets⁸⁴ and, accordingly, that criterion (a) was not satisfied. It was on this basis that the Tribunal rejected the NCC’s recommendation for coverage and overturned the Minister’s decision to cover the EGP under the Gas Code.

5.4 Conclusions and analysis of the decision

The Tribunal’s decision on criterion (b) (the “uneconomic to develop” criterion) is problematic because it now implies that, under the Gas Code (and by extension, Part IIIA), it is not necessary to

⁸² *Duke*, at paragraph 142.

⁸³ *Duke*, at paragraph 74.

⁸⁴ *Duke*, at paragraph 124.

undertake a rigorous inquiry into the market dimensions of, and the availability of, actual and potential substitutes for the service that is provided when determining whether this criterion is satisfied.

One important implication of this approach to the definition of the relevant service is that it is consequently carried over into how the ‘uneconomic to duplicate’ test in criterion (b) should be applied. For example, once the service provided by the EGP had been defined by the Tribunal, any pipeline providing a differently defined service was automatically ruled out of contention as an effective competitor irrespective of whatever evidence could have been provided with respect to the substitutability of the services provided by that pipeline with the services provided by the EGP.

Section 6 below argues why a market-definition approach to determining whether the “uneconomic to develop” criterion is satisfied is preferable to the approach taken by the Tribunal.

6 Alternative interpretation of criterion (b)

As discussed in section 5, the Tribunal in *Duke* initially appeared to favour invoking the notion of natural monopoly in economics in interpreting criterion (b). However, its ultimate approach to the application of the “uneconomic to develop” test in criterion (b) - considering only those facilities that provided similarly defined services to those provided by the facility whose coverage under the Gas Code was in question, *irrespective* of considerations of substitutability - effectively amounted to a repudiation of a market-definition based approach to testing for the existence of natural monopoly or bottleneck.

By implication, in rejecting the market-definition based approach to testing for natural monopoly, the *Duke* decision signifies assent to the “production technology” test for natural monopoly proposed by the NCC. Even though the Tribunal did not explicitly endorse the NCC’s “production technology” test in its decision, this is effectively the only alternative to the more conventional market definition-based approach explicitly rejected by the Tribunal.

However, as this section demonstrates, there are serious problems with the NCC’s “production technology” approach and ultimately, it is neither viable nor efficient.

As section 6.1 demonstrates, the NCC’s interpretation of the natural monopoly concept prevents criterion (b) (the “uneconomic to develop” criterion) from fulfilling its filtering or gatekeeper role for intervention under the Gas Code or Part IIIA because the regulatory hurdles implicit in the “production technology” approach to identification of natural monopoly can easily be satisfied by any locationally-specific facilities that have their output defined sufficiently narrowly.

Secondly, the effective weakening of criterion (b) under the definition of natural monopoly endorsed in *Duke* means that a much larger part of the weight of the decision as to whether or not to cover (or declare) a facility must be placed on other criteria – in particular, criterion (a) (the “promotion of

competition” in another market criterion). However, as section 6.2 argues, criterion (a) is wholly inadequate to the task of being a robust filter to inappropriate regulatory intervention.

6.1 Operation of the “uneconomic to develop” criterion as a filter

The test for a natural monopoly put forward by the NCC and ultimately accepted by the Tribunal in *Duke* may be restated as follows:

- identify the service provided by the facility in question; and
- decide whether it is “economical” to develop a facility providing a similar service to that facility.

The second step under this approach calls for an inquiry into whether the facility in question is a “natural monopoly technology” for production of the defined service. This immediately begs the question of what a “natural monopoly technology” means, or how tests for it should be conducted.

The NCC itself, in its first submission to the Commission, noted the many difficulties involved in testing for natural monopoly, and argued that these substantially limited the reliance that should be placed on the concept in implementing a mandatory third party access regime.⁸⁵ In the *Duke* proceedings, however, the NCC, as noted above, argued that three *indicia* could and should be used for determining whether a pipeline did or did not meet its “natural monopoly” test. Those *indicia* were whether the pipeline: (1) was used to facilitate long distance movement of gas over land, (2) possessed economies of scale over a large range of output of volume, and (3) was heavily capital intensive and immobile.

Of these *indicia*, only the third seems at all relevant to the issue at hand.⁸⁶ However, even this criterion is not sufficient to discriminate as between facilities that are natural monopolies in any sense and those that are not, or more generally as between facilities that are bottlenecks in any sense and those that are not. This is because economies of scale are neither a necessary nor sufficient condition for natural monopoly, nor for being a bottleneck. Indeed, any facility that is characterised by lumpy investment and significant fixed costs can meet the test of displaying scale economies over some, possibly

⁸⁵ See National Competition Council, *Legislation Review of Clause 6 of the Competition Principles Agreement and Part IIIA of the Trade Practices Act, 1974: Submission to the Productivity Commission*, January 2001, at pages 54 and following.

⁸⁶ The transport of gas over long distances seems merely part of the definition of a long-distance pipeline. Its direct relevance to the test is, at the very least, unclear. Equally, capital intensity seems mainly relevant to the issue of economies of scale, though it might, appropriately reformulated, be an element in the determination of whether there are significant sunk costs.

substantial, range of output, regardless of how many alternative sources of supply there are of the services it provides.

More recently, and most notably in its most recent submission to the Commission, the NCC cites approvingly material by Professor Ordoover which it did not submit in evidence in the *Duke* proceedings. The essence of that material is to interpret the relevant test as being that of whether a facility is a natural monopoly in the sense of involving a subadditive cost function. While that could be an acceptable test, the difficulty lies in the way Professor Ordoover gives the test practical meaning.

In the space of what appears to be a single paragraph, Professor Ordoover refers variously to the relevant test as involving whether unit costs fall over a “*target* level of demand”, “the *given* range of sales” and “the *anticipated* level of demand”.⁸⁷ But nowhere does he define what is meant by “target”, “given” or “anticipated”, or more generally specify how the “demand” at issue should be defined. This is in marked contrast to the authority cited by the Tribunal, Judge Richard Posner, who frames the test for natural monopoly as being one that bears on “the entire demand within the relevant market.”⁸⁸

The central problem Professor Ordoover’s approach creates is obvious.⁸⁹ Whenever a facility has excess capacity, it can and will meet the test Professor Ordoover sets out by appropriate definition of the “target” or “anticipated” or “given” level of demand. Indeed, the NCC seems to read into the Tribunal’s decision the view that Professor Ordoover’s approach should apply whenever “unit cost (average cost) falls with output” over *some* range of demand. As a result, given fixed costs and lumpy capacity, this test too will, on the NCC’s reading, always be met.⁹⁰

⁸⁷ National Competition Council, *Review of the National Access Regime: Submission in Response to the Productivity Commission’s Position Paper*, July 2001, at pages 27 and 28.

⁸⁸ *Duke*, at paragraph 62.

⁸⁹ Another problem with Professor Ordoover’s language is that unit costs are undefined in the presence of multiple outputs. Presumably, it is his intention that his discussion here should be taken as a single product analogy of subadditivity in the multi-output case. Quite how this would be done is left unclear. This, it is only fair to note, is a difficulty any test for natural monopoly must address.

⁹⁰ Consider the textbook example of monopolistic competition, a case that hardly requires regulation (see for example, Carlton and Perloff, 1994, *Modern Industrial Organisation*, (2nd ed), Harper Collins, Chapter 8). There all firms supply differentiated products and so face firm-specific demand and have declining average costs. Thus, viewed on a firm level, at all levels of output, the criterion Professor Ordoover suggests is met. The test as now set out by the NCC can also be met by any service that is supplied in conditions in which producers with a fixed cost are differentiated by geographical location or by location in product space. In such a case, demand is also firm-specific and all firms have downward sloping average cost curves, yet may be highly competitive (for example, see Carlton and Perloff, 2000, *Modern Industrial Organisation*, (3rd ed), Harper Collins, at pages 217ff).

Matters are then made no better by the fact that the NCC's approach in the *Duke* decision means that the test will be met even when there is another facility, serving exactly the same part of demand and which also has excess capacity. This is because the NCC takes the view that the second facility ought not to have been built and hence should be disregarded in the proper interpretation of the "social" test for uneconomic to develop.⁹¹

The automatic nature of the result achieved under the NCC's approach is demonstrated by its *Final Recommendation on the Tubridgi Pipeline* in Western Australia.

The Tubridgi Pipeline is duplicated along its entire length, and along the same route, from the Tubridgi gas processing facility to the Dampier-Bunbury Natural Gas Pipeline, by the Griffin Pipeline. In that case, the applicant argued that "the existence of two parallel pipelines of the same length [and running along the same route] demonstrates that it would be economic to construct another pipeline".⁹² Notwithstanding that fact, the NCC concluded that it would be uneconomic for anyone to develop another pipeline to provide the gas transportation services provided by the Tubridgi Pipeline, and that therefore criterion (b) was satisfied.

If the criterion (b) test were intended to be interpreted in such a manner that it is trivially met, then the reference to criterion (b) in the Gas Code would serve no purpose. Rather, the reality is that that formulation of the relevant test robs it of any bite, so that there is no purpose of public policy that it can serve.

What is missing under the NCC's approach is the concept of substitutability – that is, the availability of economically viable alternatives to the facility at issue. It is this concept that the Tribunal has deprived itself of in rejecting a market definition-based approach to interpreting the "uneconomic to develop" criterion.

It may be argued that a way out of the problems that arise under the NCC's and Tribunal's interpretation of the "uneconomic to develop" criterion is to adopt a sufficiently wide definition of the service provided by the facility in question. It should be obvious, however, that this raises the question of how to determine when particular services are sufficiently similar. While the Tribunal in *Duke* stated that the "uneconomic to develop" test would not be satisfied where a facility currently provided, or could provide, 'substantively' the same services as those provided by the facility in question, it rejected the need for market definition in applying this test. At the same time, however, it formulated no alternative economic test for similarity or difference to established market definition principles and accordingly, the decision provides no guide as to how the question of whether a service is sufficiently

⁹¹ See page 10 of the NCC's *Final Recommendation: Application for coverage of Eastern Gas Pipeline (Longford to Sydney)*, RTF version, available from <<http://www.ncc.gov.au>>

⁹² NCC *Final Recommendations, Application for Revocation of Tubridgi and Beharra Springs Pipelines in Western Australia from coverage under the WA Gas Access Regime*, July 1999, page 18.

similar to the service provided by the facility in issue can be determined on a principled and easily replicable basis in future cases.

This opens the door to essentially untrammelled regulatory discretion, at least in respect of this criterion. More particularly, by choosing to define the service in the narrowest manner possible, the decision-maker can ensure that there will be no other services which are substantively similar to those provided by that facility. This would amount to an inefficiently low threshold for regulatory intervention imposing, or at least creating the risk of imposing, the costs discussed above.

In defence of the NCC's and the Tribunal's approach, it might be argued that requiring a market definition exercise to be conducted would impose too much of a burden on the regulator. However, while there is indeed a case for reducing administrative costs, it has been seen that administrative costs can be saved equally by excluding certain facilities from the ambit of regulation, as by making it easier for the regulator to perform his or her duties. Because the approach adopted by the NCC will expand the range of services that meet criterion (b), it will result in a greater number of facilities proceeding to the full competitive analysis that criterion (a) entails. It is consequently far more likely to increase than reduce the burden of analysis involved in the administration of the access regime.

As a final comment, it is fair to note that the NCC's apparent reluctance to rely on market definition analysis in applying the "uneconomic to develop" criterion sits uneasily with its earlier statements about the access regime under Part IIIA. For instance, in response to criticisms of the "promotion of competition" criterion in Part IIIA, the NCC has written that:⁹³

"Competition occurs in markets; to make out the case that competition will be promoted, it must be possible to identify a market in which this effect will occur. Any reasonable test for the promotion of competition must therefore involve some process of market definition. As for the requirement that the competition being promoted be in some other market, this is dictated by the view that the purpose of access regulation is not to facilitate the mere resupply of a natural monopoly service; rather, it is to prevent bottleneck power from being used in ways injurious to the community. That requires identifying the market in which that power is or could be so used ... *the concept of a market has developed over a period of many years, and is familiar to practitioners and advisors. It therefore makes for greater predictability in application, as well as being directly linked to the policy goal being pursued*" (emphasis added)

These arguments put by the NCC are compelling. They can and should inform the interpretation of the "uneconomic to develop" criterion in the access regime.

⁹³ National Competition Council, *Legislation review of Clause 6 of the Competition Principles Agreement and Part IIIA of the Trade Practices Act 1974: Submission to the Productivity Commission, January 2001*, at page 36 (PDF version).

6.2 Inadequacy of “promotion of competition” criterion as filter

As is shown in section 6.1, the approach to the “uneconomic to develop” criterion adopted in *Duke* reduces, or at least creates scope for a reduction in, the threshold for regulatory intervention. By rejecting a market definition-based approach to natural monopoly, the approach endorsed by the NCC and accepted by the Tribunal ignores the concept of substitutability. Under this restrictive approach, there is a real danger that regulation will be applied to facilities that exhibit “natural monopoly technology characteristics” when the output range is sufficiently narrowly defined, but which should not be regulated because economic substitutes for the services they provide are, or could readily be, available.

If the “uneconomic to develop” criterion no longer acts as an adequate filter against the inappropriate application of access regulation, the question arises whether other criteria are equipped to bear this burden. Of the three remaining criteria in the Gas Code and Part IIIA, criterion (c) is clearly too narrow because it deals with undue risk to health and safety, while criterion (d) (the public interest test) may be too broad to provide clear and certain application.

The only feasible criterion available as an alternative regulatory filter is therefore criterion (a), which sets out a test of “promotion of competition” in another market. To reiterate, that criterion is that ‘access (or increased access) to Services provided by means of the Pipeline would promote competition in at least one market (whether or not in Australia), other than the market for the Services provided by means of the Pipeline’.

Ideally, criterion (a) could be interpreted to mean that mandated access would be held to promote competition in another market if the facility was a bottleneck and the facility owner had incentives to distort competition in another market. This would be quite consistent with the definition of a bottleneck previously discussed. Such an interpretation could remedy the gap created by the weakening of criterion (b) in the *Duke* decision.

Unfortunately, there are many barriers to interpreting criterion (a) in such a way as to reintroduce a bottleneck test into the declaration criteria. The Tribunal’s decision in *Duke*, quite properly, clarifies that the promotion of competition test as it now stands refers to the promotion of competition in ***another market*** which is not the market for the services provided by the pipeline in question.⁹⁴ An important implication of this is that criterion (a) is poorly placed to capture the impact of mandating access on competition in the very market in which the service at issue in declaration or coverage decisions is being provided. There arises in this case, the possibility that access may be mandated even in situations where such mandated access is likely to erode prospects for competition in the market where the services of the declared facility are being provided. This is because mandated access may

⁹⁴ See paragraph 74 of *Duke* and refer to the brief summary of the Tribunal’s comments on criterion (a) in subsection 5.3.

promote competition in another market (thus fulfilling criterion (a)), while nonetheless eroding competition in the market where access has been mandated. One important reason that competition may be eroded in the market in which access has been mandated is because access was inappropriately mandated in the first place.⁹⁵

As a result, this test, even if interpreted so as to encompass impacts in both the market in which the service is provided and the dependent market,⁹⁶ would necessarily have to weight these, as the ACCC seems to do under its interpretation of the Part XIC criteria, rather than viewing the matter of whether the facility was indeed a bottleneck as a threshold issue.

Additionally, the “promotion of competition” is by its nature a complex test. It is widely accepted that economists do not have a precise, or in any event simple, characterisation of the factors that promote or deter competition.⁹⁷ Assessing whether any single element of structure enhances or deters competition requires a weighting of a complex of considerations.⁹⁸ Even greater difficulties can be

⁹⁵ This is exactly what seems to occur with the ACCC’s interpretation of the “promotion of competition” test set out in Part XIC. Thus, in respect of (for example) the resale of local calls, the ACCC has weighed the promotion of competition in the dependent market (the supply of retail local calls, and other retail services) above the promotion of competition in the access market.

⁹⁶ It is not apparent that the current wording allows so expansive an interpretation. Rather, consideration of the market in which the service being provided was supplied would need to be “smuggled in” to the consideration of the impacts on the dependent markets. As a result, as a strict matter of legal construction, consideration that went beyond these indirect impacts would not be permitted by the current wording.

⁹⁷ “Economics has much work before it is to lay claim to a rich understanding of the problem of competition”: Demsetz, H. *The Economics of the Business Firm* (1997) Cambridge University Press at page 155. See also relevantly McNulty P, “Economic Theory and the Meaning of Competition” (1968) 82 *Q. J. of Economics*, reprinted in Brozen Y (ed.), *The Competitive Economy: Selected Readings* (1975) General Learning Press, Morristown, N.J.

⁹⁸ Moreover, from a theoretical viewpoint, the most common outcome of these considerations is indeterminate. Thus, as is shown in Fudenberg D. and E. Maskin “The folk theorem in repeated games with discounting and with incomplete information” (1986) 54 *Econometrica* at pages 533 and following, an analyst can get a non-cooperative game theory model to predict just about any outcome by injecting the right kind of imperfect information into it. On the fundamental indeterminacy of models of competition, see generally Ghemawat P., *Games Businesses Play: Cases and Models* (1997) The MIT Press, Cambridge Mass..

involved in determining whether the provision of access, or increased access, will achieve a pro-competitive outcome, and if so, how great the extent of the change is likely to be.⁹⁹

The Tribunal, in its *Duke* decision, recognised this when it noted that:

“[w]hether competition will be promoted by coverage is critically dependent on whether [a pipeline] has power in the market for gas transmission which could be used to adversely affect competition in the upstream and downstream markets. *There is no simple formula or mechanism for determining whether a market participant will have sufficient power to hinder competition.*”¹⁰⁰

Importantly, this makes it clear that, as an economic matter, a demonstration that a pipeline has market power is a necessary, but not sufficient, condition for a finding that coverage would promote competition better than no coverage. However, it also makes clear the complex nature of the relevant test.

As a result, the outcome of relying on a “promotion of competition” test, in the absence of any other effective bulwark against regulatory over-reach, is at best uncertain. Both access seekers and potential access providers will therefore have less ability to predict the extent of their rights and obligations, and arrange their affairs accordingly. No less importantly, the fact that the test is potentially loose creates scope for it to be interpreted in a manner that permits regulation to be extended to areas where its costs outweigh any benefits regulation can bring.

It is pertinent here to look at how the NCC itself has chosen to interpret the implications of *Duke* for criterion (a), since this can provide a guide to its future decisions. The prognosis in this respect is troubling, as the NCC seems to have read an even lower threshold for intervention into criterion (a) than the already problematic interpretation that can be straightforwardly derived from the *Duke* decision discussed so far.

As summarised in section 5, the Tribunal ultimately held that EGP’s coverage should be revoked because criterion (a) was not satisfied. Criterion (a) was said not to be satisfied because coverage did not lead to a “more than trivial” increase in competition. The fact that the Tribunal was not convinced that the EGP enjoyed market power in the South-east Australian gas sales market, or more properly did not possess the degree of power required to pose a threat to competition in dependent markets, played a part in the Tribunal’s conclusion with respect to whether criterion (a) was satisfied. However, as noted above, the Tribunal made it clear that market power was a necessary, but certainly not sufficient, condition for coverage.

⁹⁹ See generally Areeda P. “Essential facilities: an epithet in search of limiting principles” (1989) 58 *Antitrust Law J.*, at 841 and follows.

¹⁰⁰ *Duke*, at paragraph 116.

In contrast, the NCC seems to have suggested recently that, on the basis of the decision in *Duke*, criterion (a) is met whenever the facility owner in question has market power in respect of the facility. For example, in the Commission's public hearings for the *Review of the National Access Regime*, the NCC's Director, Michelle Groves, was questioned on the implications of *Duke*. The relevant exchange is reproduced below:

“MR BANKS: Just how the question of competition - how the criteria in A would, for example, be interpreted?”

MS GROVES: I think the test is settled. I think its application to the particular factual situation that you will always get on a case-by-case of whether or not a market participant has market power will vary. But that is not to say that the questions asked and the approach taken to that analysis is not settled. We will get different results for different pipelines, or different railways, or whatever sorts of infrastructure we are talking about, depending on the factual circumstances that those market participants find themselves in. In the *Duke* case the tribunal found that *Duke* didn't have market power in the downstream market - the south-east Australian gas sales market. It made no comment on the market power of other participants, and in fact it determined that it didn't think that *Duke* had market power because of the existence of other large players in that downstream market and the influence they have.”

In a recent discussion paper,¹⁰¹ the NCC summarised the Tribunal's decision in *Duke* as follows:

“The Tribunal concluded that coverage of the *Duke* Eastern Gas Pipeline under the Gas Code would not promote competition in another market (in particular, the south-east Australia gas sales market), compared to the existing voluntary access promised by *Duke*. The main basis for this conclusion was that *Duke* does not have the market power to restrict competition in gas sales.”

Elsewhere in that paper, the NCC has paraphrased the wording of the criterion (a) test with the following underlined phrase:

“assess whether the natural monopoly characteristics associated with provision of the service confer market power.”¹⁰²

This restatement is very different to the wording of the Code, criterion (a) of which requires (for coverage):

¹⁰¹ National Competition Council, *Moomba to Sydney pipeline system – Application for partial revocation of coverage under the national gas access regime*, Issues Paper, July 2001.

¹⁰² Issues Paper, page 12.

“that access (or increased access) to services provided by means of the pipeline would promote competition in at least one market (whether or not in Australia), other than the market for the services provided by means of the pipeline.”

Possession of significant market power may be an element of this criterion, but even then, as the *Duke* decision makes clear, it would need to be market power relevant to and likely to distort the dependent market. The NCC’s interpretation, in contrast, views criterion (a) as setting a very low threshold – as long as the facility in question has market power, criterion (a) is satisfied. That this sets a very low barrier can be confirmed by comparing it to section 46 of the TPA, which only applies to firms with “a *substantial* degree of power in a market”.

In short, criterion (a) cannot bear the full weight of reducing the risk that access will be granted in cases where it is inappropriate. This is for two reasons. First, the phrasing of the criterion limits the test it sets out to the impact of access on competition in the related market; this may limit if not exclude proper consideration of the impacts in the market in which the service itself is being provided. Second, “the promotion of competition” test is amenable to a range of interpretations. If all it means is that the firm supplying the service at issue has *some* market power, then it is difficult to believe that it will not be invariably met in industries where supply involves significant sunk costs and some economies of scale.

The interaction between the weakened criterion (b) (“uneconomic to develop”) and the low threshold implied by the NCC’s reading of criterion (a) (“promotion of competition”) therefore means that there will be a higher risk of Type I errors occurring as more facilities (in respect of which the owners have some market power but which have no bottleneck characteristics) are wrongly declared.

6.3 Summary

The NCC’s approach to the “uneconomic to develop” criterion ostensibly attempts to test for natural monopoly facilities so that facilities that do not possess natural monopoly characteristics are filtered out of the list of candidates for coverage or declaration. However, the NCC’s proposed definition of a natural monopoly leads to a considerably lower threshold for regulatory intervention than would be the case had a natural monopoly been defined more conventionally using a market definition approach.

The NCC’s test for a natural monopoly is a test for a particular production technology. This approach seems to test for natural monopoly by looking for subadditivity of production costs of the service in question over some range of output. Because the NCC does not think it necessary to formulate an appropriate market definition for the facility in question, this means that the relevant output range in which the subadditivity of costs occurs is left undefined or, when applied in particular cases, is defined as a matter of “fact”, impervious to appropriate testing for substitutability. Essentially, this approach means that the “uneconomic to develop” test can very readily be met, even for facilities in respect of which there is no market power held, so long as they are locationally-specific and the relevant output is defined sufficiently narrowly.

The only criterion other than the “uneconomic to develop” criterion that could take on the role of a regulatory filter to filter out non-bottleneck or non-natural monopoly facilities is criterion (a), which sets out a “promotion of competition” test. Criterion (a) could conceivably be interpreted to mean that declaration would be held to promote competition in another market if the facility were a bottleneck and the facility owner had incentives to distort competition in another market. This would be quite consistent with the definition of a bottleneck previously discussed.

However, criterion (a) is inadequate to the regulatory filter task left unattended by the NCC’s flawed interpretation of criterion (b). This is because, as *Duke* has confirmed, criterion (a)’s focus is on the effect of mandated access on competition in markets *other than* the market where access is mandated.

In addition, the NCC’s own view seems to be that criterion (a) is satisfied if the facility owner has market power from its ownership or operation of the facility in question. This establishes a threshold for regulatory intervention under the access regime that is much lower than the threshold for regulatory intervention under section 46 of the TPA, which requires that the firm in question has *substantial* market power.

These considerations suggest that, insofar as the *Duke* decision can be interpreted as an endorsement of the NCC’s non market-based approach to testing for natural monopoly or bottleneck facilities, it sets an unfortunate precedent by substantially lowering the threshold for regulatory intervention. This carries the risk of a higher rate of Type I errors and thus the costs of inefficient access decisions being incurred.

7 Conclusions: revisiting the Part IIIA criteria

As already noted, there are close parallels between the coverage criteria under the Gas Code and the declaration criteria in Part IIIA of the TPA. Moreover, the criteria at issue here are also of vital importance to clause 6 of the Competition Principles Agreement, and hence to the certification process provided for in Part IIIA.

Overall, the Tribunal’s decision in respect of criterion (a) is very significant and helpful. It makes it clear that the NCC and the Minister cannot simply assume that access will promote competition; rather, they need to demonstrate that there is both an ability *and* an incentive to distort competition in the dependent markets.

At the same time, it is clear that the Tribunal’s findings in relation to criterion (b) of the Gas Code will set a precedent for the interpretation of like provisions in future access cases and thus have far-ranging implications for the Australian economy. There is here at least a potential for a significant *de facto* loosening of the hurdles that need to be met before third party access can be mandated.

Given the costs this could impose, there is a need for clarification of the declaration criteria as set out in Part IIIA of the TPA and Clause 6 of the Competition Principles Agreement. The Commission’s

Review of the National Access Regime provides a timely opportunity for such a clarification to be made.

Unfortunately, the Commission's first tier proposals for reform of the national access regime, as set out in its Position Paper, do not address the need to ensure that the "uneconomic to develop" criterion can perform its function properly in light of the repercussions of the *Duke* decision. This is not surprising given that the Position Paper was produced before the *Duke* decision was handed down, and did not envisage the Tribunal's endorsement of a highly problematic approach to defining whether a facility is or is not a natural monopoly. However, any redraft of these proposals in the Commission's final report will need to take account of these implications of *Duke*.

The only one of the Commission's first tier proposals that refers to the "uneconomic to develop" criterion in Part IIIA recommends the amendment of the test to read: "that it would be uneconomic for anyone to develop a second facility to provide the service". With the caveat that this test should not be interpreted so narrowly as to require that it be economic to develop a second facility based on the same technology to avoid declaration, this amendment would seem to be useful. As the Commission argues, the proposed change would filter out contestable services from the risk of declaration – that is, duopolies and oligopolies would not satisfy this criterion.

However, this proposed amendment does not fully address the crucial issue arising out of the *Duke* decision, namely the lack of a reference to the economic concept of substitutability to properly confine declaration to those bottleneck facilities having no substitutes for the services offered using those facilities. This, of course, is something that the mere possession of cost subadditivity over an arbitrarily defined output range does not guarantee.

A possible approach to addressing this problem lies in one of the Commission's tier 2 proposals – the two-part "essentiality" test:

- no substitute service is available under reasonable conditions that could be used by an access seeker; and
- competition in downstream markets is insufficient to prevent the provider of the service from exercising substantial market power.

However, it should be noted that this proposal was suggested for the purpose of amending the "promotion of competition" test (that is, criterion (a) in Part IIIA). This amendment would indeed increase the threshold for regulatory intervention in criterion (a) and allow it to take on the filtering burden previously shouldered by criterion (b) (the "uneconomic to develop" criterion). The first part of the essentiality test in particular addresses the substitutability issue. However, taking the original Hilmer Report as a guide, this proposal would probably be inconsistent with the original intention that criterion (b) serve as the filter for access declaration and regulation.

The Commission has also proposed amending the other declaration criteria along with the inclusion of the essentiality test in substitution for the present criterion (a), so that the final amended declaration criteria would be as follows:

“Proposal 6.2 (Tier 2): For a service to be declared under Part IIIA it must meet all of the following criteria:

- (a) The service is of significance to the national economy and the entry of a second provider of the service would not be economically feasible;
- (b) No substitute service is available under reasonable conditions that could be used by an access seeker;
- (c) Competition in downstream markets is insufficient to prevent the provider of the service from exercising substantial market power;
- (d) Addressing the denial of access, or the terms and conditions of access, to the service concerned is likely to improve economic efficiency significantly;
- (e) Access to the service is not already the subject of an effective access regime; and
- (f) Access (or increased access) to the service would not be contrary to the public interest.”

These proposed amendments as a whole do reintroduce the crucial concept of substitutability into the “bottleneck” filter of the national access regime that has been nullified by the *Duke* decision.

However, it would also be possible to introduce a more limited amendment to the current criterion (b) so as to explicitly refer to the existence of alternatives in the market for the services of the facility in question. For example, the criterion could be modified to read:

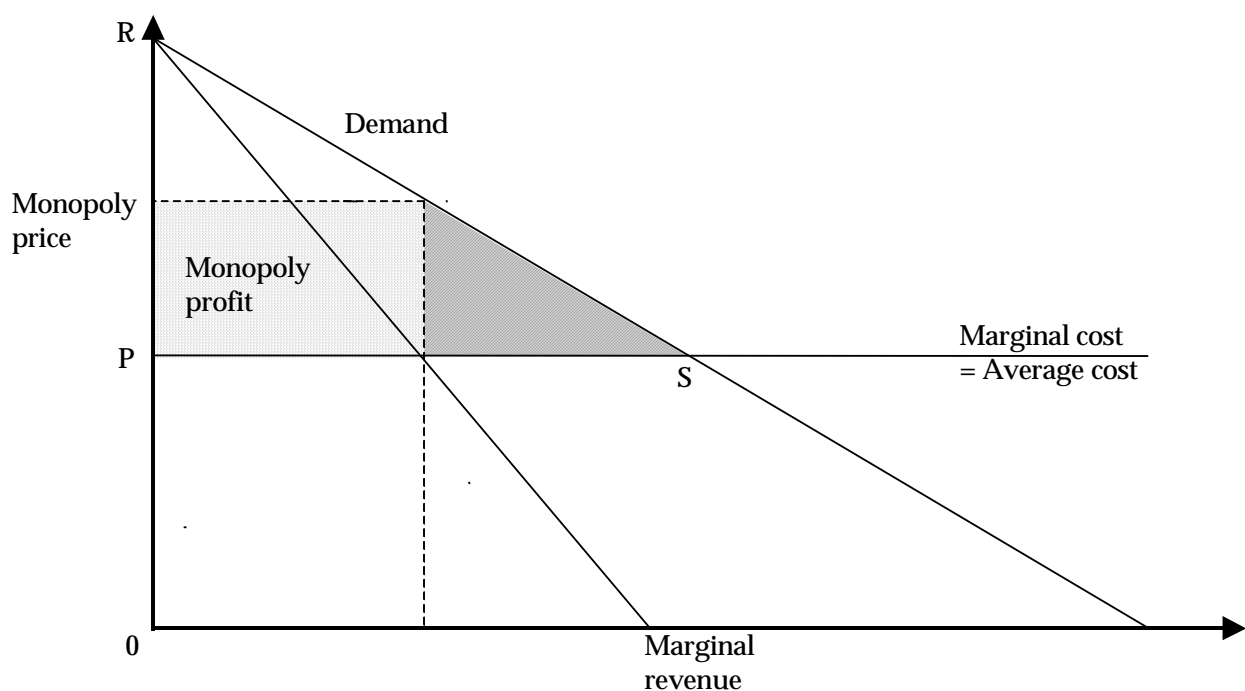
- (b) that it would be uneconomical for anyone to develop another facility to provide the service or a substitute for the service in the same market as that in which the service is provided;

A limited amendment, such as that set out above, would retain the guidance provided by current case law as to the meaning of “uneconomical”, while being able to draw on the extensive precedent that exists with respect to market definition. It could be made speedily, without requiring far-reaching reconsideration of the overall statutory scheme. And last, but by no means least, it would eliminate the serious risks the *Duke* decision now creates.

Appendix

The purpose of this Appendix is to demonstrate diagrammatically that there is an asymmetry as between the costs of over-pricing and the costs of under-pricing access. As described in section 3.2.3 of this paper, the point will be demonstrated in the context of a single output firm subject to access regulation.

Figure 1—Constant marginal cost



In the simplest case of constant marginal cost (see Figure 1 above), if price is set below marginal cost (which by definition equals average cost), the firm will prefer not to operate.¹⁰³ The deadweight loss of such an error is the triangle PRS. This triangle is large in comparison to the monopoly deadweight loss triangle (the shaded area), which is the largest deadweight loss that can occur due to overpricing (assuming the firm is allowed to set price below the regulator's price). This implies that if the prospect

¹⁰³ In reality, decision to shut-down is unlikely. Instead, efficiency losses are likely to manifest themselves in reduced output and poor service quality, including potential catastrophic system failures, and on-going and costly legal, regulatory and political bickering.

of regulatory error is symmetric, then regulators must aim to set price above cost to minimise the expected efficiency losses of regulation. In aiming for a cost-recovering price, the regulator is not targeting welfare and, as a result, is likely to get a poor result in terms of maximising expected welfare. To maximise welfare, the regulator needs to target above the cost-recovering price, because welfare losses from prices below the cost-recovering price are, on average, much higher than welfare losses on prices above cost.

Indeed, if the regulator does not aim to set price above cost, and regulatory errors are symmetric, then it is highly plausible that regulation is worse than monopoly. With no regulation, the monopoly deadweight loss triangle is incurred. If the regulatory price is set too high, some deadweight loss less than or equal to the monopoly deadweight loss triangle is incurred. If the price is set too low, the deadweight loss is the triangle, PRS. In general, PRS is substantially larger than the welfare loss of monopoly, and cannot be less than it.¹⁰⁴ If half the time regulation results in efficiency losses between zero and the monopoly loss, and half the time results in losses that are more than double the monopoly loss,¹⁰⁵ then the net effect of regulation is not just asymmetric, it is worse than none at all.¹⁰⁶

This regulatory asymmetry remains if the regulated firm has fixed or sunk costs.¹⁰⁷ In either case, average cost lies above marginal cost.¹⁰⁸ With a fixed but not sunk cost (Figure 2 below), the asymmetry of the welfare losses associated with prices that vary around average costs is again clear. Shut down occurs if price is set at any level that does not recover fixed plus marginal cost. The reason for this is that fixed costs are fungible. If the firm does not recover its opportunity cost, then it will apply those resources to a different use. As a result, symmetric errors around average cost generate asymmetric welfare losses similar to that of the case without fixed costs (any price below P' results in welfare losses of PRS').¹⁰⁹

¹⁰⁴ PRS equals the monopoly loss only in the extreme case when demand goes to zero for any price above the monopoly price. If demand remains positive beyond that point, then PRS exceeds the monopoly loss.

¹⁰⁵ For linear demand, PRS is four times the monopoly loss. If, as is likely, demand tends to flatten as quantity purchased increases (the absolute value of its slope falls), then PRS is even larger.

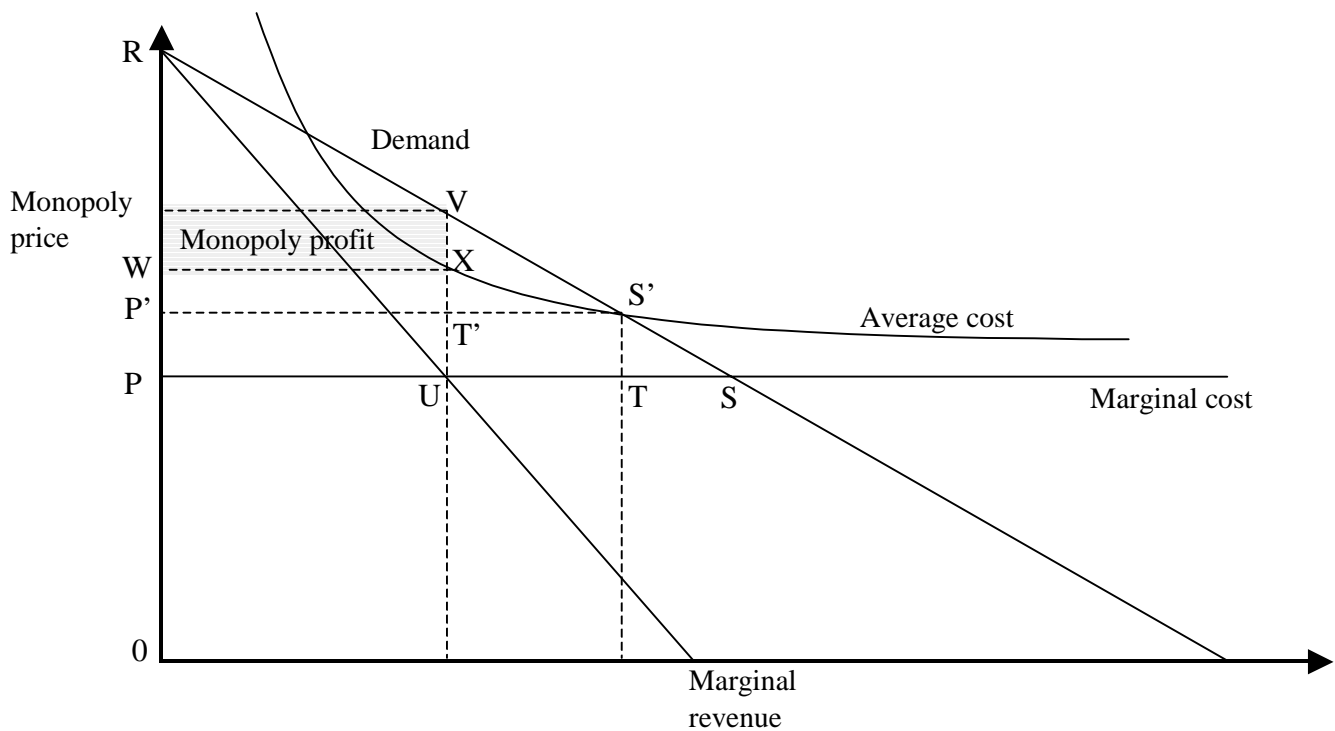
¹⁰⁶ In fact, regulation is more costly than monopoly for PRS even smaller than twice the monopoly loss, since there is a positive probability of a welfare loss due to the regulated price exceeding marginal cost.

¹⁰⁷ Strictly, fixed costs include sunk costs, but for ease of use, throughout this note fixed costs refer to costs that do not vary with output *and* are not sunk.

¹⁰⁸ By definition, since when marginal cost is linear, average costs equal fixed and sunk costs divided by output, plus marginal cost.

¹⁰⁹ Measuring from the second best, that is, cost-covering, level of output. The welfare loss as compared with the first best situation—PRS less PP'S'T, the saved fixed cost of production—is less relevant as it

Figure 2—Constant marginal cost with fixed (but not sunk) costs



If the regulator seeks to set price at average cost when production involves sunk costs (not illustrated), there are two different effects:

- in the short run, underpricing over a narrow range can enhance efficiency but, for reasonable distributions of regulatory error, leads to overall expected welfare losses; and
- a long run effect that reduces efficiency.¹¹⁰

is questionable as to whether the first best outcome can ever be obtained. Taking this second best approach means that the cost of no regulation is the triangle $S'T'V$ plus the rectangle $S'TUT'$ (that portion of the fixed cost not covered by the higher demand experience at price P' , or identically, $P'WXT'$).

¹¹⁰ To keep matters simple, it is assumed all investments that are sunk, are sunk for the same length of time. As a result, one can focus on two periods: the short run when some costs are sunk, and the long run when none are. In reality, investments are sunk for different time periods. Thus, the long run welfare losses identified here in reality occur whenever the firm comes to reinvest in a sunk asset for which cost recovery was denied. Such a period typically will be considerably shorter than the long run (a period so long that *all* sunk assets come up for reinvestment).

Further, the long run welfare loss typically dominates any short run gain.

What makes the case with sunk costs different from the previous case, is that the short run shut-down effect does not occur if regulatory underpricing is small enough. In particular, the firm does not shut down in the short run when the regulated price is below average cost, but still allows the firm to recover its fixed (but not sunk) and variable costs. In this circumstance, short run allocative efficiency is increased, though by a relatively small amount.¹¹¹ For any larger error, shut down is triggered and the short run allocative efficiency loss is large (being equal to the sunk costs wasted plus the welfare triangle analogous to P'RS' in Figure 2). As a result, if the probability distribution of regulated prices is symmetric around average cost and does not fall off sharply in the region where fixed and variable costs are not recovered, expected welfare losses of price underestimates will exceed those of price overestimates.

When short run welfare gains are achieved, a more serious loss occurs in the long run. Regulation that results in short run gains implies that recovery of some or all of the sunk costs is denied. As a result, in the long run production ceases and the larger loss of the welfare triangle analogous to P'RS' in Figure 2, *plus* sunk costs, is incurred.¹¹² This effect will swamp any short run gains, and there may be none so long as the discounting factor of society is not very large.

If average costs are upward sloping in the range where they intersect demand,¹¹³ and there are no fixed or sunk costs, then optimal prices more than recover costs (see Figure 3 below). In this case, the allocative efficiency losses of getting the regulated price too high or too low are, over a narrow range, nearly symmetric (see triangles SUV and SWX).¹¹⁴

¹¹¹ In Figure 2, if all fixed costs were sunk, then the maximum short run gain from underpricing would be equal to the triangle TSS'. If some fixed costs were not sunk, then the welfare gain would be smaller than this.

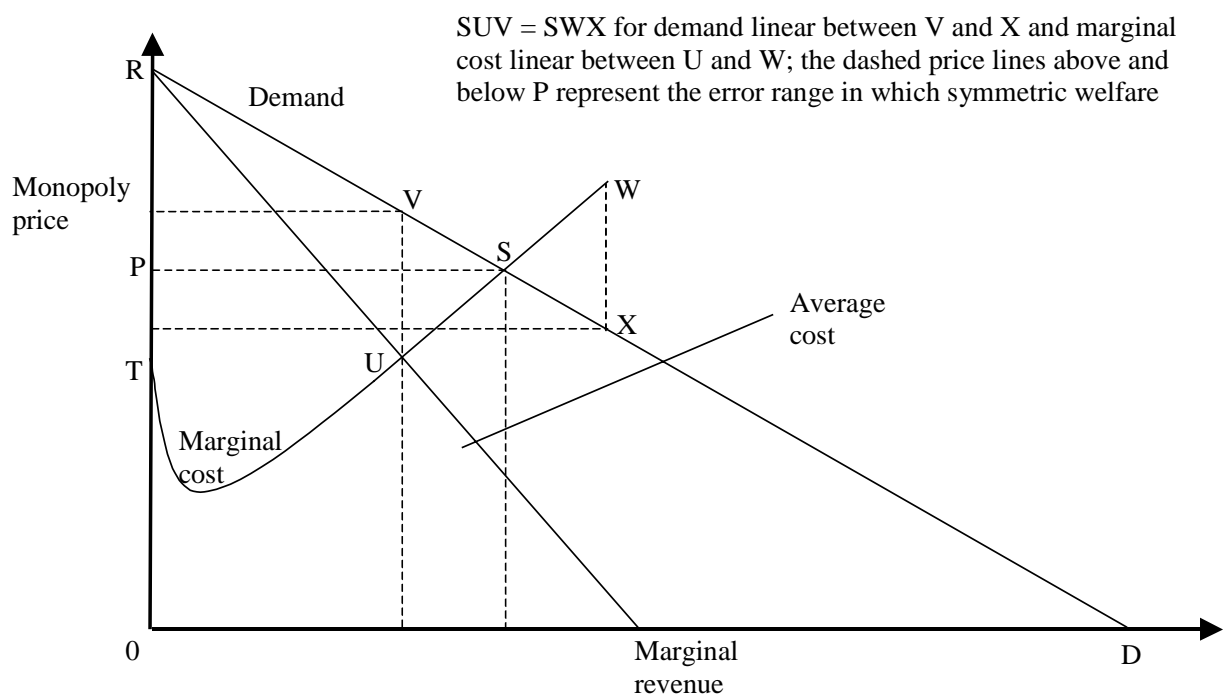
¹¹² While sunk costs are avoided in the long run case because no new investment is made, the initially incurred sunk costs must be counted at some point. If they are not counted in considering the short run allocative gains when price is above the shut-down price, but below the full cost-covering price, then they must be counted here.

¹¹³ Average costs cannot slope upwards throughout their range as this would imply that entry would occur until an infinite number of firms each producing an infinitesimally small amount operated in the industry, that is, a situation not requiring regulation if it is at all plausible.

¹¹⁴ They are exactly symmetric in the case of linear demand and marginal cost, when the probability distribution of regulatory errors is also symmetric and prices are in the range of P plus or minus the smaller of (1) the difference between the monopoly price and P, and (2) the difference between P and the minimum cost-recovering price.

If some positive probability can be attached to the regulator either setting prices greater than the monopoly price or below the minimum cost-recovering price, then the expected welfare loss for underestimation of cost exceeds that for overestimation. This is because any price set above the monopoly price will result in the monopoly price being implemented (assuming the regulator does not object to a lower price than what it recommended) so the welfare loss is capped by the illustrated upper shaded triangle, and any price below the minimum cost-recovering price results in a welfare loss given by the area RST.

Figure 3—Constant marginal cost with sunk costs



The case of rising marginal cost with a fixed cost results in a very similar diagram to that of Figure 3. The fixed cost raises average cost, so shut down is triggered by a smaller regulatory error. The asymmetry of course remains. Allowing for sunk costs creates an additional welfare asymmetry in the long run, but one that is triggered at an even higher short run price. Thus, even if fixed and variable costs are covered, an error that fails to cover total costs leads to long run shut down. There is no corresponding gain that can off-set this.

The final case is that where average cost slopes downwards (not illustrated). Here the asymmetry is at its sharpest. Any price that does not cover variable costs leads to immediate shut down and large welfare losses. As with the constant marginal cost case, if sunk costs are added to the mix, some cost underestimates lead to static allocative welfare improvements. However, sufficiently large cost

underestimates lead to shut down and hence large welfare losses. If any reasonable probability can be attached to a cost estimate lying below the shut down point, then an asymmetry exists even in the short run case. More importantly, even when static allocative gains are made in the short run, shut down occurs in the long run. As before, the efficiency cost of this is considerably higher than any short run welfare gain and would outweigh these for reasonable discount rates.