FINAL REPORT

Submission to the Productivity Commission inquiry into National Competition Policy

Response to Issues Paper by NECG

PREPARED FOR
REGULATED INFRASTRUCTURE FORUM

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1 Executive summary

The national competition policy (NCP) reforms that were agreed to by COAG in the mid-1990s represented a watershed in microeconomic reform for Australia. They brought together many elements from a range of related reforms that began in the mid-1980s with trade liberalisation and financial deregulation. The objectives of the NCP reforms were to deliver higher living standards by improving the competitiveness and flexibility of the Australian economy. In particular, it was hoped that increased competition would lead to higher productivity, improved quality of service, lower costs, lower prices and more innovation.[1]

The Productivity Commission has been asked to undertake a review of the NCP. The review has two objectives:

- assessing the initial and ongoing impacts of NCP and related reforms undertaken to date; and
- reporting on any areas offering further opportunities for significant gains to the economy from removing impediments to efficiency and enhancing competition.

This submission focuses on assisting the PC in addressing the second of these objectives. The submission takes account of the history of outcomes from existing reforms and focuses on two issues related to the NCP agenda. These are:

- structural separation in the major infrastructure industries; and
- the consistency of implementation of NCP reforms.

1.1 Structural separation

While the Hilmer report was largely in favour of the structural separation of public monopolies, a less extreme reform was incorporated into the Competition Principles Agreement. Rather than a presumption in favour of structural separation, the Competition Principles Agreement only requires that governments conduct a review of its merits prior to the introduction of competition into industries dominated by a public monopoly, or prior to the privatisation of the monopoly. Nevertheless, the ACCC and the NCC have raised the issue in their submissions, essentially arguing that a greater emphasis should be placed in the NCP on maintaining structural separation where it has been introduced and on extending it to those infrastructure industries (such as telecommunications) where it has not been implemented to date.

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[1] Productivity Commission 2004, *Review of National Competition Policy Arrangements: Issues paper*, Productivity Commission, Canberra, p. 1.

A presumption in favour of structural separation is not warranted

While the NCC's concern relates to an apparent failure of the Commonwealth Government to conduct a review of the merits of breaking up Telstra prior to partial privatisation, the ACCC's concerns are more extensive. First, the ACCC revisits the Hilmer report's suggestion that there be a presumption in favour of structural separation. In this regard, the ACCC is particularly concerned by the failure to separate what it claims are the contestable and non-contestable elements of Telstra. Second, the ACCC would like to see additional industry-specific regulation of mergers for the electricity industry. In particular, it expresses concern about horizontal mergers between generators and vertical mergers involving transmission companies. The aim of the industry-specific merger control powers, that the ACCC seeks, appears to be to allow the ACCC to block transactions that would otherwise be lawful under the Trade Practices Act, 1974. These are transactions that though they do not substantially lessen competition, would, according to the ACCC, be undesirable as they would allow the re-aggregation of functions that (in the view of the ACCC) ought to be structurally separated.

There are no economic principles that support a presumption in favour of structural separation. Rules that seek to impose particular structures on businesses may have benefits but they also have substantial costs. In a review of the merits, both of these can be assessed in a neutral fashion. If instead structural separation becomes the default option, there is a risk that important integration efficiencies will be lost. In many cases, these foregone efficiencies will lead to significant increases in cost and reductions in the ability to innovate. This in itself would invalidate one of the objectives of competition policy.

Impact of structural separation on competition and regulatory costs

There are three main justifications for structural separation. These are:

- concerns about the integrated firm leveraging market power into potentially competitive markets;
- a desire to promote competition; and
- a desire to minimise the cost of regulation and improve its effectiveness.

A major justification for structural separation of public monopolies is a concern over the possibility that the incumbent will attempt to use its market power in the non-contestable components of its business to create or enhance market power in other potentially competitive markets. While an integrated firm that has substantial power in the market for an essential service may have an ability to leverage that market power, it is far from clear it will have any incentive to do so. In effect, while a 'leverage' strategy would increase the integrated firm's revenues in the potentially competitive markets, it would reduce its

revenues from sales of its essential service. The net outcome for the integrated firm's profits is at best ambiguous.

Furthermore, it is far from clear that structural separation **always** promotes competition or minimises regulatory costs. The intensity of competition is essentially a function of demand conditions and barriers to entry and exit. The mere act of separation does not alter these underlying factors. Nor does it remove market power from the non-contestable elements of the integrated firm. These will still require regulation. Furthermore, the separation may lead to coordination problems (for example, with respect to investment or to the efficient maintenance of operations) that actually require additional regulation.

It is also important to recognise the cost of implementing structural separation and designing and implementing appropriate regulatory and institutional arrangements that will need to change to reflect the new structure. An important element here, especially in dynamic industries, is the difficulty of drawing and then updating the boundary between "monopoly" activities on the one hand and "competitive" activities on the other. Experience internationally highlights the fact that attempts at drawing, implementing, maintaining and then updating this distinction have created far greater regulatory burdens than would otherwise have been required.

Costs of structural separation

The main costs of structural separation are the foregone integration efficiencies. The sources of these efficiencies include:

- economies of scale and scope;
- internalising externalities (including service quality, coordinated investments, double marginalisation and regulatory externalities); and
- risk management.

These integration efficiencies are an important source of both cost reductions and new product and service development.

Economies of scale and scope

An important feature of industries such as telecommunications, electricity, gas and rail is the significant role played by major infrastructure. In these industries, an essential input in the production process is fixed with respect to the amount and diversity of output that is produced. Thus there are substantial economies of scale and scope in these industries.

At the horizontal level, these scale and scope economies provide a strong efficiency justification for integrating providers. In the absence of capacity constraints, it would be undesirable to duplicate major pieces of infrastructure that are used in the production of a variety of different products.

At the vertical level, it may be possible to achieve the scale and scope economies and other economies of integration discussed below without integration. What matters is the utilisation of the infrastructure in production, not the firms that eventually sell the final products. However, when it comes to new uses of the existing infrastructure, unrelated firms may not be willing to undertake the investment necessary to develop these markets if the absence of coordination in the investment decision increases the risk and cost that would need to be borne. The infrastructure owner, on the other hand, has a strong incentive to maximise the potentially profitable uses of the infrastructure. By increasing the risk and cost associated with the development of new markets, vertical separation may therefore impede the development of new uses for the infrastructure.

Internalising externalities

The integration of firms is an effective way to solve a range of co-ordination problems that would otherwise create adverse external effects. These co-ordination problems include: ensuring opportunities for relationship-specific investments are fully exploited and opportunistic behaviour (the hold-up problem) is effectively addressed; ensuring prices reflect the impacts on demands for complementary goods and services and addressing quality issues including the maintenance of system integrity.

Hold-up problems are endemic in infrastructure markets. The upstream firm must commit substantial sunk resources without commitments as to cost recovery from downstream users. At the same time, potential users may need to undertake investments whose value is dependent on the conditions of upstream supply. While regulation itself may reduce the risk of each party acting opportunistically, the efficacy of that regulation is inherently uncertain and especially problematic in the context of new products and services. Where coordinated investment in innovation or more generally risk-management is required, integration of the upstream and downstream activity may provide the most efficient way of managing the hold-up problem.

Network industries often have certain operating requirements dictated by the need to maintain system integrity. When a single firm owns and operates the entire network infrastructure, it will take account of the impact of each of the various uses it controls, ensuring that the infrastructure is not damaged. If more than one firm is involved, however, then the costs of any damage will potentially be spread amongst all firms, not just the delinquent firm. As such, the incentives for any single firm to ensure that system

integrity is maintained will be weakened. Providing such incentives and monitoring compliance when more than one firm is involved will then increase regulatory costs.

Risk management

The ability of vertical integration to mitigate risks is clearly an important consideration in the assessment of integration in the electricity industry. However, it would be incorrect to assume that these forces only operate in respect of electricity. The need to manage long-term risk is an inherent feature of investment in infrastructure industries, reflecting the highly durable nature of the relevant assets and their almost complete locational specificity. As the markets in which infrastructure providers operate become more competitive, these risks tend to become more acute, if nothing else because of the greater uncertainty associated with demand and with price formation. Unless these risks can be effectively managed and mitigated, the higher costs they entail must affect both short-term price levels and the longer term investment function. One of the most effective ways in which risk-management can be enhanced is through vertical integration.

As a result, as the need to ensure efficient investment becomes more pressing, allowing vertical integration to proceed (or where it is already present, to remain in place) may help secure timely capacity expansion.

Circumstances have changed since the Hilmer inquiry

Overall, a presumption in favour of structural separation may have made practical sense when the goal was to "shake up" the bureaucratised structures that characterised the government business enterprises of the early 1980s. This was all the more the case in a context where the persistence of substantial excess capacity meant that the risk management advantages of vertical integration (and hence its ability to promote investment) were of less relevance. However, Australia has moved on since then, and it is important that NCP recognise the changes that have been achieved. Concerns about the governance problems for government business enterprises have been largely effectively addressed. Furthermore, the excess capacity that existed in the major infrastructure industries in the early 1990s is not as prevalent today. While concerns about future investment seem trivial when there is substantial excess capacity, they become very important when capacity constraints are reached. Rather than focussing on the specific recommendations contained in the Hilmer report, which may need altering as circumstances change, future reform should focus on the principles underlying those recommendations.

What approach should be taken with respect to structural separation?

Set against this background, there are strong arguments for leaving it entirely to market forces — including those associated with capital markets — to determine the vertical structure of firms. At the very least, the NCP should be neutral as to that structure, considering its merits on a case-by-case basis.

The merger provisions of the Trade Practices Act provide an important means by which such a case-by-case assessment can occur. This makes the ACCC's proposals for additional, industry-specific, merger controls important and concerning.

The view being put by the ACCC is that the current provisions of the Trade Practices Act, that apply in a non-discriminatory manner to the economy as a whole, do not provide the ACCC with sufficient ability to prevent anticompetitive mergers in the electricity industry. In particular it appears to be concerned about the recent Federal Court decision in relation to an acquisition by AGL of a minority interest in the Loy Yang A power station in Victoria. The ACCC sought to prevent the acquisition but the Federal Court found that the acquisition would not result in a contravention of s. 50 of the Trade Practices Act, thus allowing that acquisition to proceed.

As a general matter, creating industry-specific merger control powers runs contrary to the very thrust of National Competition Policy. It would introduce distortions in the way essentially similar transactions are dealt with in different industries. It would also reduce predictability, as the precedents and understanding accumulated through the economy-wide provisions were removed from their central role. And importantly it would avoid the accountability of testing the merits of merger decisions in the Courts.

No compelling arguments have been put by the ACCC for its proposal. It is, of course, true that each industry is 'different', and that electricity markets have specific features that differentiate them from (say) markets for primary commodities. However, the mere fact that short term pool prices in electricity markets are volatile provides no basis whatsoever for an industry-specific merger regime. Indeed, internationally, extensive case law and analysis show that standard concepts of merger control are well capable of being applied to energy markets, including the trading of electricity.

Conclusions on structural separation

Structural issues in respect of infrastructure industries are best governed by market forces, rather than by regulators who would try to second guess the efficient boundaries for firms. Where structural issues do arise, as they may in respect of vertical mergers, they should be addressed relying on the economy-wide provisions of s. 50 of the *Trade Practices Act, 1974*. Experience in Australia and overseas shows that these provisions provide adequate safeguards against structural changes that would substantially lessen competition.

1.2 Consistency of implementation of reforms to national regulatory framework

A common theme of previous regulatory reviews, dating back over 10 years, has been the benefits of a nationally consistent approach to regulation. The Hilmer Committee Report was the first to argue for a single national legal and policy framework for regulated access. Recently in its Review of the National Access Regime, the Productivity Commission argued that greater consistency of the key terms and conditions of access across regimes would help achieve more uniform outcomes. Such an approach is as equally valid now as was the case 10 years ago.

It is well accepted that greater consistency in regulatory design can provide many benefits. These include greater predictability in outcomes, greater certainty and confidence to those being regulated, increased perception of fairness, reductions in transactions costs and an enhancement in the integrity of the regulatory process.

Current approach and how it has failed

A key plank of the current approach to regulation has been to have greater consistency in outcomes through regulatory precedent and the closer working of regulators through the Utility Regulators Forum. Regulatory precedent has developed, with around 50 decisions adopting the predominant form of regulation, the cost-of-service building block model. However, despite this model becoming well known to all participants, there is still significant uncertainty in many facets of its application. Indeed, uncertainty over its application may be almost as great as in the late 1990s when the first regulatory decisions of this type were made.

The current system has failed in a number of ways:

- Inconsistency in outcomes — the presence of a formalised working body of regulators such as the Utility Regulators Forum can assist in developing better regulation. However, it is inevitable that in an environment where regulators have a diverse array of objectives reflecting legislative requirements and local issues, even well-intentioned regulators will make decisions that diverge materially from those of their counterparts in other jurisdictions or industries.
- Significant differences in coverage requirements between regimes — this creates uncertainty and results in divergences in outcomes. The declaration provisions that apply to the telecommunications sector through Part XIC of the Act provide significantly greater discretion to the ACCC than to the relevant decision-maker in Part IIIA of the Act faced with a similar issue.

- Appeal rights — the ability for a business to appeal a decision that affects its operations varies across sectors, and in many cases is negligible. This requires different expertise and approaches by both the regulated firm and regulators, and results in different outcomes for different industries. More disturbingly, a lack of the right to appeal regulatory decisions on the merits of the case denies the relevant parties a fundamental right at law and is at odds with the idea of checks and balances to power under the Westminster system of Government. Limiting appeal rights creates added risk of regulatory opportunism and is inconsistent with the promotion of efficient investment.
- Conflicts of interest in governance responsibilities — where the economic regulator is also the consumer advocate and in the case of the ACCC, also the competition regulator. At a minimum, these conflicts indicate the need for the development of consistent appeal mechanisms to bodies that can consider a case on its merits divorced from conflicting objectives.

Implementing best practice principles

In our opinion, rather than rely on closer working of regulators, there should be greater focus on developing best practice principles covering all industries, including those operating outside Part IIIA and the Gas Code, which have been the focus of previous Productivity Commission inquiries. Best practice principles could encompass a number of areas:

- Objectives — a common set of objectives has already been proposed for businesses operating under Part IIIA, which can be applied to remaining areas of National Competition Policy.
- Pricing — wider application of pricing principles, as proposed for Part III and the Gas Code, can provide greater guidance for pricing decisions and contribute to greater consistency in regulatory outcomes.
- Cost of capital — A more consistent approach to the cost of capital can be implemented by adopting the Productivity Commission's recent recommendation, in its Inquiry into the Gas Access Regime, for an independent study to be conducted on the cost of capital for regulated industries.
- Merits review — A consistent application of merits review processes is also warranted. The Productivity Commission has considered the pros and cons of merits review procedures at length in its recent Inquiry into the Gas Access Regime. The analysis carried out by the Commission indicates a significant potential benefit from applying such a review mechanism across the wider regulatory framework. This would not only improve consistency, but also provide protection where the regulator is both policy

maker and prosecutor, and would provide regulated businesses due protection of their legitimate commercial interests.

- Application of regulation — Further benefits can arise through greater consistency in the application of regulation, in particular in relation to coverage requirements.
- Governance — where procedures that remove conflicts of interest from the consumer protection and competition arms of Government are required, including greater access to merits review. This is especially acute in respect of the ACCC, which almost uniquely in international terms, has responsibility for consumer protection, competition policy and infrastructure regulation.
- Regulation review — The Productivity Commission's Office of Regulation Review could use its right of comment on regulatory matters to encourage consistent regulation, especially across related industries.

The introduction of best practice common principles need not imply a reduction in the importance of industry-specific regimes. Rather, the insertion of such principles could enhance their overall effectiveness. These principles can be introduced in a number of ways: through common amendments to industry-specific legislation, through overriding legislation at a national (or state) level, or through a best practice manual against which all regimes should be assessed. However, the first challenge is to develop best practice principles to enhance the effectiveness of the regulatory system in Australia.

1.3 Conclusion

Australia has drawn great benefit from the Hilmer reforms. However, these reforms are a "work in progress." Learning the lessons from experience to date and adapting the reform program in the light of that experience, changed circumstances and economic principles are important elements in ensuring that further efficiency improvements are realised.

This submission explains that the issue of structural separation is one that needs to be assessed on a case-by-case basis taking full account of all the advantages and disadvantages. There is no valid economic principle for adopting a presumption in favour of structural separation, and such a presumption would introduce an unwarranted bias in policy choice. Calls by the ACCC for greater emphasis on structural separation lack a sound conceptual basis.

In terms of application of National Competition Policy and economic regulation there is considerable merit in adopting a consistent set of principles for the design and implementation of regulatory arrangements (such as access regimes) for specific industries. Such an approach will provide greater certainty in terms of regulatory outcomes and reduce transaction and regulatory costs.

2 Introduction

The Network Economics Consulting Group (NECG) welcomes the opportunity to respond to the Issues Paper of the Productivity Commission's public inquiry, Review of National Competition Policy Arrangements.[2]

This response focuses on aspects of National Competition Policy that are relevant for the provision of regulated infrastructure services. In particular, the response focuses on "areas offering opportunities for significant gains to the Australian economy from removing impediments to efficiency and enhancing competition"[3] and areas where further reform activity can make clear gains in the "Australia's international competitiveness, in the efficiency of domestic markets or for Australian consumers"[4].

The following major Australian organisations have supported production of this paper:

AGL

Alinta

Energy Networks Association

Energex

Enertrade

QR Network Access

Telstra Corporation

These parties represent infrastructure providers across a number of sectors covering electricity, gas, rail and telecommunications. All of these providers, operating under a wide range of access regimes and Industry Codes, are keen to ensure that a best practice framework for the regulation of infrastructure providers is developed, which can benefit all sectors of the Australian economy.

This paper is structured as follows:

- Section 3 considers the appropriate role for vertical and horizontal integration in National Competition Policy; and
- Section 4 considers how best practice regulation can be applied across all infrastructure sectors.

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[2] Productivity Commission 2004, *Review of National Competition Policy Arrangements: Issues paper*, April.

[3] This is included in paragraph 4.b) of the Commission's Terms of Reference.

[4] This is included in paragraph 5.a) of the Commission's Terms of Reference.

3 Appropriate role for vertical and horizontal integration

3.1 Introduction

An important issue in national competition policy and related reforms has been the structure of industries that were formerly dominated by government business enterprises.[5] The issue of the appropriate structure for those industries was raised in submissions to this Inquiry from both the Australian Competition and Consumer Commission (ACCC) and the National Competition Council (NCC).

This chapter considers the need for further reform to the regulation of industry structure in Australia. Existing regulations that directly affect firm and industry structure in Australia are limited. The main regulation for addressing concerns about proposed changes to firm and industry structure is section 50 of the *Trade Practices Act 1974*. This prohibits mergers that would substantially lessen competition unless those mergers are specifically authorised. Clause 4 of the Competition Principles Agreement requires Australian governments to review the merits of structural separation before introducing competition into industries dominated by a government business enterprise or privatising a government business enterprise. There are also a variety of ring fencing and accounting separation provisions that apply to the gas industry, the electricity industry, Telstra and Australia Post.

If existing structural regulations prove to be insufficient, there are a variety of conduct regulations that could ameliorate any resulting anticompetitive impacts. These include the access provisions contained in Part IIIA and Part XIC of the TPA, as well as the prices oversight provisions contained in Part VIIA of the TPA. A claim for further structural regulation would have to explain why these existing regulations are insufficient or otherwise inefficient.

This chapter focuses on the issues raised by the ACCC and the NCC with respect to structural separation in the context of current and future arrangements for the implementation of National Competition Policy. First, a brief overview of the recent history of reforms to industry structure is provided as background to the subsequent discussion. The chapter then considers the main concerns about industry structure raised by the ACCC and NCC, along with the implications of structural separation for direct and indirect regulatory costs. These include consideration of:

- the potential for integrated firms to use existing market power in one area to secure or enhance market power in another, potentially competitive area;

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[5] These were a series of microeconomic reforms related to competition policy that were agreed to by the Commonwealth, State and Territory governments of Australia in April 1995.

- the potential for structural separation to enhance competition;
- the impact of structural separation on innovation and investment; and
- the extent to which structural separation might affect the costs regulation imposes on the Australian economy.

This is followed by an assessment of the various determinants of firm boundaries and their relevance for reforms to structural regulation in Australia. Factors that are relevant in considering the appropriate boundaries of firms include:

- economies of scale and scope;
- relationship-specific investments;
- internalising externalities (including service quality, double marginalisation, regulatory externalities and coordinating investments); and
- risk management.

Finally, the chapter concludes with a summary of the case for further reform.

3.2 Historical background

Structural separation came to the fore as an instrument of regulatory policy with the divestiture of the Bell System, which was mandated as part of a consent decree by a US Federal Court in 1982 and implemented on January 1, 1984. That decree limited the operations of the former Bell System companies to the supply of local exchange services, and required them to divest any financial interest in firms providing long distance services.

As an Australian policy issue, structural reform of public monopolies in Australia can be traced back at least as far as the former Industries Assistance Commission's report into non-tax charges and fees set by governments[6]. However, it received a major impetus with the release of the Report by the Independent Committee of Inquiry into National Competition Policy[7] (the Hilmer report) in August 1993. The Hilmer report made a number of recommendations relating to the structural reform of public monopolies. These recommendations addressed four main issues:

- the removal of regulatory functions from existing public monopolies;
- the separation of natural monopoly and potentially competitive components of public enterprises;

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6 Industries Assistance Commission 1989, *Government (non-tax) charges* (Report Number 42), Australian Government Publishing Service, Canberra.

7 Hilmer, F.G. 1993, *National competition policy: Report by the Independent Committee of Inquiry*, August, Australian Government Publishing Company, Canberra.

- the separation of the various potentially competitive components of public enterprises; and
- the introduction of access provisions for essential facilities.

The specific recommendations are listed in Appendix A. One of the key recommendations was for the structural separation of State-owned vertically integrated entities:[8]

> The Committee strongly supports structural reforms over more intensive conduct regulation. While particular structural reform proposals need to be evaluated carefully on their merits, the Committee is sensitive to the difficulties in demonstrating the longer-term dynamic benefits of creating a more competitive industry structure. The Committee is also mindful that incumbents — and sometimes owning governments — may have strong incentives to resist wide-ranging structural reform.
>
> Against this background, the Committee considers that these issues should be subject to a rigorous, open and independent analysis of the costs and benefits of various reform options. Moreover, where the natural monopoly element is vertically integrated with the potentially competitive activity, the Committee considers there should be a presumption in favour of full structural separation, leaving those who would support some lesser reform to establish why this is in the long term public interest.

Following the recommendations of the Hilmer report, a number of competition policy and related reforms were implemented in April of 1995. These reforms were contained in the *Competition Policy Reform Act 1995* and the three related inter-governmental agreements:[9]

- the Competition Principles Agreement;
- the Conduct Code Agreement; and
- the Agreement to Implement Competition Policy and Related Reforms.

Reforms relating to the structure and conduct of public monopolies are contained in clauses 4 and 6 of the Competition Principles Agreement. The key provisions are reproduced in Appendix B.

It should be noted that the structural reforms that are embodied in the Competition Principles Agreement do not go as far as the Hilmer report recommended. In particular, while they require Australian governments to conduct a review of the merits of structural separation prior to either the introduction of competition or privatisation, they do not entail

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[8] Hilmer, F.G. 1993, *National competition policy: Report by the Independent Committee of Inquiry*, August, Australian Government Publishing Company, Canberra, pp. 221–222.

[9] These agreements are jointly published as National Competition Council 1998, *Compendium of national competition policy agreements*, Australian Government Publishing Service, Canberra.

a presumption in favour of at least the separation of natural monopoly and potentially competitive elements of a public enterprise.

Structural reforms in Australia are aimed predominately at the major infrastructure industries that were formerly dominated by government business enterprises. These include telecommunications, gas, electricity and rail. In Australia, telecommunications reform did not follow the US path. Instead, emphasis was placed on preserving the efficiencies that come from integrated operation, while encouraging and facilitating the development of efficient competition by means of access and conduct regulation. However, the post-Hilmer reforms to the gas, electricity and rail industries did involve an element of structural separation.

Structural separation in gas, electricity and rail, although pursued in differing forms and to varying extents across the different States and Territories, mainly entailed disaggregating previously vertically integrated utilities into separate entities for each functional layer. For example, formerly integrated electricity entities were split into separate firms supplying generation, high voltage transmission and local distribution respectively. Similarly, in gas, the ownership and operation of pipelines was separated from that of local gas distribution networks, and both of these were separated from the activity of gas retailing. Finally, in rail, New South Wales moved to separate ownership of track from that of rolling stock, though other jurisdictions did not follow suit.

3.3 Regulatory concerns about industry structure

The two authorities responsible for implementing competition policy reforms in Australia, the ACCC and the NCC, have both raised concerns relating to the structural regulation components of competition policy. These concerns relate both to the implementation of existing reforms and recommendations, as well as the need for further reform.

Both the ACCC and the NCC suggest that existing reforms and recommendations have not been adequately implemented. The ACCC highlights the fact that not all of the Hilmer recommendations about structural separation have been implemented.[10] In particular, the ACCC raise the Hilmer report's suggestion that there should be a presumption in favour of the separation of natural monopoly and potentially competitive elements of former public monopolies, especially when they are vertically related. As noted above, that presumption was not incorporated into clause 4 of the Competition Principles Agreement and, as such, never became part of the package of competition policy and related reforms that were actually implemented. Rather, governments were simply required to review the merits of

[10] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, pp. 24–25.

such structural separation prior to introducing competition into the affected markets or privatising the monopoly.

The NCC submission suggests that, when it comes to Telstra, the Commonwealth government failed to meet its obligations under clause 4 of the Competition Principles Agreement.[11] While the submission does not elaborate on this point, it appears to be referring to a failure to carry out an adequate review of the merits of structural separation prior to the partial privatisation of Telstra. The ACCC also raises this point, noting that:

> Issues surrounding the possibility of structural reform in the telecommunications sector have not been subject to a comprehensive assessment. However, given the scope of vertical and horizontal integration in the telecommunications sector such an assessment is warranted.[12]

In particular, the ACCC would like to see further consideration given to the benefits and costs of requiring Telstra to completely divest its hybrid fibre-coaxial cable network, as well its fifty percent shareholding in Foxtel. The ACCC believes that this would both increase the incentives for Telstra and Foxtel to supply their services to competitors, as well as reduce the ability of Telstra to leverage its market power into potentially competitive markets.[13]

In addition to existing reforms, the ACCC raises the question of whether or not specific legislation relating to electricity mergers is warranted. Moves towards reintegration within the electricity industry have raised concerns about electricity market structure and its role in the development of a competitive national electricity market. In particular, the Federal Court decision in the recent *Australian Gas Light Company versus Australian Competition and Consumer Commission* case, concerning AGL's acquisition of a minority interest in the Loy Yang A power station, appears to have contributed to ACCC concerns about the effectiveness of the merger provisions in section 50 of the *Trade Practices Act 1974* when dealing with electricity mergers.

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[11] NCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo NCC, Melbourne, pp. 13–14.

[12] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, p. 25.

[13] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, p. 24.

In its submission, the ACCC discusses three types of electricity mergers or forms of integration:[14]

- horizontal mergers between generators;
- vertical integration of generators, transmission companies and retailers; and
- vertical integration of generators and retailers.

Horizontal mergers between generators, along with vertical mergers involving transmission, are the forms of structural integration that have the ACCC most concerned. Vertical mergers between electricity retailers and electricity generators are of less concern to the ACCC.[15]

The concerns about various forms of integration relate to the scope for exercise of market power. Structural separation is seen as a means of facilitating competition and improving regulatory arrangements necessary to deal with any residual market power.

3.3.1 Market power concerns

In relation to the major infrastructure industries, the Hilmer report noted two dimensions of integration that were of concern.[16] The first involved firms that incorporate an element with substantial market power and a potentially competitive element. The second concerned the integration of a large number of potentially competitive elements in the one market.

As noted earlier, the Hilmer report recommended that, prior to the introduction of competition or privatisation of a government business enterprise, a review be conducted of the merits of separating elements in which the incumbent possessed substantial market power and those that were potentially competitive. It also recommended that consideration be given to further breaking up the potentially competitive elements into smaller entities

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[14] There are two basic forms of integration: vertical integration and horizontal integration. Vertical integration refers to a merger between firms that operate at different stages of the electricity supply chain. The electricity supply chain consists of electricity generators that produce electricity, transmission companies that transport electricity from the power stations to residential or commercial premises and retail companies that sell this power to the ultimate users. Examples of a vertical merger include a merger between: a generator and a transmission company; or a generator and a retailer; or a transmission company and a retailer; or a generator, a transmission company and a retailer. Horizontal integration refers to integration between firms at the same functional level in the supply chain for example between two electricity generators. Horizontal integration can involve a merger between two firms producing homogeneous commodities or heterogeneous commodities.

[15] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, pp. 32–35.

[16] Hilmer, F.G. 1993, *National competition policy: Report by the Independent Committee of Inquiry*, August, Australian Government Publishing Company, Canberra, pp. 218–225.

that would compete with each other.[17] Both of these concerns are mirrored in the ACCC's submission to this inquiry.

Vertical integration

If an integrated firm does not possess market power in any of the markets it serves, then the fact that it is integrated has no anti-competitive implications. However, if the integrated firm possesses substantial market power in at least one market, it may be possible for it to use this market power to create or enhance its market power in another market. Usually, this requires the markets to be related in some fashion. The canonical example is a monopoly input that is essential to downstream competition, although other arrangements are possible.[18] The attempts to leverage market power into the potentially competitive markets may take place through both price and non-price means. The ACCC notes that:[19]

> When the owner of essential infrastructure also participates in a contestable market, it typically has the ability and the economic incentive to restrict the level of competition in the contestable market in ways that are difficult to police and prevent. It has the ability to harm competition by restricting access to the essential facility by raising the price, lowering the quality and quantity of service provided or reducing the timeliness of the service it provides, relative to the services the integrated firm provides to its own affiliate.

While the ability of the integrated firm to engage in such behaviour is clear, whether or not it has an incentive to do so is much less certain. If the contestable market is perfectly competitive, the integrated firm will have no incentive to leverage market power. It will simply set the price of its monopoly input in such a fashion that it extracts all of the monopoly rents from the downstream market.[20] If the incumbent is to have an incentive to leverage its market power, the contestable industry must be at best imperfectly competitive. But even then, incentives for leverage are ambiguous.[21] The reason for this is

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[17] See Appendix A for details.

[18] For example, it could be a downstream monopsony purchasing inputs from a potentially competitive upstream industry. Alternatively, it could be the case that consumers desire a bundle of services, one of which is supplied by a monopoly, while the others are potentially competitive.

[19] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, p. 34.

[20] See Tirole, J. 1988, *The theory of industrial organisation*, MIT Press, USA, pp. 174–175. This result requires that the downstream competitive sector is not able to substitute other inputs for the monopolists' input. Such an assumption is reasonable for essential facilities.

[21] A useful survey of this literature is provided by Mandy (2000). While Economides (1998) suggests that leverage will occur, Sibley and Weisman (1998a and 1998b) and Weisman (1999) suggest that the incentives for leverage are ambiguous. See Mandy, DM (2000), "Killing the

that, while a firm may increase its downstream profits through leverage, it also reduces its profits from input sales to its competitors. If competitors are as or more efficient than it is, then the incentive to forego those sales may simply not exist. Conversely, if competitors are less efficient than the integrated firm, then society may well gain rather than lose if they do not enter and compete in the downstream markets.[22]

Horizontal integration

As noted above, with respect to the electricity industry, the ACCC is particularly concerned about horizontal mergers between generators.[23] They appear to be worried that such mergers would reduce the intensity of competition in what is a potentially competitive market. This reflects the Hilmer report's recommendation about breaking up the potentially competitive element of the incumbent into smaller entities. While there is some justification for the belief that actual competition is more effective than potential competition, it is not clear that a simple increase in the number of competing firms automatically results in an increase in competition. Conversely, it is not clear that a reduction in the number of competing firms automatically reduces competition. Indeed, determining whether or not a particular merger is likely to substantially lessen competition is the central component of merger regulation in Australia.

This raises the question of why the merger regulations in section 50 of the *Trade Practices Act 1974* are not a sufficient deterrent for mergers between electricity generators that would substantially lessen competition. The ACCC suggest that a combination of some unique features of electricity as a commodity, along with an incorrect definition of the boundaries of the electricity market recently adopted by the Federal court, make these

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goose that may have laid the golden egg: Only the data know whether sabotage pays", *Journal of Regulatory Economics 17(5)*, pp. 157–172; Economides, N (1998), "The incentive for non-price discrimination by an input monopolist", *International Journal of Industrial Organisation 16(3)*, pp. 271–284; Sibley, DS and DL Weisman (1998a), "Raising rivals' costs: The entry of an upstream monopolist into downstream markets", *Information Economics and Policy 10(4)*, pp. 451–470; Sibley, DS and DL Weisman (1998b), "The competitive incentives of vertically integrated local exchange carriers: An economic and policy analysis", *Journal of Policy Analysis and Management 17(1)*, pp. 74–93; and Weisman, DL (1999), "Vertical integration and exclusionary behaviour in network industries", Paper presented at the Rutgers University 12th Annual Western Conference, San Diego, California (7–9 July 1999).

[22] To suggest that regulation should serve to allow inefficient firms to participate in markets is to confuse the goal of promoting competition with that of promoting competitors. The latter is a form of industrial policy, which may have merit in theory, but rarely serves a valuable social purpose in practice.

[23] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, pp. 32–34.

regulations ineffective.[24] They also suggest that alterations to their merger guidelines are unlikely to alter this situation.

While it is true that electricity has some unusual properties,[25] the mere existence of those properties does not invalidate the principles underlying merger regulation. Nor should it alter the analytical approach adopted to merger evaluation. These features should simply be accounted for when assessing barriers to entry and the impact of the merger on competition and (where authorisation is being sought) welfare.

The ACCC's main concern appears to be the market definition and assessment of competitive effects accepted by the Federal Court in the recent *Australian Gas Light Company versus Australian Competition and Consumer Commission* case. This case related to AGL's acquisition of a minority interest in the Loy Yang A power station. The Federal Court accepted that the appropriate market was a national market for electricity. The ACCC appear to believe that, despite interstate electricity interconnections, the appropriate market is a regional or state-based one. In particular, the ACCC believe that even though the interstate transmission lines are rarely congested, those rare occasions confer substantial market power on local generators and can have a serious financial impact on electricity markets.[26]

However, higher prices at times of congestion are not automatically a result of market power. Rather, they may well be the optimal way to ration supply during those periods. Congestion rents, far from being a symptom of market power, are thus simply an indication of scarcity. The social costs involved in these rents would need to be traded off against the cost of expanding the transmission links (or expanding generation capacity on the constrained side of the link). If capacity expansion is currently more costly than occasional episodes of higher prices, it is only in a naive "nirvana economics" comparison (which instead of comparing real possibilities, contrasts the real world with a purely hypothetical nirvana) that the congestion pricing is socially undesirable.

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[24] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, pp. 32–34.

[25] In particular, electricity cannot be stored. This necessitates a matching of supply and demand at every point in time. Given short run inelastic demand, a steeply sloping marginal cost curve and substantial stochastic shocks to both supply and demand, this results in short-term price volatility. Given the availability of contract cover, that volatility does not directly affect most players. In this sense, the situation in electricity markets is similar (though perhaps more pronounced in degree) to that in many commodity markets, where short run price movements are highly volatile as a result of sharp shifts in the instantaneous value of storage.

[26] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, p. 33.

Even putting this aside, disputes over market definition are not sufficient to justify wholesale changes in the existing approach to structural regulation. Indeed, such changes would tend to undermine the purpose of allowing the ACCC's views to be tested through the courts. The role of section 50 is to prevent mergers effecting a substantial lessening of competition. If the ACCC disagrees with a particular court ruling about the competition consequences of a particular merger, then it is free to appeal the judgement. In this fashion, the case will be judged on its merits.

Given these existing protections, it is unclear what case, if any, there is for energy-specific merger provisions. This is all the more the case given that international experience highlights the scope for applying the standard analytical framework used for merger assessment to mergers in energy markets. Given that a central element of National Competition Policy is to secure consistency of treatment across industries, it would be anomalous for it to be used to carve out exemptions or special cases relative to the provisions that apply economy-wide.

3.3.2 The implications of structural separation for competition

Assessment of the likelihood of more effective competition following vertical or horizontal separation is case-specific. It will depend on factors such as the regulatory arrangements that would apply in the absence of the structural separation, current and prospective market conditions and the role and nature of entry barriers.

Where there is a concern that regulatory and/or governance arrangements for integrated entities face a number of major difficulties this can contribute to the case for structural separation. However, where it can be demonstrated that regulatory arrangements are likely to be reasonably effective in (for example) promoting access to essential infrastructure at prices that closely reflect efficient costs, and the integrated entity does not face major governance or performance problems that are best dealt with through mandatory restructuring, it is not reasonable to presume that structural separation is necessarily a superior option to regulation.

Prospective market conditions are an important consideration because a growing market will provide more scope for entry where economies of scale and scope are important features. Where entry and expansion barriers for competitors are, or in a reasonable time frame will be, reasonably low, then the case for restrictions on corporate structures must be weak, as competition itself will shape the optimal boundaries of firms over time. Moreover, the more competitive the downstream market is, the less likely it is that a firm with upstream market power could benefit from leveraging that market power into the potentially contestable activity.

Even where entry barriers into the upstream and downstream markets are high, the case for structural separation remains ambiguous. Thus, under those circumstances, it may be the case that market conditions will not support significant additional entry even if structural separation occurs. If at the same time economies of integration are important, costs will be higher under structural separation and there would then be an overall welfare loss from integration.

Another factor to consider is the extent to which structural separation and the consequent industry structure are likely to facilitate more innovation. The theoretical and empirical literature on the relationship between market structure and innovation provides ambiguous results. One theoretical perspective is that the presence of a monopolistic market structure means higher pre-innovation profits which reduces marginal benefits from pursuing further innovations.[27] However, a contrasting theoretical perspective is that a monopolistic or otherwise concentrated market structure may mean that the innovator may keep more of the gains from innovation.[28] In addition, the readier availability of internal finance in a concentrated market may better facilitate investments in innovation, given information asymmetries and monitoring costs if external finance is sought.

Given these offsetting factors, empirical studies have also produced ambiguous results in relation to the impact of market structure on innovation and found it difficult to properly account for the endogeneity of market structure.[29] In reviewing the literature, Cohen[30] argues that:

> Perhaps the most persistent finding concerning the effect of concentration on R&D intensity is that it depends upon other industry-level variables.

These considerations suggest that in assessing structural separation it is not reasonable to presume that the consequent industry structure will necessarily entail more effective competition and welfare improvements.

3.3.3 The implications of structural separation for regulatory costs

In addition to promoting competition, one potential advantage of structural separation that is sometimes raised is less costly and more effective regulation. This is based on the presumption that structural separation will change the incentives of the regulated firm in

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[27] Arrow, K. 1962, "Economic welfare and the allocation of resources for innovation" in R. Nelson, *The rate and direction of inventive activity: Economic and social factors.*

[28] Schumpeter, J. 1942, *Capitalism, socialism and democracy,* Harper and Row.

[29] Symeonidis, G. 1996, *Innovation, firm size and market structure: Schumpeterian hypotheses and some new themes*, OECD Economic Studies 27.

[30] Cohen, W. 1995, "Empirical studies of innovative activity", *Handbook of the economics of innovation and technological change.* p. 194.

terms of market foreclosure and that it will also be easier to regulate a firm that carries out a more limited range of functions. With structural separation the regulated firm would not be operating in the potentially competitive markets, so there would be no incentive for it to bias prices in favour of any particular producer. As such, regulation can focus solely on the prices and qualities of the monopoly's services rather than on detailed comparisons of costs between downstream producers. Thus the regulatory task could be easier and generally less regulatory resources could be required.

However, it is important to recognise that if there is market power at the level of access there would still be a need for regulation that would entail substantial regulatory resources. Oversight of price and quality will still be required if anticompetitive conduct is to be deterred. Admittedly, there would not be an incentive for the incumbent to discriminate between firms in the competitive sector. But there may be other anticompetitive incentives for co-ordination between the access provider and downstream firms that would require the attention of regulatory resources. Another factor that would complicate the regulatory task is that information in the potentially competitive part of the market would be private. Thus it is not clearly the case that the regulatory task with structural separation would be easier.

The US experience post the divestiture of AT&T is telling in this respect. Far from the regulatory burden diminishing, it increased as "boundary issues" (associated with whether the local exchange companies were or were not encroaching into potentially competitive activities) became a constant focus of regulatory concern. At the same time, there was no diminution in the complexity of the tasks involved in access pricing — rather, the difficulties inherent in estimating forward-looking costs have proved no less tractable in the United States than in Canada (where structural separation was not mandated) or for that matter in Australia.

3.4 Market forces that influence the boundaries and structure of firms

This section reviews the various determinants of firm boundaries and their relevance for firms operating in the major infrastructure industries in Australia. An understanding of these factors and their relevance will be an important component of any serious assessment of the need for structural reform.

The concerns about the boundaries of firms that were raised in the Hilmer report and subsequent legislation, as well as those raised by the ACCC and the NCC in their submissions, relate to the structure of firms that combine activities that have substantial market power with activities that are potentially competitive. As noted above, while the possibility that such firms will attempt to use their market power in one area to create market power in another potentially competitive market is a legitimate concern, it is by no

means the only reason for the combination of those activities within a single firm. There are also important market forces that influence the evolution of firm structure in a direction that can facilitate the realisation of economic efficiencies. These include various economies of integration such as:

- taking advantage of economies of scale and scope;
- dealing with asset specificity i.e. avoiding opportunistic behaviour and encouraging relationship-specific investments;
- internalising externalities (including in relation to ensuring service quality for complementary products and services, allowing for coordinated investment activity, eliminating double marginalisation and minimising regulatory externalities); and
- managing risks that are correlated across activities or stages of production.

Altering a firm's structure may reduce the potential for it to leverage market power into potentially competitive areas. But it also reduces the firm's ability to respond optimally to those market forces that make for efficiency. As such, it is legitimate to question whether a presumption in favour of structural separation is warranted. If there are regulations governing access to essential facilities by rival firms, then allowing the firm to remain integrated may be a better response. Despite its belief that further structural separation is warranted, the ACCC[31] recognises that such reform comes at a cost:

> Issues surrounding the possibility of structural reform in the telecommunications sector have not been subject to a comprehensive assessment. However, given the scope of vertical and horizontal integration within the telecommunications sector such an assessment is warranted. Any assessment would need to examine, among other things, the benefits of increased competition that would result from structural separation against the costs of lost economies of scope and implementation costs.

3.4.1 Economies of scale and scope

Economies of scale are present if average costs fall as output increases. In such circumstances, the marginal costs of production will be less than the average costs of production over the range of output in question. A key source of economies of scale is the presence of fixed costs that remain invariant regardless of the how much output is produced.

Economies of scope exist if two or more different goods or services can be produced by a single entity at lower total cost than if these goods and services were produced by separate entities. A key source of economies of scope involves the use of a common fixed input in

[31] ACCC 2004, *Submission to the Productivity Commission review of national competition policy arrangements*, mimeo ACCC, Canberra, p. 25.

the production of a variety of outputs. This allows an entity to share some costs in the production of different goods and services.

An important feature of industries such as telecommunications, electricity, gas and rail is the significant role played by major infrastructure. In these industries, an essential input in the production process is fixed with respect to the amount and diversity of output that is produced. As such, there are substantial economies of scale and scope present in these industries.

At the horizontal level, these scale and scope economies provide a strong efficiency justification for integrating providers. In the absence of capacity constraints, it would be undesirable to duplicate major pieces of infrastructure that are used in the production of a variety of different products.

At the vertical level, it may be possible to achieve the scale and scope economies and other economies of integration discussed below without integration. What matters is the utilisation of the infrastructure in production, not the firms that eventually sell the final products. However, when it comes to new uses of the existing infrastructure, unrelated firms may not be willing to undertake the investment necessary to develop these markets if the lack of coordination in the investment decision increases the risk and cost that would need to be borne. The infrastructure owner, on the other hand, has a strong incentive to maximise the potential uses of the infrastructure. Vertical separation may therefore well impede the development of new uses for the infrastructure.

An example of vertical integration that promotes market development is Telstra's role in developing subscription television and data transmission markets in Australia. If Telstra had been prevented from investing in Foxtel, the development of subscription television services may well have been delayed and their continued future expansion stymied.

It is not always easy to find estimates of relevant economies of scale and scope. However one approach is to examine the performance of firms following structural separation. If economies of scale and scope and other integration economies were important, there should be a deterioration in firm performance following the break up, all else equal. An important example of this is the experience of the US telecommunications industry in the post-divestiture period where, Nadiri and Nandi found that[32]:

> Despite an overall efficiency gain in production during the post-divestiture period, the US telecommunications industry experienced a substantial decline in TFP [total-factor productivity] growth during 1984–1987 from the productivity growth of the previous

[32] Nadiri M.I. and B. Nandi 1999, "Technical Change, Mark-Up, Divestiture and Productivity Growth in the U.S. Telecommunications Industry", *Review of Economics and Statistics*, 81:3–488:498.

> decade. The TFP growth declined from an average annual growth of 5.35% during 1975–1983 to 2.40% in the post-divestiture period, a decline of approximately 55%.

In other words, although the telecommunications industry maintained its positive trend of improved productivity, the growth rate itself decreased by more than half. One of the several reasons put forward for this decreased growth seems to be reduced investment in innovation as a consequence of the divestiture. For example, as a report of the National Research Council explains:[33]

> The 1984 divestiture of AT&T led to a smaller Bell Laboratories and to the creation of Bell Communications Research (Bellcore), a shared research facility for the seven regional Bell holding companies. Recent deregulation has encouraged a reduction of basic research at both AT&T and Bellcore. Lacking significant research capability at its individual service companies, the cable television industry depends on research done by its hardware vendors and its shared CableLabs. Although more new technology has been deployed in telecommunications since deregulation in the early 1980s, and although in both computing and communications there are more companies selling products now than there were 15 years ago, today's sales are based on yesterday's research and do not guarantee a sufficient foundation for tomorrow's sales. Competition in an industry can promote technological growth, but competition alone is not the source of innovation and leadership.

Thus, although the empirical economic literature has generally not been able to identify a strong and unambiguous relation between innovation and market structure this example from the telecommunications sector does raise some concerns.

3.4.2 Asset specificity

Often, to realise all of the potential gains from trade, the trading parties must make relationship-specific investments. This may be due to the potential for economies of scale or scope, as discussed above, or it may involve tailoring a product to suit a trading partner's particular requirements. Typically, such relationship-specific investments have no value outside the relationship. As such, once they are incurred, they are sunk. This gives the trading partner a great deal of market power at that point. Potentially, the trading partner can capture almost all of the additional value created by the investment. The reason for this is that the investing firm will prefer to get even a small return on its investment to nothing.[34]

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[33] National Research Council 1995, *Evolving the High Performance Computing and Communications Initiative to Support the Nation's Information Infrastructure*.

[34] Church, J. and R. Ware 2000, *Industrial organisation: A strategic approach*, Irwin-McGraw-Hill, USA, pp. 69–76.

The investing firm will anticipate opportunistic behaviour of this sort. As such, in the absence of an enforceable commitment about the division of the gains from trade, few such investments would take place, despite their desirability. The standard way to avoid opportunistic behaviour is for the firms to enter a long-term contract. One such contract involves the firms merging. Often, due to the incomplete nature of most contracts, this is the most efficient form of contract available.

Problems of this sort are likely to be prevalent in infrastructure industries where integration is difficult or legally restricted. A current prominent example relates to Epic's Dampier to Bunbury natural gas pipeline. Alinta and Alcoa, major customers of the pipeline are part of a consortium currently bidding for the pipeline.[35] The pipeline is being sold because Epic was forced into receivership. This occurred in part because Alinta and Alcoa would not sign contracts to keep its previous ownership structure viable. It is predicted that the sale price will be substantially less than the original purchase price.

Hold-up problems are endemic in infrastructure markets. The upstream firm must commit substantial sunk resources without commitments as to cost recovery from downstream users. At the same time, potential users may need to undertake investments whose value is dependent on the conditions of upstream supply. While regulation itself may ameliorate the risk of each party acting opportunistically, the efficacy of that regulation is inherently uncertain and especially problematic in the context of new products and services. Where coordinated investment in innovation or more generally risk-management is required, integration of the upstream and downstream activity may provide the most efficient way of managing the hold-up problem.

3.4.3 Internalising externalities

There are often additional production costs generated by a failure of parties in a relationship to coordinate their activities. These costs arise because the separate entities do not take account of the indirect impacts their choices have on the other party. Such externalities would be avoided if the parties were to merge.

While customers can frequently observe the overall quality of a product after using it, they are often unable to determine the cause of any problem. As such, there is scope for each firm involved in producing the final product to blame poor performance on the other firms involved. In such cases, a firm that only produces part of a service will not bear the full impact from a lowering of the quality of its component. If higher quality components cost more to produce, the firm will have an incentive to reduce quality below the level desired by customers. This in turn reduces the sales of the components produced by other firms.

[35] Durie, J. 2004, "Chanticleer: The remodelling of Foster's", *Australian Financial Review 25 August 2004*, p. 64, second section.

An integrated firm, on the other hand, would take account of these external impacts when making its quality choices.

Similar issues arise in respect of coordinating related investments. When the provision of a service requires substantial investments from two separate parties, costs can increase and opportunities can be lost if those investments are not coordinated. Seemingly small differences in format or timing can have substantial cost implications for consumers as well as the investing firms. Furthermore, since both firms will benefit from market development, there will be an incentive for each firm to free ride on the others' marketing activity. This will typically result in under-investment in market development and a resulting delay in the introduction of new and innovative services. If the firms merge, however, there will be no conflict between their investment incentives.

Even once products are introduced, coordination issues can frequently arise in relation to their pricing. Thus, if two related (complementary goods) markets are imperfectly competitive, then forced separation of firms in these markets may result in higher prices to consumers. The reason for this is that each firm does not take full account of the impact its conduct has on the sales of the firms in the related market. This impact can occur through either cost or demand changes. The canonical example involves double-marginalisation by a sequential monopoly.[36] Double marginalisation involves higher prices to consumers because the downstream price is set as a mark-up over an already inflated cost, rather than over the lower, true costs. Similar issues arise for horizontal integration if goods are complements for consumers. In this case, the higher price for one good reduces the demand for the other. A clear example of the benefits of eliminating double marginalisation effects relates to airline alliances (Box 1).

A further coordination issue relates to the management of end-to-end service quality. Network industries often have certain operating requirements dictated by the need to maintain system integrity. When a single firm owns and operates the entire network infrastructure, it will take account of the impact of various uses, ensuring that the infrastructure is not damaged. If more than one firm is involved, however, then the costs of any damage will potentially be spread amongst all firms, not just the delinquent firm. As such, the incentives for any single firm to ensure that system integrity is maintained will be weakened. Providing such incentives and monitoring compliance will then increase regulatory costs.

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[36] Note that it is important that the monopoly be sequential, rather than bilateral. In a sequential monopoly, the downstream firm is a price-taker in upstream markets. In other words, the upstream monopoly's product is used in the production of a large number of other commodities as well. In a bilateral monopoly, the downstream firm is a monopsonist in input markets. When a monopolist faces a monopsonist, the exact outcome is indeterminate. However, one might expect the two firms to coordinate on the most collusive outcome and then bargain over the division of the resulting surplus.

Balancing competing uses in this fashion is likely to be costly. Joskow notes the prevalence of this problem with the electricity reforms in England and Wales in 1990 and later in the US states of California, and New York.[37] In such cases, after the regulator acknowledged the problem, the need for further expensive *ex post* control mechanisms became evident. He further suggests that a fundamental reason why many restructuring programs throughout the world falter after they have been implemented is because the regulators underestimate the degree to which there is an increase in transactions costs after the integrated firm is structurally separated and thereafter operates on a network that was originally created with large sunk costs assuming that it would remain under the aegis of a single management. Any successes from structural separation in such cases should be offset not only with the benefits from integration it forgoes but also with the cost of *ex post* regulatory mechanisms that are needed to adjust socially harmful behaviour that was not accounted for.

Box 1 **The elimination of double marginalisation effects with airline alliances**

A channel through which airline alliances can lead to both welfare benefits and carrier benefits is through coordination of pricing. In particular the co-ordination of pricing can eliminate the 'double marginalisation' problem, where each airline ignores the impact of its fares on the other airlines fares for interline products. The co-ordination of pricing can in turn lead to lower fares and increased traffic and when combined with the presence of economies of density can lead to further downward pressure on fares.

The benefits of alliances in terms of the co-ordination of pricing were examined by Brueckner (2003) who tested the proposition that the lowest interline fares will tend to be set by alliance partners with antitrust immunity while higher fares will be charged by carriers who lack antitrust immunity (in coordinating prices). Brueckner examined a sample of 54,687 observations in international city pair markets for the third quarter of 1999, where at least one route segment is flown on a US carrier and regressed fares on distance, market size, a competition variable, regional effects, fare category, airline-specific effects and cooperation measures. He found that presence of codesharing on an international airline itinerary reduces the fare from 8–17% and the presence of anti-trust immunity reduces the fare by 13–21% with the combined effect ranging from 17 to 30%, suggesting substantial benefits for interline airline passengers.

Source: Brueckner, J.K., 2003, "International Airfares in the Age of Alliances: the Effects of Codesharing and Antitrust Immunity", *The Review of Economics and Statistics*, February, pp. 105–18.

[37] Joskow, Paul 2002, "Electricity sector restructuring and competition: a transactions-cost perspective" in *The Economics of Contracts*, eds. Brousseau, Eric & Glachant, Jean-Michel, Cambridge University Press.

3.4.4 Risk management

There is evidence that enforced structural separation may have had an adverse impact on investment incentives in certain infrastructure industries. For example, as was noted in the Productivity Commission's Gas Inquiry Report:[38]

> Changes to the structure of the gas industry, particularly vertical separation, might have made investments more risky. Increased competition from other pipelines, retailers and gas basins is no longer internalised within the public monopoly. Thus, information flows and assured upstream suppliers or downstream sales might no longer exist for a vertically separate business. The bargaining power of individual businesses in various parts of the gas supply chain are changing over time, and bargaining outcomes are more uncertain.

These concerns are the flip side of the scope integration provides for more efficient risk management. A compelling example in this respect relates to the integration of electricity generation and retailing. As recognised by the ACCC,[39] the integration of generation and retailing provides retailers with a natural hedge against wholesale spot market volatility. The characteristics of the natural hedge can be explained as follows:

- Electricity retailers have a strong incentive to ensure that they will be able to meet their estimated load at a price that realizes an acceptable profit given that (at least for franchise customers) they face a commitment to supply and a regulated price. To succeed in this respect, retailers must deal with the fact that load is concentrated in the peak, higher priced periods. As a result, they need predictably priced access to peak wholesale capacity, which allows them to "cap" their pool purchases and thus reduce risk.
- Generators need to ensure that their assets are dispatched such they also realise an acceptable return. These incentives are particularly important for base load generators. Base load generators' costs are largely fixed. As a result, they have high operating leverage,[40] and their equity claimants are therefore exposed to the risk that prices will fall below average costs for prolonged periods of time. As operating leverage and systematic risk[41] are highly correlated, the overall impact of these generators' cost structure, all other things being equal, is to increase their capital costs.

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[38] Productivity Commission 2004, *Review of the Gas Access Regime, Report no. 31*, Canberra, Box 4.3, page 101.

[39] ACCC 2004, Op. Cit., p. 35.

[40] A firm's operating leverage is the ratio of its fixed to total costs.

[41] Systematic risk is the component of risk that cannot be diversified. In the Capital Asset Pricing Model ("**CAPM**"), which is a widely used theory of how the cost of capital is determined, a firm's cost of capital depends on its exposure to systematic risk.

- The risks borne by generators and by retailers with respect to spot market prices are correlated and largely offsetting. However, generators are likely to be more efficient risk bearers than retailers.[42] This is essentially because they have discretion over the prices at which they are able to offer to generate electricity and greater scope to make some adjustments to their cost structures than retailers. The greater relative scope to mitigate risk provides generators with the ability to offer long term contracts to retailers. These hedging contracts will be profitable to generators as they will be able to recover a premium that retailers are willing to pay given the greater risks they face.
- However, financial contracts are not a costless way of managing risk. It can be especially difficult for a retailer to use contracts to match its load profile and hence cover its price risk. This is all the more the case as retail markets become more competitive, increasing the uncertainty each retailer faces as to the evolution of its load. The fact that markets for contracts may be relatively thin, volatile and affected by market power makes reliance solely on financial contracts for risk management potentially costly.
- That said, the efficient management of the costs of risk does not occur only through contracts for services. Rather, it can also occur through ownership, that is, through contracts for *equity claims.*[43] Indeed, this is the essence of the theory of financial diversification, in which individual investors insure against 'bad' outcomes by buying a range of equity claims, some of which may experience 'bad' outcomes while others will experience outcomes that are 'good.' Exactly the same logic applies to an individual firm, which can insure against a risky event by purchasing a claim on the residual income of another firm that stands to benefit from that risky event or that in some other way attenuates the loss that the risky event would otherwise entail.
- For these reasons, there are strong pressures for vertical relationships to develop in liberalised electricity markets. These can take the form either of effective long-term contracts ("virtual vertical integration") or through common ownership. Increasingly,

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[42] It is an important result in economics that efficient markets will allocate risk-bearing to those who can manage it at least cost. Motor vehicle insurance, for example, involves shifting some risk from drivers to insurance and re-insurance companies, who can reduce the cost of provisioning against accidents by aggregating large numbers of individual claims, only a few of which are likely to experience an accident in any period of time. Since the value that drivers place on this service exceeds the costs involved in its supply, in an efficient economy, insurance companies will sell, and drivers will buy, insurance covering motor vehicle accidents. In an efficient economy, instruments will develop, in other words, which allow the direct bearer of the risk to contract with a 'least cost risk bearer' for the services of providing cover. One such instrument is vertical integration.

[43] Economists view equity as conferring a claim on the firm's residual income, in the sense of the income that remains to the firm when all of its fixed commitments have been met. The purchase of equity in a company is a purchase of a right to a specified share in the company's residual income.

retailers are seeking a mix of ownership and contractual arrangements to meet their requirements. These developments reflect the reality and evolving nature of electricity wholesale markets. One consequence of the better risk management these developments allow should be to facilitate future investment in generation capacity.

These considerations suggest that the savings in social costs from more efficient risk mitigation associated with vertical integration are clearly an important consideration in the assessment of integration in the electricity industry. However, it would be incorrect to assume that these forces only operate in respect of electricity.

In effect, the need to manage long term risk is an inherent feature of investment in infrastructure industries, reflecting the highly durable nature of the relevant assets and their almost complete locational specificity. As the markets in which infrastructure providers operate become more competitive, these risks tend to become more acute, if nothing else because of the greater uncertainty associated with demand and with price formation. Unless these risks can be managed and mitigated, the higher costs they entail must affect both short term price levels and the longer term investment function.[44]

3.5 A case study: telecommunications

Prior to concluding this review of the structural issues, it is useful to examine a case study which brings out some of the key features of the forces, discussed above, that can make vertical integration efficient in a dynamic context. That case study relates to Australia's experience in telecommunications.

3.5.1 Background

Historically, Telstra's predecessor organisations adopted a generally cautious approach to the launch of new services. Although Australia has never been a laggard in the adoption of telecommunications technology, it was widely accepted that, as a relatively small economy, it was prudent to wait for international standards to be well developed and widely implemented before adopting technologies that would inevitably rely to a considerable extent on imported designs and components. The relatively cautious pace of adoption of crossbar switching technology and subsequently of the move to digital working, for example, was at least partially influenced by a concern about not 'getting too far ahead of the pack,' although workplace relations issues and government funding constraints were also significant factors.

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[44] For example, the financing costs of electricity generation projects have been shown to depend on their ability to mitigate risks inter-alia through long-term contracts and virtual vertical integration: see Esty, B. C. 2002, "Returns on Project-Financed Investments" *Journal of Applied Corporate Finance*, Spring, pages 71–86.

This attitude began to change in 1980s, as it became apparent first, that competitive pressures would only increase in future and second, that future revenue growth depended on the willingness to take risks in respect of new services. Additionally, as Australia's economy became ever more open and competitive, and as Australians became more aware of the potentialities of new telecommunications, delays in access to technologies and services available overseas became increasingly unacceptable.

Reflecting this, a number of initiatives were taken to explore and seek to commercially exploit technologies that were still either largely unproven or in only the early stages of market availability worldwide. For example, Telecom Australia was the first carrier internationally to offer a commercial primary rate access service (that is, a 2 Mbit/s ISDN bearer). Equally, a substantial investment was made in early convergence-oriented technologies, for example, with the development of a range of data transmission services, an integrated computer-telephone, and a commercial videotext system based on BT's Prestel service and further developed and marketed in Australia as Viatel.

While some of these initiatives were commercially successful, several were not. Inadequacies or difficulties in the technology were rarely the cause of failure; rather, the primary factors at work were almost always commercial. In some cases — for example, the Common User Data Network — the service was simply ahead of demand. More often, however, the causes of failure were more complex.

To understand these, it is important to understand two aspects that can and often do create substantial difficulties in securing the commercial viability of innovative telecommunications services. These are the "chicken and egg" problem, and the problem of devising appropriate charging arrangements for multi-purpose platforms. Each of these is dealt with below.

3.5.2 Network externalities and the "chicken and egg" problem

There are frequently "chicken and egg" elements to the success or failure of a new service. These effects are simply instances of the importance of network externalities, and more generally of network effects, in determining success or failure in innovation. Appendix C sets out the economic meaning of network effects and network externalities.

The history of telecommunications innovation in Australia highlights the importance of network externalities. For example, the RadioMail service, launched in 1995, offered a wide range of functions that, viewed from today's perspective, should have assured its success: wide service coverage; high grade of service, at least by the standards of 1995; and the scope to have an always on, truly mobile, email access service, with the prospect of global roaming. In fact, the service failed completely. This was because despite its technical attributes, the number of email users at the time was too small to provide a viable

initial customer base; as the customer base was small, the terminal devices were and remained extremely expensive; and in turn, high prices for the devices meant that there were too few of them in visible use to start a "fad" or more generally create a strong 'word of mouth' effect on demand.

'Chicken and egg' problems also helped stymie the development of the Viatel (later "Discovery 40") service. While the 9,600 bps connection that Viatel relied on seems very slow by current standards, it was relatively reliable and could have been expected to emulate the success of France Telecom's Minitel service (which used significantly lower connection speeds, at least until the mid-1990s). However, the lack of good content meant that users had little incentive to use the service; the lack of users in turn removed the incentive for the development of content; so that the service never attained critical mass and was ultimately abandoned.

For "chicken and egg" problems to be resolved, coordinated investment needs to take place in the different elements that can make for service viability. There is little point to making substantial outlays on the conduit if there is no content which will attract users to it, and vice versa; so conduit and content investment need to be made in parallel. Securing this coordination is difficult, if not impossible, when the different elements are being provided by separate organisations. There are sound commercial reasons why this is the case: none of the parties wants to bear the initial losses if it has no assurance it will secure the ultimate profits. When the entity owning one element can act in ways that prevent the other from ultimately recouping the costs it has incurred, investment will simply not proceed.

For example, it proved difficult to convince commercial entities to make content available for the videotext service. Naturally, they were concerned that once they had incurred the losses involved in developing the content, the profits might go to late-comers with 'me too' offerings. Since the platform was being provided on a strictly open basis — so that late-comers would be treated on a non-discriminatory basis — the risk involved was a real one.

Similar considerations applied to the initial development of Telstra's Hybrid Fibre Coax network, as content providers could not be attracted to the VisionStream platform since they (1) would have had to bear substantial costs in growing the market, but (2) given the open nature of the proposed platform, had no assurance that they would recoup these costs as penetration increased.

Given these factors, ensuring that new services can succeed often requires the network service provider to be involved, either directly or through joint venture vehicles, in the supply of the other services required for the new services' commercial viability.

Telstra's experience in mobile telephony well illustrates this point. Originally, mobile phones in Australia were supplied on a basis where the cost of the handset was entirely borne by the subscriber. It was only in the early 1990s, as competition developed, that Telstra entered into the business of in fact, acquiring phones on customers' behalf — clearly, a "non-core" service, by any of the definitions of the distinction between "core" and "non-core" services that proponents of structural separation have advanced. This in turn allowed Telstra to resupply the phones, as part of a package bundling "core" and "non-core" services, on terms which made subscribing to the mobile service attractive and propelled the growth in mobile penetration from levels that were very low by international standards to among the highest in the world.

In the mobile telephony case, Telstra could relatively readily enter into purchase arrangements with suppliers of the other elements (in this instance, handsets) needed to make the overall service attractive. This is because the items involved were essentially available "off the shelf" and could be obtained, through appropriate long term contracts, from a range of competing suppliers.

There are, however, instances where supply is not available on an "off the shelf" basis and/or where the markets for the services required are poorly developed or for other reasons not effectively competitive. In those instances, ensuring that the full package can be offered to consumers on attractive terms requires greater involvement by the incumbent supplier than is needed to (say) purchase handsets in bulk. Thus, that supplier may either need to produce the items itself (as Telstra has done in respect of say, some content for its web-site), invest in companies that have the capabilities it needs to drawn on, or establish joint venture arrangements with suppliers. The innovator, in other words, acts both to help organise the supply of the package of elements required and to efficiently share the risks this supply involves.

The development of the Foxtel joint venture is an example of this type of behaviour. Much as Optus did with its wholly-owned OptusVision service, Foxtel served to ensure the availability of high quality programming for the Telstra HFC. Absent that programming, demand for the HFC would have been insufficient to allow any prospect of commercial viability. By internalising this inter-dependence — between the availability of programming and demand for the service — the joint venture allowed the introduction first of the analogue service and subsequently, the transition to digital.

3.5.3 The cost recovery dilemma

As well as pervasive "chicken and egg" problems, investment in innovative telecommunications services often raises complicated pricing and cost recovery issues. This is especially so where multi-service platforms are being provided.

There are many examples in contemporary telecommunications of multi-service platforms. For example, a high capacity transmission link to the home may be shared by the broadcasting of entertainment-related content and by interactive broadband services. Equally, a portal site will typically supply access to a wide range of content-providers, going from relatively simple search or look-up services through to services that involve highly elaborate content such as games. Even the now ubiquitous mobile handset supplies access to mobile voice service, to Short Message Service ("SMS") and to an ever wider range of transactional services. In each of these cases, securing multiple uses allows costs to be more widely spread and also makes accessing the platform far more attractive to end-users.

The issue, nonetheless, is how each of these various uses should contribute to the platform's costs. In some cases, the relative use of capacity may provide a guide; but in others, it will be misleading.

Consider, for example, a platform, such as DSL over copper or HFC, that both provides high speed internet access and near-video-on-demand; obviously, the latter will use many times more capacity, in the sense of bandwidth, than will the former. However, if they are each charged on the amount of bandwidth they use, downloading a film to view would likely cost more than $50, while Internet access would be supplied for free. The more highly valued service — Internet access — would make virtually no contribution to cost, while very high prices would be placed on the near-video-on-demand service that (given the ready availability of videos and DVDs) has relatively little value to consumers. Faced with these prices, consumers would not take up the services and the platforms' potential would never be realised.

What this example highlights is that charges need to be mindful of willingness and capacity to pay. In some cases, the relative amount of willingness and capacity to pay may be reasonably easy to determine. For example, it may well be known in advance that one use will be in especially strong demand, and hence can make a substantial contribution to overall cost recovery, while other uses are less well placed to do so. In other cases, however, the pattern of demand is not known beforehand, and even the best estimates may prove misleading. Most recently, for example, suppliers of mobile telephony seriously under-estimated both the extent and growth of demand for SMS, while demand for Wireless Application Protocol (WAP) services has fallen well below expectations.

The dilemma this uncertainty creates is simple. On the one hand, it would be desirable to revise charging arrangements so that especially popular applications bore the brunt of the responsibility for cost recovery. This would involve re-defining charges as demand for the various uses became clearer. On the other hand, the prospect of such revisions, especially if they may be carried out on a substantial scale, can (in some cases seriously) undermine

the incentive suppliers using the platform have to work hard to make their products attractive and successful.

It might be thought that these issues could be dealt with by simply taxing revenues — for example, by setting a fee that was a percentage of the revenue each service collected. In some cases, this can work; in others, however, "revenues" are difficult to measure — as when a record company uses a web service essentially as an advertising tool, so that the bulk of the revenues it derives from the service do not come directly from those browsing on the relevant site but from added sales of CDs.

A pragmatic approach is needed to dealing with these issues. One aspect of this need for pragmatism is that in some cases, the best way of ensuring that services that use the infrastructure contribute on a reasonable basis to overall cost recovery is for the infrastructure owner to acquire a stake in the service supplier. By thus investing in (say) content, the infrastructure owner can ensure that truly successful content helps cover the overall costs of the conduit. Moreover, this cost contribution occurs automatically (through the infrastructure owner's stake in the venture), and avoids the difficulties that attempting to secure a similar outcome through more arm's length means would involve.

This is not to suggest that such an approach is needed in all cases — it plainly isn't. However, it may well be of increasing importance in the future, as telecommunications platforms become ever more multi-use in nature, as demand becomes ever more varied and difficult to predict, and as ensuring that users have access to a wide range of attractive content becomes central to competitiveness. If an infrastructure provider is to successfully innovate and compete in such an environment it must have the scope to develop pragmatic solutions to its business needs — even if this involves investing beyond the narrow confines of the telecommunications network.

3.5.4 Conclusions

Economic analysis suggests that vertical and horizontal coordination effects are crucial to successful new product and service development and to innovation more generally. While there are a range of ways in which the required coordination may be effected, including by contract, integration of complementary activities within a single enterprise is clearly of the greatest importance in contexts where transactions costs are high.

The complexity of the technical issues involved in conceiving, developing and producing new infrastructure services introduces substantial uncertainty[45] into the innovation

[45] **Uncertainty** refers to the unpredictability of the outcomes of a course of action. In contrast, **risk** refers to the consequences of a wrong prediction of outcomes. That is, uncertainty characterises the distribution of possible outcomes, while risk characterises the distribution of consequences from those outcomes.

acquisition process. It is rarely possible to fix the main parameters of a system — be it in terms of its outputs or in terms of its inputs — with any degree of precision prior to incurring what may be considerable outlays. For projects such as these, in which sunk costs are high but coordination of complementary services is crucial to success, it is naïve to believe, as the ACCC seems to, that arm's lengths relations between separate and distinct producers can be relied upon to secure efficient and innovative outcomes.

3.6 Is further structural reform warranted?

In this concluding section, the benefits and costs of structural separation are summarised. A number of features of the Australian economy that have changed since the release of the Hilmer report are also discussed, along with their relevance for structural regulation. Given the considerations presented in this chapter a conclusion on the need for, and presumption in favour of, structural separation is presented.

3.6.1 Structural separation generally entails trade-offs in terms of economic efficiency

Structural separation can be a means of improving firm performance and economic efficiency. However there should be no presumption in favour of structural separation, as the net economy-wide benefits depend on the specific circumstances of firms and industries. This is all the more the case as regulators and government entities are very poorly placed to define the efficient boundaries of firms.

The trade-offs that are associated with structural separation of a vertically integrated entity essentially relate to various potential efficiency gains versus potential efficiency losses. The potential efficiency gains arise to the extent to which there is more effective competition which in turn induces efforts to lower costs, to innovate and to improve quality, price and service offerings to customers. There is also a potential for less costly and more effective regulation in a more competitive environment. However, the extent to which separation actually means more effective competition and regulation needs to be carefully assessed as a positive impact cannot be taken for granted. The potential efficiency losses associated with structural separation are essentially the lost opportunities to realise various economies of integration including: economies of scale and scope, economies of co-ordination and co-operation; economies in the management of certain risks; and opportunities to overcome a range of market imperfections through internalisation. There is also the cost of implementing the structural separation. Boxes 2 and 3 summarise respectively the advantages and disadvantages of structural separation, drawing on the discussion presented earlier in this report.

Box 2 **The advantages of structural separation**

The advantages of structural separation are essentially related to the extent to which competition and regulation could be more effective. The main potential advantages of structural separation can be described as:

- The increased intensity of competition and associated benefits in some markets.
- Reduced scope for leveraging market power from "natural monopoly" activities to potentially competitive activities.
- Less costly regulation.

Box 3 **The disadvantages of structural separation**

The key disadvantage of structural separation is the loss of the opportunity to realise various economies of integration and their associated effects on prices and services. The main potential disadvantages of structural separation can be described as:

- Loss of various integration economies including: economies of scale and scope, technical and information synergies, economies of co-ordination and co-operation and other opportunities to reduce transaction costs and overcome market failure.
- Higher risks due to the exacerbation of the hold-up problem, reduced scope for diversification and the loss of natural hedges in some cases.
- The cost of implementing the structural separation including the cost of developing and implementing appropriate regulatory and institutional arrangements. An important element here, especially in dynamic industries, is the difficulty of drawing and then updating the boundary between "monopoly" activities on the one hand and "competitive" activities on the other.

An important point is that the impact of structural separation on social welfare is at best ambiguous. Even if structural separation increased competition, prices may be no lower because of the extent of the lost economies of integration and implementation costs.

In considering these advantages and disadvantages, it is important to recognise the scale of potential implementation costs and practical issues associated with separation and associated on-going regulation.

In relation to the costs of implementing structural separation, these are likely to be substantial. As the OECD notes:[46]

> In addition to the loss of any economies of scope, vertical separation may involve a substantial one-time cost associated with the break-up of the integrated firm. This cost is an important part of the cost-benefit trade-off associated with separation.

[46] OECD 2001, *Structural Separation in Regulated Industries*, Report by the Secretariat, Committee on Competition Law and Policy.

It is also important to recognise that in addition to the one-off costs there will still be ongoing regulatory costs to consider as there are still likely to be numerous market governance and regulatory issues to be addressed.

In relation to the practical issues of separation, at the very outset, a key problem is deciding on what the relevant structure should be after separation. Are the natural monopoly components obvious? Are they even separable? Is the potentially competitive component real and separable? Are industry conditions likely to be sufficiently stable to justify separation by structure? An example of the practical difficulties this involves is set out in Box 4.

Box 4 **Dividing competitive from non-competitive activities: the case of telecommunications**

Telecommunications networks supply a range of services that at the end-user level go from relatively simple uses such as voice telephony through to the management of complex, integrated applications such as those used in tele-medicine (which involves a combination of voice telephony, video-conferencing and high speed data transfer). Additionally, while some services are supplied largely or entirely to end-users, others are supplied largely or entirely to intermediaries — that is, to telecommunications service providers which buy these services as inputs into the supply of services to end-users.

Given this, it is natural to think that a distinction could be drawn between the 'network' and the 'services' it provides. A boundary point between corporate structures could then be defined in terms of whether the functions being carried out involved the supply of "a network" or the provision of "a service" over that network.

Considered from a technological point of view, this distinction seems entirely metaphysical and fundamentally misconceived. There is obviously a distinction between (say) building and maintaining a network on the one hand and operating that network on the other; but all aspects of *operating* a network involve the provision of "a service." It is simply not possible to meaningfully describe (say) the functioning of a router without doing so in terms of the services it provides — services that involve processing address information, verifying link states (that is, mapping the state of its links to other routes), and transferring packets from an input link to an output link. To operate a router is to provide these services and in exactly the same way, to operate a telecommunications network is to provide the range of services these networks carry out. As a result, one cannot separate "network operation" from "service provision."

Also important is the risk that an integrated structure may well be the most efficient given underlying economic forces that define the optimal boundary for a firm and this may eventually entail the need for subsequent re-aggregation of assets that have been separated. Even if currently structural separation seems warranted, environmental conditions, technological advancements and changing demand characteristics can all lead to the need to alter firm structure in the future. If subsequent changes lead to a need for reintegration

within a relatively short time frame, then the costs incurred during separation could be largely or entirely wasted.

In this respect it is worth recalling the experience of the AT&T divestiture. There are a number of important lessons from that divestiture as outlined in Box 5. The key points are that following the divestiture:

- ongoing regulatory action appeared to be more important than increased competition in lowering prices;
- one-off costs associated with the divestiture were very high; and
- subsequently substantial re-aggregation has occurred.

Given these considerations it is not in the interests of the community as a whole for there to be a presumption in favour of either separation or integration. Rather, the optimal industry structure requires careful study and is case-specific in nature. Moreover, to the extent to which there is any presumption it should be in favour of market forces — including those involved in the market for capital and for corporate control — shaping and reshaping the optimal boundaries of firms.

Box 5 **The Bell System Divestiture**

The Past: Separation in the Name of Competition

The division of Bell Systems into AT&T as a long-distance carrier and a number of smaller regional local carriers in 1984 has now become the textbook example for structural separation. The separation was motivated by concerns about AT&T's ability to foreclose local markets to potential competitors and to monopolize some input markets. AT&T's contention that foreign access to its network would hamper its quality was considered to have limited credibility.

Post-divestiture, AT&T faced increased competition from MCI and Sprint among others in the long-distance carrier market. The regional Bells, too, while still retaining a monopoly over the local loops they operated, were now more willing to cooperate with other long-distance carriers apart from AT&T. Therefore, it appeared that the benefit of divestiture, as initially expected by the DOJ, was increased competition in both the long-distance and regional markets.

The claim, however, that lower concentration signifies increased competition and that this was what led to lower prices is not entirely accurate. Indeed, at least initially, firms in the industry did not engage in systematic price competition. Instead, they reduced prices when and where AT&T was required to do so by the FCC.[1] Therefore, it would be fairer to say that the dominant carrier's rates were more heavily influenced by regulatory action than by competitive pressures at least in the initial years. For example, Selwyn argues that the 40 percent reduction in long distance rates is largely attributable to shifting access charges to local subscribers and the explicit requirement by the FCC that AT&T pass through all reductions in access charges to end users of its toll services.[2]

Finally, it is also important to note the one-off cost associated with the divestiture. In nominal terms, the (admittedly journalistic) estimate given in the book The Rape of Ma Bell by Kraus and Duerig,[3] is approximately a staggering $25 billion.

The Present: All for Naught?

Seven regionally exclusive RBOCs or Regional Bell Operating Companies were eventually formed after the break up of Bell Systems in 1984. While names changed rapidly they were Ameritech, Bell Atlantic, Bell South, Nynex, Pacific Telesis, SBC Communications and US West.

Pursuant to the Telecommunications Act of 1996, local phone companies were granted the right to offer long-distance and cable services and, likewise, long-distance and cable companies were permitted to offer local services using a wider range of unbundled inputs than were previously available.

These developments were paralleled by significant merger activity, with extensive consolidation of the former Baby Bells. Now, all the former local exchange companies have some involvement in long-distance services, usually by themselves providing the service. If it has not been completely undone, the divestiture has been largely reversed. Whether the high costs it involved were worth bearing is obviously an issue that will attract continuing controversy.

1 Egan, B.L. and L. Waverman 1991 "The State of Competition in Telecommunications", in *After the Breakup: Assessing the New Post-AT&T Divestiture Era*, ed. Cole, BG, Columbia University Press

2 Selwyn, L. 1991, in op. cit.

3 Kraus, R. and A.W. Duerig 1988, *The Rape of Ma Bell: The Criminal Wrecking of the Best Telephone System in the World*.

3.6.2 The context of the Hilmer recommendations and subsequent developments

A key recommendation of the Hilmer Committee report was for the structural separation of State-owned vertically integrated entities.[47] However it is important to recall the context of that recommendation and to consider the extent to which the current context differs.

It should be recognised that in the early 1990s there was a widespread perception amongst policy makers and key institutions that public enterprises (i.e. government owned business enterprises) were performing relatively poorly.

The case for reform of public enterprises was first well documented by the Industries Assistance Commission in 1989[48] and in the early 1990s many State governments and the Commonwealth government embarked on a range of reforms that affected public enterprises. These included various approaches to improving the governance of public enterprises, including corporatisation, commercialisation reforms and in some cases privatisation. The concept of structural separation seemed to be embraced as an important means of introducing competitive pressures to complement these governance reforms and to make more efficient use of excess capacity. Widespread efforts were also made to measure and document the performance of public enterprises to try to induce better performance through 'yardstick' competition.[49]

It was also a period when there was significant excess capacity in many vertically integrated industries. The New South Wales Treasury noted that:[50]

> The present value cost of excess generating capacity in New South Wales has been conservatively estimated at more than $1 billion, a figure which would be greatly increased if the cost to the environment were properly included. This burden will be carried by the people of New South Wales for many years to come. While it cannot be reversed, a key objective of the reforms is to put in place a system which, firstly, substantially reduces the likelihood of such mistakes reoccurring and, secondly, transfers the risks of overcapacity from consumers to the parties who make the investment decision, that is, the generators.

It is a fair assessment that there was a widespread perception that structural separation was likely to be an important means of facilitating competitive pressures that would

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[47] Hilmer, F.G. 1993, *National competition policy: Report by the Independent Committee of Inquiry*, August, Australian Government Publishing Company, Canberra, pp. 221–222.

[48] Industries Assistance Commission 1989, *Government (Non-Tax) Charges*, Report No. 422, September.

[49] A commonwealth/state steering committed on national performance monitoring chaired by the Industry Commission was established to develop and publish relevant performance indicators for a wider range of public enterprises.

[50] New South Wales Electricity Reform Taskforce 1995, *Electricity Reform Statement*, NSW Treasury.

complement other policies that were being implemented. In many cases direct privatisation of substantial existing government-owned assets was not considered to be politically acceptable and this enhanced the appeal of policies that could facilitate competition including where possible opening up at least part of the market to private participants. Structural separation was seen as a mechanism that offered a relatively simple and robust means of introducing market pressures and helping to ameliorate the disadvantages of potential political interference in business operations. At the same time, by opening up supply in the downstream markets, it was thought that it would result in greater incentives for output expansion, allowing excess capacity to be soaked up.

Reflecting these considerations, structural separation was implemented in the Australian energy sector and to some degree in the rail sector in the 1990s. In the same period, the performance of utilities and firms involved in the provision of services requiring large-scale infrastructure, including by publicly owned entities, improved considerably in a number of aspects. This improved performance reflected a combination of reforms to both public enterprises and to the economy more generally as well as reflecting the impact of strong overall growth on industries in which costs are largely fixed (so that performance has a marked cyclical element). In addition excess capacity diminished in a number of infrastructure industries, particularly electricity.

That said, the current context differs from that painted above. To begin with, it is by no means clear that there remain "low hanging fruit" in terms of scope for productivity improvements. The once-off gains associated with privatisation or corporatisation have probably been largely exhausted. Mere cost-cutting through shedding of staff and contracting out is less likely to provide for further improvements in productivity; rather, the emphasis is likely to shift to product and process innovation. At the same time, there is a now a reasonably widespread view that the key issues that need to be addressed going forward involve providing incentives for investment in infrastructure and facilitating effective risk management arrangements for parties involved in volatile markets. The need, in other words, is not so much for improved use of existing assets; rather, it is to ensure efficiency in capacity expansion and in innovation.

The response of parties operating in regulated infrastructure sectors to these incentives and risks has included seeking to integrate horizontally and vertically. The trend towards increased integration is well established in many markets overseas. In Australia, AGL's acquisition of a minority interest in the Loy Yang A power station illustrates the value offered by the 'natural hedge' between upstream and downstream interests in the National Electricity Market. Despite objections from the ACCC, the Federal Court ruled that this particular acquisition did not raise competition concerns, particularly after certain undertakings were given by AGL. It is highly likely that this pattern will reproduce itself

more broadly in energy markets but also in other infrastructure industries such as rail and telecommunications.

3.6.3 Conclusion

Structural separation was a key component of the Hilmer report's recommendations for reform of Australia's major infrastructure industries. However, the Council of Australian Governments only elected to implement some of these recommendations. In particular, while requiring a review of the merits of structural separation, COAG did not incorporate a presumption in favour of structural separation. However, the ACCC and the NCC, in their submission to this inquiry, have revisited the issue of structural separation. They have both called for a renewed emphasis on structural separation and its extension to areas such as telecommunications. Additionally, the ACCC has suggested that it needs special powers to prevent vertical and horizontal re-aggregation in energy markets.

If integration by natural monopolies into vertically or horizontally related areas does not automatically constitute anti-competitive behaviour, then it is hard to argue that there should be a presumption in favour of structural separation. This is especially the case when there is scope for important integration economies and the implementation and potential efficiency costs of structural separation are substantial.

Since there are both costs and benefits associated with a move towards less reliance on access regulation and more on structural separation, the optimal choice of regime is ambiguous in principle and depends on context and circumstances. The fact that a key proponent of structural separation, the ACCC, itself calls for a study of the costs and benefits of structural separation confirms the considerable uncertainty that structural separation carries with it. It is therefore not surprising that the general trend in the world has been to move away from structural separation as a clearly preferred regulatory measure.[51] This tends to caution against a "one size fits all" approach to structural separation in Australia as well.

Even where integration has well-substantiated ill effects, other solutions exist to the problem, which while not uncomplicated are relatively less problematic and can be used more consistently. The fact that many businesses are increasingly looking towards increased integration, that State legislation explicitly permits such practice, and the Courts accept its validity suggests that it is hard to argue that there should be a presumption in favour of structural separation or the introduction of industry-specific regimes to impose structural separation outside the normal context of merger provisions in the Act.

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[51] See, for instance, *The Benefits and Costs of Structural Separation of the Local Loop*, Directorate of Science, Technology and Industry, OECD, November 2003.

The arguments against any presumption in favour of structural separation are all the greater when account is taken of the changing context in which infrastructure issues need to be considered. The Hilmer reforms occurred against a backdrop of infrastructure industries which were poorly run and had substantial excess capacity. "Shaking up" former public enterprises, including by forcing changes in the scope of their operations, was a potentially effective way both of underpinning governance and ownership reforms and of trying to inject greater dynamism into downstream markets — thereby increasing capacity utilisation. Importantly, concentrating the management task on a relatively narrowly defined range of services could improve management focus and allow opportunities to shed surplus labour and capital to be identified and exploited.

Those gains are, however, now largely achieved. Looking to the future, less rides on further cost-cutting and more on product and process innovation. Additionally, providing incentives for efficient investment, including by allowing efficient risk management, is of increasing importance as previous excess capacity is soaked up. There are no reasons based on economic analysis to believe that structural separation is a sensible way of addressing these issues, regardless of how well or poorly it performed in addressing the difficulties that stood out at the time of the Hilmer reform. All of this means that calls for a renewed emphasis on structural separation should be resisted.

Considerable scepticism should also attach to the ACCC's claim that new powers are needed to enforce structural separation in energy markets. These claims involve a two-fold presumption: that the ACCC is well-placed to determine the right boundaries of firms in markets that are now highly dynamic; and that it should do so free of the need to justify its views in court. Taken together, these claims are highly problematic.

It is true that the ACCC is vested with responsibilities under the Trade Practices Act to ensure that mergers do not substantially lessen competition. However, its power to control the boundaries of firms is limited to instances involving mergers and acquisitions that would lessen competition — its powers are not, in other words, those to impose an industry structure that it regards as optimal, but merely to prevent transactions that would reduce the efficacy of competitive forces. Additionally, it must exercise those responsibilities subject to the Courts — it has no general right to over-ride property rights without the merits of its claims being tested. Finally, further safeguards come from the fact that those powers are not industry-specific but rather economy-wide: this ensures that the manner in which the ACCC exercises its responsibilities is subject to monitoring by firms and investors generally.

The ACCC's proposed energy-specific merger powers would remove each of these safeguards. It may be that such powers would make life easier for the ACCC: but this cannot be a sensible goal of policy. Moreover, a further move towards such industry-

specific regulation is antithetical to the letter and spirit of National Competition Policy, which aims, inter alia, at competitive neutrality between industries and firms. Taken together with the other considerations set out above, this goal, which is considered more fully in the next section of this submission, should lead this Inquiry to clearly reject the ACCC's arguments.

4 Enhancing the national regulatory framework

The Commission's Terms of Reference requires it to consider areas at the Australian and State and Territory level "offering opportunities for significant gains to the Australian economy from removing impediments to efficiency and enhancing competition". One area where such opportunities for gains may exist is in advancing the application of best practice regulation to infrastructure providers. The cost of poorly formed regulation can be significant in terms of adverse incentives for investment, rent-seeking activity by infrastructure suppliers and access seekers, losses in allocative efficiency, and wasteful use of resources in regulatory proceedings. Ultimately, this will reduce the efficiency of domestic markets, harming Australian consumers and Australia's international competitiveness.

The Commission has looked at the design of regulation in its recent Inquiries into the National Access Regime (Part IIIA) and the Gas Access Regime. In these Inquiries the Commission has made recommendations on the appropriate role for objects clauses, pricing principles and merits review in access regimes operating under Part IIIA and the Gas Code. It has also considered the decision on whether and how to apply regulation. Given the anticipated benefits of these provisions, wider benefits could be achieved by applying similar principles consistently across all the industry sectors covered by National Competition Policy. Benefits may also be realized from greater commonality in approach in the determination of the cost of capital, and wider governance issues.

In what follows we: outline why a national focus is important, also demonstrating that this is a widely held position (Subsection 4.1); consider critical aspects of the current regime that lead to uncertain and inconsistent outcomes (Subsection 3.2); and conclude with recommendations for bringing consistency, *at the level of best practice*, to the existing regulatory regime (Subsection 4.3).

4.1 Importance of a national focus

Maximum benefits from enhancing the regulatory framework are unlikely to be achieved unless a national approach is adopted. A common theme of previous regulatory reviews, dating back over 10 years, has been the benefits of a nationally consistent approach. The Hilmer Committee Report was the first to argue for a single national legal and policy framework for regulated access.[52]

> A national policy presents opportunities to progress reforms across a broader front, promote nationally consistent approaches and reduce the costs of developing a plethora

[52] Hilmer Committee Report, 1993, Op. Cit., page 13.

of industry-specific or sub-national regulatory arrangements. It also presents important opportunities to increase the pace of reform, which is a question of considerable interest to businesses and consumers.

In this respect, the Hilmer Committee's findings are as relevant today as they were in 1993. For example, it remains true that an increasingly integrated national economy requires national solutions, and that the presence of multiple jurisdictional and industry based decision makers can fragment expertise and lead to unnecessary duplication. The Committee also noted that a national body is best able to consider regulatory issues from a distance and form objective views on difficult issues. A summary of the Hilmer Committee findings on national consistency is set out in Box 6.

Box 6 **Comments of the Hilmer Committee on national regulatory consistency**

On the benefits of a national approach to pricing

"The application of a national prices oversight mechanism to State and Territory government businesses offers several possible advantages. Independent and expert analysis of monopoly pricing issues would be applied to government businesses currently immune from such scrutiny. This would be a beneficial development in sectors such as electricity, rail, and ports that provide key inputs to export and import competing businesses. A national body could examine pricing issues affecting industries around Australia in a consistent and nationally focused way. And technical expertise could be consolidated, avoiding any unnecessary fragmentation or duplication of resources and effort" (page 284).

On the costs of industry specific bodies

"The Committee also considers that the establishment of a range of industry-specific bodies would fragment Australian expertise and experience in this area, and represent lost opportunities to ensure that lessons learned in introducing competition in one industry were applied in other sectors" (page 326).

On the benefits of introducing a single national regulator

"While every industry involves its own set of unique technical or other issues, the Committee is not persuaded that these cannot be taken into account by an economy-wide body. The Committee's proposed access framework provides the flexibility to adapt to the requirements of individual industries. Technical issues that do not have a significant competition element can be addressed in a number of ways consistent with the Committee's recommendations, including industry-specific regulation and industry codes, with or without industry-specific technical regulators. In the Committee's view, no case has been made to establish industry-specific bodies to administer the access and related arrangements of its proposed policy "(page 326).

Source: Hilmer, F.G. 1993, National competition policy: Report by the Independent Committee of Inquiry, August, Australian Government Publishing Company, Canberra

The continued relevance of the Hilmer Committee findings is accepted by the ACCC:[53]

> The Hilmer Report into National Competition Policy and the resulting Competition Agreements stressed the necessity of universal application of competition law and the benefits arising from consistent approaches to regulation. Such consistency is difficult with competing agencies regulating different sectors of a similar market.

Findings of the Commission's inquiries into the National Access Regime, National Gas Code, and Telecommunications Competition Regulation, and the Government's responses to these Inquiry reports also strongly support the need for national consistency.

In its Review of the National Access Regime, the Productivity Commission argued that greater consistency of the key terms and conditions of access across regimes would help achieve more uniform outcomes:[54]

> Greater consistency in the criteria for establishing terms and conditions of access for regimes covering similar infrastructure services would help to achieve more uniform outcomes. … Greater consistency of requirements would facilitate the 'meshing' of regimes with interstate dimensions in key features of access.

The review also noted a number of deficiencies arising out of the ad-hoc development of the national access regime since its formulation, all which by implication increased costs to access providers, access seekers and customers:[55]

> The criteria applying to the different access routes vary unnecessarily. For example, the coverage tests embodied in the Part IIIA declaration criteria are somewhat different from the corresponding tests in the CPA for determining whether an existing State or Territory regime is effective. Similarly, the factors that the ACCC must take into account when arbitrating a dispute for a service declared under Part IIIA are more tightly prescribed than the factors it has to consider when assessing a proposed undertaking. Such divergences give rise to the possibility of inconsistent determinations.

And:[56]

> The arrangements have not been particularly successful in preventing unwarranted differences in the requirements of industry access regimes. This was of concern to service providers and access seekers alike.

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[53] ACCC News Release 2002, *ACCC Cautions Against Industry-Specific Regulation in Energy Markets*, 15 November.

[54] Productivity Commission 2001, *Review of the National Access Regime*, Report No. 17, AusInfo, Canberra, page 247.

[55] Ibid, pages xx–xxi.

[56] Ibid, page xxi.

A more consistent approach was recommended in the Commission's telecommunications Inquiry, where it argued for greater consistency in the "objectives, principles and process" of the telecommunications specific regime with Part IIIA wherever possible.[57]

Box 7 **Benefits from increased regulatory consistency highlighted in reviews of best practice regulation**

The **UK's Better Regulation Task Force**[58] has identified consistency as one of its five key regulatory principles, and defines it to mean "government rules and standards must be joined up and implemented fairly". The key requirements are that: regulators should be consistent with each other, and work together in a joined-up way; new regulations should take account of other existing or proposed regulations, whether of domestic, EU or international origin; regulation *should be predictable in order to give stability and certainty to those being regulated*; and enforcement agencies should apply regulations consistently across the country [emphasis added].

In 1999 the Australian **Utility Regulators Forum** produced a discussion paper on Best Practice Utility Regulation, which included consistency as one of its nine best practice principles. The main benefits espoused were increased confidence to participants and fairness across participants:[59]

> Consistency of treatment of participants across service sectors, over time and across jurisdictions, was highlighted as a key principle for providing confidence in the regulatory regime. This principle is linked to the provision of consistent and fair rules that do not adversely affect the business performance of a specific participant.

A recent White Paper issued by the **Irish Government** notes that greater consistency can promote predictability, provide legal certainty, reduce transaction costs and increase the integrity of the regulatory process:[60]

> Consistency in the regulatory process is important as it gives a degree of predictability and legal certainty to individuals and groups within society and the economy. Ad hoc approaches, whereby similar situations are treated differently, tend to add to transaction costs associated with particular activities. They can also create unnecessary bureaucratic layers to social and economic processes, and ultimately diminish respect for the regulatory process.

Reviews of regulation in and outside of Australia have also recommended greater consistency in regulation including greater predictability in outcomes, greater stability, certainty and confidence to those being regulated, increased perception of fairness, increased legal certainty, reductions in transactions costs and an enhancement in the

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57 Productivity Commission 2001, *Telecommunications Competition Regulation*, Report No.16, AusInfo, Canberra, page 253.

58 Better Regulation Task Force, *Principles of Good Regulation*, Cabinet Office, 2003.

59 Utility Regulators Forum 1999, *Best practice utility regulation*, Discussion Paper, July, p. 6.

60 Department of the Taoiseach 2004, *Regulating Better: A Government White Paper setting out six principles of Better Regulation*, January, page 34.

integrity of the regulatory process. The findings of three such studies are summarised in Box 7.

4.2 How has the current approach failed?

4.2.1 Achieving consistency in outcomes

A key plank of the current approach has been to have greater consistency in outcomes through regulatory precedent and the closer working of regulators through the Utility Regulators Forum.

Regulatory practice has developed, with around 50 decisions adopting the predominant form of regulation, the cost-of-service building block model. Despite this model becoming well known to all participants there is still significant uncertainty in many facets of its application. Indeed, uncertainty over its application may be almost as great as in the late 1990s when the first regulatory decisions of this type were made.

A notable example is the cost of capital. Significant regulatory resources are devoted on a frequent basis to estimating the appropriate value of market specific cost of capital parameters that should be invariant to the business being regulated. For example, in establishing the risk free rate, the ACCC has taken a different position on the appropriate bond maturity than all other regulators. Despite the Australian Competition Tribunal determining that the ACCC's stance was inconsistent with the Gas Code in the case of GasNet,[61] the ACCC continues to argue that its stance is still appropriate in other contexts, altering its allowances only on the basis of "legal precedent".[62] Another example is the market risk premium, where the NSW jurisdictional regulator, IPART has chosen to adopt a lower parameter than all other Australian regulators.[63] Given IPART's position on this variable, and the significant revenue impact of changes to the market risk premium, the present state of affairs provides regulators with substantial room to engage in arbitrary regulatory discretion. The fact that similar debates, which do not relate to the underlying business being regulated, are repeated at each regulatory decision implies that regulatory resources are not being used effectively. The wide variation in results also indicates the degree of uncertainty facing investors, who cannot guess what rate-of-return will be

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[61] Australian Competition Tribunal 2003, "Application by GasNet Australia (Operations) Pty Ltd", ACompT 6, 23 December.

[62] For example, see ACCC, "NSW & ACT transmission network revenue caps — EnergyAustralia: Draft decision", page 83.

[63] IPART applies a range of 5.0% to 6.0% for the market risk premium, whereas all other regulators adopt a value of 6.0%.

determined in any particular setting, and highlights the very broad range over which (potentially arbitrary) decisions can be taken.

The closer working of regulators through bodies such as the Utility Regulators Forum has not noticeably eliminated this uncertainty. An explicit aim of this Forum is to enhance the prospects for consistency in the application of regulatory functions, as set out in Box 8.

Box 8 **Mission Statement of Utility Regulators Forum**

The Utility Regulators Forum was established in recognition of the need for cooperation between state-based regulators in a federal system. The forum consists of regulators operating in industries where public utilities that traditionally operated as monopolies are being opened up to competition as a result of the competition reform process. By acting as a focal point for regulators in different jurisdictions the forum:

- fosters understanding of issues and concepts faced by regulators of similar industries;
- minimises overlap of regulations for large users who operate across jurisdictions;
- helps in information exchange; and
- enhances the prospects for consistency in the application of regulatory functions.

Source: www.accc.gov.au (accessed August 2004)

The presence of such a formalised working body of regulators can assist in developing better regulation relative to a case of there being no such body. However, it is inevitable that in an environment where regulators have a diverse array of objectives reflecting legislative requirements and local issues, well-intentioned regulators will make decisions that diverge materially from those of their counterparts in other jurisdictions or industries. Further, lack of effective limits allows each regulator a wide range over which to take potentially different positions for reasons beyond their briefs, raising the costs of political pressure, regulatory capture, and the desire to stand-out, be tough or similar.

This is not to argue that regulatory discretion should be avoided. Indeed, it is a pre-requisite of an effectively functioning regulatory system. What is at issue is the framework in which regulators operate, including where and how regulatory discretion should be allowed.

There are other specific areas where the potential benefits of nationally consistent regulation have not been achieved under the current framework. These include coverage requirements, access to merits review and governance structures.

4.2.2 Differences in coverage requirements

Uncertainty and divergence in outcomes in the current regime also arise due to significant differences in coverage requirements. The declaration provisions that apply to the

telecommunications sector through Part XIC of the Act provide significantly greater discretion to the ACCC than to the relevant decision-maker in Part IIIA of the Act faced with a similar issue.

In its inquiry into the Gas Access Regime, the Commission recommended that the National Competition Council consider the appropriate form of regulation (including the applicability of price monitoring) when considering coverage applications in the gas sector. This represents an important expansion of the Council's role, but is unlikely to be most effective unless the Council is empowered to make similar decisions across other sectors.

4.2.3 Divergence in appeal rights

The ability for a business to appeal a decision that affects its operations varies across sectors, and in many cases is negligible. This requires different expertises and approaches by both the regulated firm and it regulators, and results in different outcomes for different industries. More disturbingly, a lack of the right to appeal regulatory decisions on the merits of the case denies the relevant parties a fundamental right at law, a fact widely recognised by other regulatory reviews (discussed below). It is also contrary to the principle of checks and balances to power underlying the Westminster system of democracy, which implies that the firm should have a right to question a decision (the check), while there needs to be a mechanism of control to prevent the branch of government from overstepping their constitutional limits of power (the balance).

The only avenue of appeal under the National Electricity Code is judicial review of administrative law. That is, a decision by the ACCC under the National Electricity Code cannot be appealed on its merits. Some limited merits review is currently available for gas businesses operating under the Gas Code. Yet, while recent decisions by the Australian Competition Tribunal on GasNet, Moomba to Adelaide Pipeline System and East Australian Pipeline Limited have been influential, it is important to realise that the Tribunal has only considered limited aspects of the regulatory determinations in question in making its findings. Wider merits review is available in relation to Undertakings submitted under Part XIC, but has been removed for arbitration decisions. The current scope for merits review is summarised in Box 9.

Box 9 **Scope of merits review rights under regulatory jurisdictions**

Businesses regulated under the Gas Code

Under section 39 (2) (a) of the Gas Pipelines Access (South Australia) Act 1997 an application for appeal for review may be made only on the grounds, to be established by the applicant:

(i) of an error in the relevant Regulator's finding of facts; or

(ii) that the exercise of the relevant Regulator's discretion was incorrect or was unreasonable having regard to all the circumstances; or

(iii) that the occasion for exercising the discretion did not arise.

The Commission's Inquiry report into the Gas Access Regime recommended the removal of all restrictions on the appeal rights under section 39 for all access arrangements drafted and approved by a regulator under the Gas Code.

Businesses regulated under the National Electricity Code

There is currently no scope for merits review of revenue determinations made by the ACCC to the Australian Competition Tribunal.

Businesses operating under State-based derogations may be able to appeal aspects of a determination. In Victoria, Part 7 Clause 44 of the Essential Services Commission Act 2001 states that a distributor can appeal a determination by the ESC on the grounds that:

(i) there has been bias; or

(ii) the determination is based wholly or partly on an error of fact in a material respect.

Once an appeal has been lodged, an Appeal Panel is formed which consists of 3 members as appointed by the Registrar.

Part XIC of the Act (telecommunications)

Under Section 152CE a person whose interests are affected by a decision of the ACCC in relation to an Access Undertaking can seek merits review of the decision to the Australian Competition Tribunal. However, the ability to seek merits review on decisions of the ACCC in relation to arbitration disputes was removed in 2002.

Businesses regulated via undertakings submitted under Part IIIA

There is currently no scope to appeal on merits ground decisions made by the ACCC on undertakings submitted under Part IIIA. However, the Government has recommended changes to this provision, consistent with the Commission's findings in its Inquiry into the Review of National Access that will permit full merits review to the Australian Competition Tribunal.

The inadequacy of current appeal mechanisms, which relate primarily to points of law is reinforced by the fact that the current regulatory framework vests in the regulator a wide discretion. As a consequence of this wide discretion, it can be difficult to find 'points of law', that is, conflicts between the decision and statute, on which to peg an appeal.

The fact that Australia has chosen to err on the side of giving regulators a broad discretion in decision-making is a legitimate policy choice. However, other elements in the regulatory framework must then be reassessed in the context of that choice. In particular, it must be recognised that because of this choice, the checks and balances on regulatory decision-making based solely on judicial review are less adequate than they would be in other jurisdictions where there is less discretion conferred and therefore the ability to appeal on points of law can provide greater certainty for regulated parties. Where the law merely sets out balancing considerations and then leaves the translation of those into decisions to the regulator, appeal on points of law has no bite and in reality, provides no more protection than would be available in any event under administrative law.

Extension of appeal rights was accepted in the Commission's Inquiry into the National Access Regime, where it recommended that Part IIIA should include provision for merits review by the Australian Competition Tribunal of decisions by the Australian Competition and Consumer Commission on proposed undertakings (Recommendation 15.1). The Government's response supported this finding:[64]

> The Government agrees with this recommendation. Provision of this additional appeal right is consistent with other access routes (i.e. certification, declaration and arbitration determinations) and should encourage the use of undertakings by providing for regulatory accountability. This amendment will include explicit provision for merit review by the ACT of decisions by the ACCC on post-declaration undertakings (see response to recommendation 10.1).

Furthermore, the Commission has recommended the expansion of merits review rights for businesses operating under the Gas Code to include a full merits review of the decision. However, as yet full merits review is not on the agenda for decisions made under the National Electricity Code and under various State-based regimes.

Merits review procedures have support from a wide range of quarters. For example, ACCC Commissioner, Ed Willet has said:

> ...I think it's the process here that we need to focus on, not individual words in the Gas Code or what does the ACCC say about this, but what sort of results do we get out of the whole process in the end. I have got to say I think it has, particularly the tribunal process, been working very well. We would suggest some changes to review of access

[64] http://www.treasurer.gov.au/tsr/content/publications/FinalReport_NationalAccessRegime.asp.

arrangements. There are arguments for a full merits review, rather than the partial constraint process that is there at the moment. I am relaxed about that, I must say.[65]

4.2.4 Differences in Governance structures

A range of governance structures exists. In particular, the customer advocacy role integrates with the competition and regulatory roles in different ways across jurisdictions. The ACCC has a number of overlapping functions, ranging from its role as economic regulator, competition regulator and consumer advocate. Many State-based regulators also have explicit customer protection roles, roles that have been strengthened in some cases with the formation of Essential Service Commissions.

The consumer advocacy role is important to a well functioning regulatory system. This is due to the inter-dependence between competition and consumer issues. Competitive markets work better where consumers are informed. Conversely, they are less likely to lead to welfare-enhancing outcomes in the presence of imperfect or asymmetric information caused, for example, by lack of provision of adequate information to consumers on the products they purchase. This means that an effective competition policy needs to be flanked by an effective policy of consumer protection. Similarly, where consumers lack adequate remedies against producers for fraudulent or negligent behaviour then promoting competition may lead to worse rather than better outcomes as it encourages a 'race to the bottom' as producers seek to cut costs to compete.

However, this interdependence does not imply that it is efficient for the same regulator to be in charge of both competition and consumer protection policy. Whereas competition policy is primarily dictated by efficiency considerations, consumer protection policy involves distributional considerations that may conflict with efficiency objectives. There is a strong case for a division of labour in performing these two functions because:

- such division of labour allows each regulator to build up expertise in their respective areas; and
- having the same regulator perform both functions may lead to a lack of transparency in decision-making. This is undesirable in itself but may also undermine the benefits of review of the regulator's decision-making and therefore undermine the benefits of appeal rights provided to regulated entities.

Many countries have aimed to minimize this conflict by explicit separation of the consumer advocacy role from that of the economic regulator, or requiring an arms length relationship. For example, in the UK customer representation occurs through various

[65] Productivity Commission 2004, *Draft Report into Gas Access Regime*, Transcript of Proceedings at Sydney on Thursday 25 March, page 706.

independent or arms length government bodies such as Water Voice[66] and EnergyWatch[67], and in the US, while the interests of utility users are broadly represented by Federal regulators, and State public utility commissions, in many locations, there are also State-based Offices of Ratepayer Advocates that are independent of the State regulator.

There can also be conflicts between the aims of competition and regulatory bodies.

In many countries the dual functions of competition regulator and economic regulator are separated. In the US the Department of Justice Antitrust Division and the Federal Trade Commission perform the role of competition regulator.[68] The Competition Commission performs this role in the UK, while in Canada the Competition Tribunal is the main competition regulator. This removes an important conflict of interest, particularly when an important angle of a regulatory determination is the impact on competition — a matter of great importance particularly in the telecommunications sector.

Conflicts of interests in governance responsibilities are clearly an issue that can adversely affect regulated outcomes. At a minimum, they indicate the need for the development of consistent appeal mechanisms to bodies that can consider a case on its merits divorced from conflicting objectives.

4.3 Implementing best practice common principles

4.3.1 Emphasis on principle rather than precedent

Given the widespread recognition of the importance of a nationally consistent regulatory design, the challenge is how to best provide incentives for best practice and consistent regulation to be implemented across all the businesses regulated under the provisions of National Competition Policy. In particular, should a common set of regulatory principles apply to all access regimes operating under the umbrella of National Competition Policy, or should best practice be allowed to develop through regulatory precedent and the close working of regulators?

In our opinion, there should be greater focus on developing best practice principles covering all industries, including those operating outside Part IIIA and the Gas Code. This is because the current approach, which has relied on precedent and close working of regulators, has failed to effectively provide stability, certainty, and confidence to participants that a nationally consistent approach to regulation could deliver.

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[66] http://www.ofwat.gov.uk/aptrix/ofwat/publish.nsf/Content/navigation-watervoice-aboutwatervoice.

[67] http://www.energywatch.org.uk.

[68] The two government agencies avoid overt competition, although inevitably there is some.

Through the work of the Commission and others there is an accumulating body of evidence that suggests that development of framework principles and guidance on implementation can enhance the efficacy of regulation if applied on a nationally consistent basis.

Areas where this can be achieved include the consistent application of objects clauses and pricing principles, guidance on issues such as the cost of capital, common appeal rights and best practice governance. The findings of the Commission's Inquiry reports into the National Access Regime and the Gas Access Regime are especially important.

4.3.2 Objects clause

A common set of objectives can apply to all businesses regulated under National Competition Policy. The purpose of an objects clause is described in the Commission's Inquiry Report into the Gas Access Regime as follows:[69]

> Inclusion of an overarching objects clause is highly desirable to clarify the policy intent of the regime; guide and improve the accountability of Ministers, regulators, arbitrators, tribunals and courts; provide greater certainty to service providers and access seekers about possible regulatory intervention; and promote national consistency (both across jurisdictions and between access regimes).

The objects clauses adopted by Government for the National Access Regime and recommended by the Commission for the Gas Access Regime are almost identical, setting out objectives in relation to efficiency of operations and investment and the promotion of competition. The Government's proposal for that part of the National Access Regime embodied in Part IIIA of the TPA, in this respect, suggests the following clause:[70, 71]

> The object of this Part is to:
>
> (a) promote the economically efficient operation and use of, and investment in, essential infrastructure services, thereby promoting effective competition in upstream and downstream markets; and
>
> (b) provide a framework and guiding principles to encourage a consistent approach to access regulation in each industry.

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[69] Productivity Commission 2004, *Review of the Gas Access Regime*, Report No. 31, Canberra, page xxxiii.

[70] http://www.treasurer.gov.au/tsr/content/publications/FinalReport_NationalAccessRegime.asp.

[71] The proposed objects clause under the Gas Access Regime is "to promote the economically efficient operation and use of, and economically efficient investment in, the services of transmission pipelines and distribution networks, thereby promoting effective competition in upstream and downstream markets".

4.3.3 Pricing principles

A common set of pricing principles will also be beneficial. Pricing principles are to be included in Part IIIA, which in the Government's opinion will "provide guidance for pricing decisions and contribute to consistent and transparent regulatory outcomes over time. They will also help to provide certainty for investors and access seekers alike and facilitate commercial negotiations between parties".[72]

The Commission's recommendation for the inclusion of pricing principles in the Gas Code mirror those agreed by Government for Part IIIA:[73]

> The Australian Competition and Consumer Commission (ACCC) must have regard to the following principles:
>
> (a) that regulated access prices should: (i) be set so as to generate expected revenue for a regulated service or services that is at least sufficient to meet the efficient costs of providing access to the regulated service or services; and (ii) include a return on investment commensurate with the regulatory and commercial risks involved.
>
> (b) that the access price structures should: (i) allow multi-part pricing and price discrimination when it aids efficiency; and (ii) not allow a vertically integrated access provider to set terms and conditions that discriminate in favour of its downstream operations, except to the extent that the cost of providing access to other operators is higher.
>
> (c) that access pricing regimes should provide incentives to reduce costs or otherwise improve productivity.'

4.3.4 Advice on application of the cost of capital

A more consistent approach to the cost of capital can be obtained by following through the Commission's recent recommendation in its Inquiry Report into the Gas Access Regime on the cost of capital. Recommendation 7.11 states:

> A study should be undertaken by a group of recognised experts in the field of financial economics that considers whether a robust method can be developed for setting businesses' expected rate of return on capital under incentive regulation. This should include a review of the use of the capital asset pricing model by Australian regulators.

Undertaking such a study will represent an important step in determining the extent to which boundaries can be set allowing a more consistent approach to the cost of capital

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[72] http://www.treasurer.gov.au/tsr/content/publications/FinalReport_NationalAccessRegime.asp.

[73] Ibid.

across business sectors. The adoption of such boundaries, to the extent that the report finds them viable, should then be pursued.[74]

4.3.5 Consistent application of merits review processes

The Commission has considered the pros and cons of merits review procedures at length in its recent Inquiry into the Gas Access Regime. The benefits determined by the Commission indicate a significant potential benefit from applying such review mechanisms across the wider regulatory framework. This would not only improve consistency, but also provide protection where the regulator is both policy maker and prosecutor, and give regulated business due protection of their legitimate commercial interests.

4.3.6 Application of regulation

The Commission has provided the basis for a more systematic approach to the coverage question in its Inquiry into the Gas Access Regime where it recommended that the National Competition Council consider the form of regulation when determining coverage under the Code. The wider application of these requirements may well be beneficial, particularly given the significant divergence between regimes on this issue.

4.3.7 Consistent governance procedures

The Uhrig Committee recently reported on appropriate governance procedures for Commonwealth institutions, including the ACCC.[75] While the review was primarily concerned with best practice governance, given statutory powers — rather than the appropriate scope of these powers — it set out a number of relevant principles of governance including that:[76]

- governance should be present and the arrangements should be appropriate for the entity given the nature of ownership and its functions;

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[74] There are many potential approaches to determining a cost of capital that can be considered by this review. One option is the use of a probability distribution approach to determine a reasonable confidence interval for the cost of capital. An example of this approach is set out in the August 2004 submission of Energex to the Queensland Competition Authority on the cost of capital for its electricity distribution network [Energex, Submission to the Queensland Competition Authority: The Weighted Average Cost of Capital (WACC), 2005–2010 Electricity Price Review, August 2004.]

[75] Review of the Corporate Governance of Statutory Authorities and Office Holders (Uhrig Committee Report), June 2003.

[76] Taken from page 10 of the Uhrig Committee's report.

- there should be clarity of roles within the governance arrangements of organisations to ensure that efforts are directed towards success and that responsibilities are performed in an efficient manner; and
- with responsibility there needs to be accountability.

This review could form a starting point for a more wide-ranging review considering the process to develop best practice governance structures for regulatory bodies, including appropriate scope of their statutory powers.

4.3.8 The role of the Office of Regulation Review

The Office of Regulation Review (ORR) is an autonomous part of the Productivity Commission. Under its Charter, the ORR is primarily required to advise on quality control mechanisms for regulation making and review, including the examination of regulation impact statements. Since 1997, all regulatory proposals that affect small business or restrict competition require the preparation of a regulation impact statement. Balancing a wide range of social, environmental, economic and technological factors, these statements are designed to ensure the quality and accountability of the regulatory process. The ORR is required to provide an annual report documenting regulation impact statement compliance.

The Charter also allows the ORR to lodge submissions and release reports on regulatory issues, as well as comment on and influence regulation more generally. Furthermore, the ORR is required to provide training and guidance to officials on regulatory matters. Current practice has sidelined these roles in favour of regulatory impact analysis. Through these provisions in its Charter, however, there is some scope for the ORR to be more proactive in encouraging the development of well-conceived regulation. In particular, the ORR could do more to encourage consistent regulation, especially across related industries.

5 Conclusion

Two key recommendations of the Hilmer Committee were the presumption in favour of structural separation and the desire for nationally consistent regulatory arrangements. In the decade since the Committee reported the regulatory landscape has changed significantly. The impact of these changes is to require a more circumspect policy and regulatory response to the question of structural separation. However, the Committee's findings in relation to nationally consistent regulation are as valid today as a decade ago.

The Hilmer Committee reported during a period when there was significant excess capacity in many vertically integrated industries and where Governments were seeking to reform vertically integrated State-owned businesses. The focus was inevitably on making more efficient use of these assets. Separation of the component parts of industries such as electricity supply was seen as the best policy response to facilitate competition in fledgling generation and retail markets.

Businesses have had up to 10 years experience operating in these markets. In that time the key issues to be addressed have changed and include providing incentives for investment in infrastructure, and risk management for parties involved in volatile markets. The response of parties to these risks has included seeking to integrate horizontally and vertically. The use of investment opportunities as a risk management strategy is perhaps best exemplified by AGL's acquisition of a minority interest in the Loy Yang A power station. Despite objections from the ACCC, the Federal Court ruled that this particular acquisition did not raise competition concerns, particularly after certain undertakings were given by AGL.

If integration by natural monopolies into vertically or horizontally related areas does not automatically constitute anticompetitive behaviour, then it is hard to argue that there should be a presumption in favour of structural separation. Even where integration has well-substantiated ill effects on society, other solutions exist to the problem, which while not uncomplicated are relatively less problematic and can be used more consistently. It therefore is no longer appropriate (if indeed it ever was) for there to be a presumption in favour of structural separation; equally, the introduction of industry specific regimes to perpetuate structural separation outside the normal context of merger provisions in the Act has little merit.

By contrast, the Hilmer Committee findings on the merits of national regulatory consistency have a strong underlying rationale. The challenge is how to better implement aspects of best practice regulation consistently across the wide range of industry sectors covered by National Competition Policy. A set of common principles and practices overlaying current regimes may be an effective approach to meeting this challenge.

The introduction of best practice common principles need not imply a reduction in importance of industry-specific regimes. Rather, the insertion of such principles could enhance their overall effectiveness. This is consistent with the Commission's findings in its Inquiry into the National Access Regime, where it stated:[77]

> The current approach of a national access regime operating in tandem with industry-specific regimes has significant advantages. In effect, it draws on the strengths of both the generic and specific approaches, while avoiding some of the pitfalls of a one-dimensional solution.

These principles can be introduced in a number of ways: through common amendments to industry-specific legislation, through overriding legislation at a national (or state) level, or through a best practice manual against which all regimes should be assessed. However, the first challenge is to develop best practice principles to enhance the effectiveness of the regulatory system in Australia.

Australia has drawn great benefit from the Hilmer reforms. However, these reforms are a "work in progress." Learning the lessons from experience to date and adapting the reform program to that experience is of central importance to the future of Australia's infrastructure. The current Inquiry provides a valuable opportunity in this respect and one which can well hope to be decisive in setting the agenda for a reform program that will help to develop an efficient, internationally competitive economy.

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[77] Productivity Commission 2004, *Review of the Gas Access Regime,* Report No. 31, Canberra, page xxxi.

A Structural regulations in the Hilmer report

The key recommendations about structural reform in the Hilmer report include:

- Removing regulatory responsibilities from incumbent public monopolies before introducing competition (Chapter 10, Recommendation 2, Principle I).
- Assessing the costs and benefits of separating the natural monopoly elements from the potentially competitive elements of public monopolies before introducing competition (Chapter 10, Recommendation 2, Principle II).
  - If the natural monopoly components of a public enterprise is vertically integrated with the potentially competitive components, the presumption should be in favour of separation at the ownership or control level (Chapter 10, Recommendation 2, Principle II).
- Assessing the benefits of separating the various potentially competitive elements of a public monopoly before introducing competition (Chapter 10, Recommendation 2, Principle III).
- Review all structural issues before privatising a substantial public monopoly (Chapter 10, Recommendation 2, Principle IV).
  - There should be a presumption in favour of vertical separation (Chapter 10, Recommendation 2, Principle IV).
  - If the review concludes that structural reform be carried out before or during privatisation and those recommendations are not acted upon by the relevant government, then other Australian governments should consider remedial action (Chapter 10, Recommendation 4).
  - Such action might include the introduction of legislation to prevent the privatisation, either outright or in the absence of suitable structural reform, or require divestiture of some elements post privatisation (Chapter 10, Recommendation 4).
- Introducing a legal regime allowing access to essential facilities where it is required for effective competition in upstream or downstream markets. (Chapter 11, Recommendations 1 to 7).
  - Such a regime should be general rather than industry specific (Chapter 11, Recommendation 2).

Source: Hilmer, F.G., M.R. Rayner and G.Q. Taperell 1993, *National competition policy: Report by the Independent Committee of Inquiry*, Australian Government Publishing Service, Canberra.

B Structural regulations in the Competition Principles Agreement

The relevant provisions are contained in clause 4 (structural reform of public monopolies) and clause 6 (access to services provided by means of nationally significant infrastructure facilities). Clause 4 is reproduced here in its entirety, along with the first sub-clause in clause 6, which summarises the objectives of access regulation.

Structural reform of public monopolies (Clause 4)

1. Each Party is free to determine its own agenda for the reform of public monopolies.

2. Before a Party introduces competition into a sector traditionally supplied by a public monopoly, it will remove from the public monopoly any responsibilities relating to industry regulation. The Party will re-locate industry regulation functions so as to prevent the former monopolist enjoying a regulatory advantage over its (existing and potential) rivals.

3. Before a Party introduces competition to a market traditionally supplied by a public monopoly, and before a Party privatises a public monopoly, it will undertake a review into:

    a) the appropriate commercial objectives for the public monopoly;

    b) the merits of separating any natural monopoly elements from potentially competitive elements of the public monopoly;

    c) the merits of separating potentially competitive elements of the public monopoly;

    d) the most effective means of separating regulatory functions from commercial functions of the public monopoly;

    e) the most effective means of implementing the competitive neutrality principles set out in this Agreement;

    f) the merits of any community service obligations undertaken by the public monopoly and the best means of funding and delivering any mandated community service obligations;

    g) the price and service regulations to be applied to the industry; and

    h) the appropriate financial arrangements between the owner of the public monopoly and the public monopoly, including rate of return targets, dividends and capital structure.

4. A Party may seek assistance with such a review from the [National Competition] Council. The Council may provide such assistance in accordance with the Council's work program.

Access services provided by means of significant infrastructure facilities (Clause 6)

1. Subject to subclause (2), the Commonwealth will put forward legislation to establish a regime for third party access to services provided by means of significant infrastructure facilities where:

   a. it would not be economically feasible to duplicate the facility;

   b. access to the service is necessary in order to permit effective competition in a downstream or upstream market;

   c. the facility is of national significance having regard to the size of the facility, its importance to constitutional trade or commerce or its importance to the national economy; and

   d. the safe use of the facility by the person seeking access can be ensured at an economically feasible cost and, if there is a safety requirement, appropriate regulatory arrangements exist.

Source: National Competition Council 1998, *Compendium of national competition policy agreements*, Australian Government Publishing Service, Canberra.

C Network effects, network externalities and integration

An ***externality*** reflects an external effect not taken into account in an agent's decision making. Externalities are typically divided into two types:

- A ***technological externality*** arises when the outcomes from one agent's activities impact on the well-being of another agent directly, that is, without being mediated through a market mechanism. Thus, a technological externality arises when, as a result of a household deciding to plant a fruit tree on the boundary of their section, a neighbour benefits from the resulting overhanging fruit.
- ***Pecuniary externalities*** are external effects which work through the price system, or more generally are market mediated. Whenever prices change agents can be better or worse off. When a firm produces enough to lower price its rivals are worse off and consumers better off. When one consumer buys enough fish to push up the price of fish other consumers are made worse off. Pecuniary externalities simply represent transfers in wealth that result from equilibrium pricing behaviour rather from some underlying externality.

Network externalities are a special type of technological externality, whereby the participants in the network fail to internalise a network effect. To explain network externalities we first define and characterise a network effect.

The value of any product or service can be divided into two components. One component, which is sometimes referred to as 'the autarky value', is the value generated by the product even if there are no other users. The autarky value of a credit card is zero. The second component, which has been called the 'synchronization value', is the additional value derived from being able to interact with other users of the product. It is this latter value that is the essence of network effects.

A ***network effect*** arises when an agents' benefit from joining or using a network depends on the number of other agents belonging to or using the network. More precisely, a network effect arises whenever the 'net value of an action depends on the number of other agents taking similar actions.' Often, as a result, agents will prefer to join the larger network. Thus, when consumers prefer to hold a Visa card rather than a Diners Club card this may well be because the Visa network is bigger, and their card will be accepted more widely. This is an example of a network effect. Clearly there are very many examples of network effects.

It is conventional to divide network effects into two types: direct and indirect. A ***direct network effect*** occurs if existing subscribers directly benefit when an additional customer joins the network. Communication networks are classic examples.

An ***indirect network effect*** occurs when users benefit indirectly from other consumers' decisions to subscribe, that is, they gain not from being able to contact or interact with other consumers, but simply because more consumers mean cheaper network costs or a broader higher quality supply of goods associated with the network. The network effect is indirect because a user's benefits do not depend on the actual number of other users directly, but through some intermediate channel — for example, the effect this has on the availability of complementary products or services. Thus, someone considering between Sony PlayStation and Nintendo may care how many other users of each system there are, not because they want to interact directly with any of these users, but because if they invest in the more popular system they are more likely to have access to a wider range of software, cheaper software, and better customer support in future years.

A key aspect of the indirect network effect is that users or suppliers must anticipate their network will be larger in the future and so will have better complementary services associated with it. Indirect network effects always involve irrevocable investments (such as buying a particular type of VCR, the resale value of which will be below the purchase price), and the existence of some complementary products and services which will be supplied on better terms for the more popular 'network' (a wider range of low priced video rentals will be supplied in the format which most people end up using). If users do not need to make an investment in a product they will not care about how many other users in the network there are — if a rival network turns out to have a better supply of complementary services in the future the user will costlessly switch networks at that point. If the complementary product is not supplied with greater variety (or at a lower price) when it is more popular, then there is no benefit to joining the network expected to be more popular. Thus, to generate indirect network effects, there must be some kind of product differentiation or economies of scale in the production of the complementary good or service.

Direct network effects are more complex as they are a technological externality. One person's decision to subscribe confers benefits on others without there being any mediation between the relevant parties. However, the mere presence of an externality does not imply a market failure. Rather, it is more sensible to apply the term network externality to direct network effects only if no market mechanism is available to internalise the externality. That is, a **network externality** (or consumption externality) is a special case of a network effect where there is an unpriced spillover (either positive or negative). Thus, network effects are only network externalities when the participants in the market fail to internalise these effects.

There are at least three important ways the market can internalise externalities:

- the externality is inframarginal, that is, does not effect any choices at the margin, (an example is the case where all consumers value telephony sufficiently highly that they

are willing to bear the full private cost of telephone subscription—subsidies signalling the value others place on their subscription are unnecessary to induce subscription);

- the relevant parties may directly contract around the externality (for example, when parents subsidise a college student's telephone, or a company subsidises a remote office's communications costs); and
- a third party internalises the externality, for example, when a monopolist subsidises some subscribers increasing the value of the overall network and recovering this cost from other users.

Indirect network effects are an example of a pecuniary externality. This follows because these effects are market mediated. An increase in popularity of a type of hardware will increase the popularity of the associated software, thus lowering its price (assuming economies of scale), making the original hardware more valuable. More generally, indirect network effects typically work through market mechanisms (e.g. an increase in demand for hardware stimulates an increased variety of software to be supplied). Like all pecuniary externalities, indirect network effects do not lead to any special network related problems, at least other than those that already arise in markets with economies of scale in production or product differentiation.

As the following quotation illustrates, the most important consequences of network effects arise from network externalities and the resulting network size, not indirect network effects and the often discussed 'lock-in' to inferior networks.

> If network effects are not internalized, the equilibrium network size may be smaller than is efficient. For example, if the network of telephone users were not owned, it would likely be smaller than optimal since no agent would capture the benefits that an additional member of the network would impose on other members. (Alternatively, if the network effects were negative, a congestion externality might mean that networks tend to be larger than optimal.) Where networks are owned, this effect is internalized and under certain conditions the profit maximizing network size will also be socially optimal […][78]

Network size is therefore a real and significant issue that is raised by network effects. Securing a network size for new services that is closer to the optimal level is one of the key efficiencies that can be obtained through integration.

[78] Liebowitz, S.J. and S.E. Margolis, Network Externalities (Effects), http://www.utdallas.edu/~lebowit/palgrave/network.html, (accessed 9/9/04).