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Australian Gas Networks – AER gas price review

A second report for Johnson Winter & Slattery

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1. Introduction

I have been asked by Johnson Winter & Slattery (JWS) to prepare this report on behalf of Australian Gas Networks Ltd (AGN).

AGN submitted its access arrangement revision proposal regarding the terms and conditions for use of its South Australian gas distribution network over the 2016 to 2021 access arrangement period to the Australian Energy Regulator (AER) on 1 July 2015. On 26 November 2015, the AER made its Draft Decision on AGN's revision proposal,¹ and AGN submitted its Revised Proposal to the AER on 6 January 2016.² Stakeholders now have until 4 February 2016 to make submissions in response to the AER's Draft Decision or AGN's Revised Proposal, following which the AER will make a designated reviewable regulatory decision, ie, its 'Final Decision'.

JWS has asked that I undertake an economic review of the Draft Decision as it relates to the AER's approach to several aspects of AGN's revision proposal. I have been asked to undertake this review on the basis that the AER's approach in this decision gives an indication of its likely approach in its Final Decision, and to express an opinion on whether such a decision would contribute to the achievement of the national gas objective (NGO) and represent a materially preferable NGO decision.

This is the second report I have prepared on behalf of AGN for submission in respect of its access arrangement revision. In my previous report of 30 June 2015,³ I reviewed the AER's approach in its *Rate of return guideline* (guideline)⁴ and then recent decisions⁵ to determining the allowed rate of return. I conducted the review on the basis that it was likely the AER would apply the same approach in its decision on AGN's revision proposal. This has indeed been the case, and that approach – including the errors identified in my previous report – has been repeated in the Draft Decision. This report should therefore be read as a supplement to my previous report.

1.1 Scope of report

The essential focus of the review I have been asked to undertake is the economic reasoning that underpins the constituent components of the AER's Draft Decision relating to the rate of return, gamma, forecast operating expenditure, forecast capital expenditure in respect of AGN's mains replacement program, AGN's proposed incentive schemes and the 'financeability' of the overall decision. My assessment of the economic reasoning is to be made by reference to the NGO.

The purpose of my review is not to address in a detailed manner the individual elements of the AER's Draft Decision. Indeed, AGN has separately commissioned a number of experts to review various matters arising in components of the Draft Decision, and the reports prepared by those experts have been made available to me in order to prepare this report.⁶ Rather, my report assesses the extent to which various components of the Draft Decision satisfy the requirement that, when there are two or more possible decisions, the AER make the one that will contribute to the achievement of the NGO to the greatest degree.

¹ AER, *Draft Decision Australian Gas Networks Access Arrangement 2016-21*, November 2015.

² AGN, *Revised access arrangement for AGN's South Australia gas distribution network 2016-21*, January 2016.

³ Houston, Greg, *Australian Gas Networks – AER gas price review*, 30 June 2015; hereafter 'my previous report'.

⁴ AER, *Rate of return guideline*, December 2013.

⁵ As at 30 June 2010, the AER had recently issued Draft Decisions in relation to SA Power Networks, Energex and Ergon Energy and Final Decisions in relation to TransGrid, Networks NSW, ActewAGL, Tas Networks, Directlink and Jemena Gas Networks.

⁶ A table of these expert reports, prepared by ACIL Allen Consulting, Competition Economists Group, Deloitte, Frontier Economics, HoustonKemp Economists, Huegin, Incenta Economic Consulting, Jacobs and Mr John Ferguson of APA Group, can be found in JWS's instructions to me, which are attached as Annexure A1 to this report.

I have also been asked whether, if the errors identified by the various experts from which AGN has sought opinions were corrected in the AER's Final Decision, it would or would be likely to result in a materially preferable decision in terms of achievement of the NGO. Finally, in making this assessment I have also been asked to identify and evaluate the manner in which any constituent components of the decision that each expert has been asked to consider relate to each other and to the matters that each expert has raised as errors.

JWS's instructions to me are attached as Annexure A1 to my report.

1.2 Qualifications

I am a founding Partner of the economic consulting firm, HoustonKemp. Over a period of twenty five years I have accumulated substantial experience in the economic analysis of markets and the provision of expert advice and testimony in litigation, business strategy and policy contexts. I have developed that expertise in the course of advising corporations, regulators and governments in Australia and the Asia-Pacific region on a wide range of regulatory, competition and financial economics matters.

My industry sector experience spans aviation, beverages, building products, cement, e-commerce, electricity and gas, forest products, grains, medical waste, mining, payments networks, office products, petroleum, ports, rail transport, retailing, scrap metal, securities markets, steel, telecommunications, thoroughbred racing, waste processing and water. I have testified on these matters on numerous occasions before arbitrators, appeal panels, regulators, the Federal Court of Australia, the Australian Competition Tribunal and other judicial or adjudicatory bodies.

I hold a BSc (Hons) in Economics, a University of Canterbury post-graduate degree, which I was awarded with first class honours in 1983.

Of some relevance to matters the subject of this report, in 2004 I was one of three members of an expert panel retained by the Standing Committee of Officials of the then Ministerial Council on Energy to advise on the specification of a proposed national electricity objective, which was to be included in the then proposed national electricity law. The present form of the NGO has its origins in the findings and recommendations of that expert panel.

Separately, in December 2005 I was appointed to an expert panel convened by the then Minister for Industry and Resources, the Hon Ian Macfarlane, to prepare a report for the Ministerial Council on Energy on the harmonisation of the price determination elements of the access regimes for electricity network and gas pipeline services. The expert panel provided its report in April 2006, and many of its recommendations form the basis for the current framework of national gas and electricity laws and rules.

A copy of my curriculum vitae is attached as Annexure A2.

In preparing this report I have been provided with a copy of the Federal Court practice note CM7, entitled *Expert Witnesses in Proceedings in the Federal Court of Australia* (the CM7 Guidelines). I have read the CM7 Guidelines and agree to be bound by them. My declaration in compliance with the CM7 Guidelines is set out in section 6.

I have been assisted in the preparation of this report by my Sydney-based colleagues, Brendan Quach, Dale Yeats and Richard Grice. Notwithstanding this assistance, the opinions in this report are my own, and I take full responsibility for them.

1.3 Structure of report

I have structured the remainder of my report as follows:

- in section 2, I summarise the essential requirements governing decision making under the National Gas Law and the National Gas Rules, and the questions that JWS has asked me to address in relation to the AER's Draft Decision;
- in section 3, I discuss the economic role of the NGO, the principles that should be adopted in a regulatory regime that promotes the NGO, and the role of the building block approach in meeting those principles and the NGO;
- in section 4, I present my assessment of the AER's Draft Decision and provide my opinion as to whether, having regard to the expert reports that I have reviewed, the AER's approach contained therein is likely to meet the contribution to the NGO requirement;
- in section 5, I present my opinion as to whether the AER's approach in its Draft Decision is likely to meet the preferable designated reviewable regulatory decision requirement and, separately, whether the errors identified by each of the experts, if corrected, would be likely to result in a materially preferable designated NGO decision; and
- finally, section 6 contains my declaration in accordance with the CM7 Guidelines.

2. Context and scope of report

Before expanding on the scope and purpose of my report, it is helpful to summarise the context for the AER's access arrangement revision determination for AGN, and the requirements that govern decision making under the National Gas Law (the law) and the National Gas Rules (the rules).

Necessarily, the summary I set out below is a condensation of that provided in JWS's instructions to me.⁷ To the extent that there may be differences between my summary of the arrangements that govern the AER's revision determination and that set out in the instructions to me, I confirm that I have taken JWS's instructions as providing definitive guidance.

2.1 National Gas Objective

The National Gas Objective or NGO forms a foundational reference point for decisions made by regulators under the law and its accompanying rules. The NGO states that:⁸

The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

I explain my understanding of the NGO in section 3.1 of my report. For the purpose of this context-setting part of my report, it is important to note that the decision the AER is to make in relation to AGN's access arrangement revision is a 'designated reviewable regulatory decision'. Further, by nature of the rules that govern the AER's review of an access arrangement revision proposal, such a decision includes a number of constituent components.

2.2 NGO reference point for AER decision making

Under the law the AER must, in performing or exercising an economic regulatory function or power, including the making of a designated reviewable regulatory decision, meet certain obligations. These are that the AER must:

- perform or exercise that function or power in a manner that will or is likely to contribute to the achievement of the NGO;
- specify the manner in which the constituent components of the decision relate to each other; and
- specify the manner in which that interrelationship has been taken into account in the making of the decision.

Further, in making a designated reviewable regulatory decision, when there are two or more possible decisions that could be made, the AER is required to:

- make the one that the AER is satisfied will contribute, or is likely to contribute, to the achievement of the NGO to the greatest degree; and
- specify the basis of that satisfaction.

Finally, in any merits review of the AER's Final Decision, the Australian Competition Tribunal (the Tribunal) is only entitled to vary or set aside the designated reviewable regulatory decision if it is satisfied that to do so

⁷ JWS, Letter to Greg Houston, 4 February 2016.

⁸ The law, s 23.

will, or is likely to, result in a decision that is materially preferable to the AER's designated reviewable regulatory decision in terms of contributing to the achievement of the NGO.

2.3 Scope of report

I have been asked by JWS to review the AER's Draft Decision, and several expert reports on aspects of the AER's approach in the Draft Decision, with a particular attention to errors identified by each expert. I have been asked to undertake this review on the basis that the AER's approach in this decision gives an indication of its likely approach in the Final Decision on AGN's access arrangement revision. Finally, I have been asked to explain and/or provide my opinion on a variety of general and specific matters arising in relation to the NGO and elements of the rules that govern the assessment of AGN's access arrangement revision.

2.3.1 Question 1

The general questions on which I have been asked to provide my opinion relate to:

- my understanding of the NGO requirement;
- the principles that should be adopted in a regime that promotes the NGO requirement, including the relevance of the revenue and pricing principles set out in the law in this regard;
- the role of the building block approach in the rules and whether it is concordant with those principles and therefore the NGO requirement; and
- how, in my view, a failure to comply with those principles and/or rules as they relate to the building blocks approach is, or is likely, to result in a failure to meet the NGO requirement.

I address these questions in section 3 of my report. I have not changed my opinion on these matters since submission of my previous report, and so section 3 is simply a reproduction of that in my previous report.

In addition, I have also been asked to explain and provide my opinion on a number of questions arising directly from the AER's Draft Decision. In particular, I have been asked:

- to summarise any matters adopted by, and errors made by, the AER as identified in the expert reports and AGN's Revised Proposal that suggest the principles, building blocks or other rules have been offended;
- to summarise each material constituent component of the AER's decisions, and the overall impact on the business of AGN over the next regulatory review period;⁹ and
- to opine on whether, having regard to all of the material that I refer to above, the AER has met the NGO requirement.

I address this set of questions in section 4 of my report.

2.3.2 Questions 2 and 3

Drawing on this framework of considerations and analysis, JWS has also asked me to assess and report on two further substantive questions. These are whether, having regard to the reports prepared by the experts and AGN's Revised Proposal:

- the AER will have met the requirement that, if two or more designated reviewable regulatory decisions could be made, it has made the one that contributes to the NGO to the greatest degree; and
- whether the errors identified in each of the reports, if corrected, would, or would be likely to, result in a materially preferable designated NGO decision overall.

⁹ By 'next regulatory review period' or 'next access arrangement period' I denote the 2016 to 2021 regulatory review period for AGN. Any reference to the 'current regulatory review period' refers either to the 2011 to 2016 regulatory review period for AGN or the regulatory review period currently underway for other electricity network and natural gas pipeline service providers.

In making the last of these assessments, I have been asked to include:

- if my assessment is affirmative, the basis upon which I make that assessment;
- a consideration of how the constituent components of the decision considered by the experts and dealt with in AGN's Revised Proposal interrelate with each other and with the matters raised by the experts as errors;
- how the revenue and pricing principles set out in the law have been taken into account; and
- in assessing the extent that corrections of the errors identified by the experts and dealt with in AGN's Revised Proposal will contribute to the NGO, my consideration of the decision as a whole in respect of the topics reviewed by the experts.

I address these questions in section 5 of my report.

3. The NGO and principles for its promotion

In this section I set out my response to the general issues arising in the first set of questions put to me and summarised in section 2.3.1, ie, those corresponding to:

- the economic role of the NGO;
- the principles that should be adopted in a regulatory regime that promotes the NGO, including the Revenue and Pricing Principles; and
- the role of the building blocks under the rules in meeting those principles and the NGO.

I have not changed my opinion on these matters since submission of my previous report, and so this section largely reproduces section 3 of that report for the purpose of completeness.¹⁰

3.1 National Gas Objective

The National Gas Objective or NGO is the foundational reference point for decisions made by regulators under the National Gas Law and its accompanying rules. In other words, the law requires the AER to perform its functions and to exercise its power in a manner that will, or is likely to, contribute to the achievement of the NGO to the greatest degree ('the NGO requirement'). The NGO states that:¹¹

The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

In my opinion, the fundamental architecture of the NGO has an economic foundation. I draw this conclusion because:

- the NGO explicitly identifies the promotion of efficiency (of 'investment in', 'operation' and 'use of' natural gas services) as its foundational objective;
- the concept of efficiency has a similar foundational role in both economic theory and practice and so is well understood by economists; and
- none of the following items referenced as being the focus of the NGO act to compromise its efficiency objective.

Indeed, the then Minister for Energy noted in 2005 that the National Electricity Objective, which was then the national electricity market objective and mirrors the NGO:¹²

... is an economic concept and should be interpret as such.

Rather than acting to compromise the efficiency objective in the NGO, the reference to efficiency being 'for the long term interests of consumers...' and then 'with respect to...' a number of specified elements of natural gas services serves to clarify:

- the ultimate beneficiary of such efficiency, ie, consumers;
- the relevant timeframe over which the efficiency objective should be interpreted, ie, the long term;

¹⁰ Houston, Greg, *Australian Gas Networks – AER gas price review*, 30 June 2015, pp 6-15.

¹¹ The law, part 7.

¹² Hansard, *South Australia House of Assembly*, February 2005.

- the particular dimensions of natural gas services to which the efficiency objective should be directed, ie, quality, safety, reliability and security of supply.

Again, when explaining the objective of the National Electricity Law in 2005, the then Minister for Energy explained that:¹³

If the national electricity market is efficient in an economic sense the long term economic interests of consumers in respect of price quality, reliability, safety and security of electricity services will be maximised.

A parallel conclusion can be drawn for the national gas market. In the following sub-sections I explain in more detail the concept of economic efficiency and the guidance that is given by the clarifying phrases embedded in the NGO, each of which gives emphasis to particular dimensions of this foundational economic concept.

3.1.1 Dimensions of efficiency

‘Efficiency’ is a term of art in economics and is widely accepted by economists as having three distinct dimensions, being:¹⁴

- **productive efficiency**, which is concerned with the means by which goods and services are produced, and is attained when production takes place with the least-cost combination of inputs;
- **allocative efficiency**, which is concerned with what is produced and for whom, and is attained when the optimal set of goods and services is produced and allocated so as to provide the maximum benefit to society; and
- **dynamic efficiency**, which is concerned with society’s capacity to achieve the efficient production and allocation of goods and services through time, in the face of changing productivity and/or technology (which reduces the cost of production and alters the optimal mix of inputs), the changing preferences of consumers (which alters the good and services that are desired the most by consumers), and the competing demands of consumers and producers in different time periods.

Each of these dimensions of efficiency is reflected in the architecture of the NGO. By way of explanation:

- the reference to efficient ‘investment in’ and ‘operation of’ natural gas services refers to the productive dimension of efficiency, ie, the NGO will be promoted if decisions made under the law promote the supply of natural gas services using the least cost combination of both capital and operating inputs;
- the reference to efficient ‘use of’ natural gas services refers to the allocative dimension of efficiency, ie, the NGO will be promoted if decisions are made that give rise to a level and structure of prices that both recover the cost of making natural gas services available and maximise the extent to which natural gas services are allocated to those consumers that derive the greatest benefit from them, so as to maximise the benefit to society; and
- the reference to efficient ‘investment in’ natural gas services and for the ‘long term’ interests of consumers refers to efficiency’s dynamic dimension, ie, the NGO will be promoted if decisions are made that balance the pursuit of productive and allocative efficiencies for current consumers with the requirement to invest for productive and allocative efficiency gains in the long term.

The specific reference to the interest of consumers in the ‘long term’ and the reduced emphasis it implies for short term considerations recognises that in the application of frameworks for economic regulation there is a need to make trade-offs between competing objectives.

By way of example, the potential for short and long term efficiency objectives to be in tension with each other arises when a decision that may have the effect of increasing short term allocative efficiency (such as forcing

¹³ Hansard, *South Australia House of Assembly*, February 2005.

¹⁴ For further discussion of the dimensions of efficiency and their relation to public policy see Productivity Commission, *On efficiency and effectiveness – some definitions*, May 2013.

a substantial reduction in prices paid by consumers may do), is not consistent with the achievement of long term productive or allocative efficiency – because it threatens the reliability of a service provider’s operations or its plans for efficient investment in future reliability.

To summarise, the NGO is structured so as to encapsulate all three dimensions of efficiency that are familiar to economists, ie, productive, allocative and dynamic efficiency. As a matter of principle, efficiency can be assessed in both static (at a particular point in time) and dynamic (over a period of time) terms. However, by its reference to the ‘long term’ interests of consumers, the NGO is structured so as to clarify that the balance of emphasis is to be given to the long term, dynamic dimension of efficiency.

Indeed, this view is consistent with that of the expert panel appointed to review the limited merits review regime, which, by way of reference to the various dimensions of efficiency, stated that:¹⁵

There are trade-offs among these various dimensions that need to be resolved by reference to some balancing or weighting of the different elements, and this balancing/weighting usually depends upon a value system beyond the notion of economic efficiency itself. It is the Panel’s view that this is precisely what the reference to ‘for the long-term interests of consumers’ in the legislation provides.

3.1.2 Long term interests of consumers

The NGO specifies that the promotion of efficiency is ‘for the long term interest of consumers of natural gas’. I explain above that the specific reference in the NGO to the ‘long term’ serves to clarify that primary regard is to be had to the dynamic or long term dimension of efficiency. However, the particular reference to the ‘interests of consumers’ also warrants explanation.

In economics, the pursuit of efficiency generally goes to the benefit of society as a whole, measured as the sum of the economic surplus or benefit derived by producers and consumers. It follows that promoting economic efficiency does not necessarily promote the interests of consumers in particular. Indeed, the expert panel appointed to review the limited merits review regime noted that it is a manifest economic error to assume that promoting economic efficiency necessarily promotes long term consumer interests.¹⁶

One such example arises in circumstances where the benefits of enhancements to the productive efficiency of a business are captured wholly by the business itself, ie, in the form of higher profits for its owners, rather than lower prices for consumers. In this circumstance, the promotion of a productively efficient outcome would be ‘for the interests of producers’ and the allocative efficiency outcome may remain unchanged.

The structure of the NGO makes clear that the promotion of efficiency is ‘for the interests of consumers’, as distinct from any other particular societal interest group. While this specific reference to the interests of consumers is a helpful reinforcement, the reference earlier in the structure of the NGO to efficient ‘investment in’ natural gas services also serves to promote dynamic efficiency that is consistent with the interests of consumers.

However, I note that the ‘interests of consumers’ does not automatically equate with reductions in the profits earned by the business, since the ability of a business to earn additional profits in the short term provides an incentive for it to seek improvements in productive efficiency. This is in the long term interests of consumers, provided that such efficiency gains are ultimately reflected in the price, quality, safety, reliability or security of supply. Similarly, a reduction in profits can also have adverse implications for investment in the pipeline.

3.1.3 Price, quality, safety, reliability and security of supply of natural gas.

The NGO specifies that the relevant interests of consumers are those that encompass ‘price, quality, safety, reliability and security of supply of natural gas’.

¹⁵ Expert Panel, *Review of the limited merits review regime – Stage 2 report*, September 2012, p 38.

¹⁶ Expert Panel, *Review of the limited merits review regime – Stage 2 report*, September 2012, p 4.

Taken together, these considerations comprise the typical attributes of a natural gas service. To the extent that they reflect informed preferences of consumers, these attributes might be interpreted as reinforcing the earlier reference in the NGO to the ‘use of’ natural gas services, and so the allocative dimension of efficiency. However, I interpret the explicit reference to these attributes of a natural gas service to confirm that the NGO is not concerned with the promotion of matters that fall outside these attributes. By way of an example to the contrary, the NGO does not permit its efficiency focus to be extended so as to encompass external costs and benefits of the use of natural gas services, such as its effect on the environment.

Indeed, this interpretation is consistent with a statement made in 2007 by the then Minister of Energy in relation to the electricity sector, ie:¹⁷

It is important that the National Electricity Objective does not extend to broader social and environmental objectives.

Again, this statement is equally applicable to the interpretation of the NGO.

3.1.4 Conclusion

Drawing together the various elements of the NGO that I explain above, I observe that its fundamental architecture is of an economic nature. Further, the NGO is structured so as to clarify that it is concerned with promoting all three dimensions of economic efficiency and that the primary regard is to be had to the longer term, dynamic efficiency considerations.

3.2 Principles necessary for promotion of the NGO

The administrative determination of the maximum level of revenue that may be collected (or prices that may be charged) by a provider of an infrastructure-based service with a substantial degree of market power – such as the services provided by a regulated natural gas pipeline – involves balancing two forms of potential inefficiency.

Put simply, the maximum level of revenue must be set so as to pass cost improvements on to consumers, thereby improving allocative efficiency, but not so much that it removes incentives to invest in future cost improvements, which improves future productive and allocative efficiency. This trade-off is a consequence of the tension between long term productive efficiency and the short term allocative efficiency. In other words, in the absence of competitive discipline on both allocative and productive efficiency, setting the maximum level of revenue that may be collected, and so prices charged, by a service provider involves choices between:

- attaining greater productive efficiency, the pursuit of which is compromised by the poor incentives created when regulation seeks substantially to eliminate opportunities for a service provider to benefit (in the form of temporarily higher profits) from gains in the efficiency of production; and
- attaining greater short term allocative efficiency, by seeking to ensure that prices reflect as closely as possible the efficient cost of supply and the willingness of buyers to purchase the product or service.

By way of example, if a regulatory regime requires the benefits of a productivity improvement to be captured entirely by consumers (in the form of lower prices), then short term allocative efficiency will be promoted at the expense of incentives for investment in longer term productive and allocative efficiency. By contrast, in a workably competitive market, the threat of competition balances these incentives so as to achieve the optimal combination of investment that will secure longer term productivity and lower prices for the benefit of consumers.

By reason of this essential trade-off, a regulatory framework that has the objective of promoting the NGO must encompass three core principles, namely:

¹⁷ Hansard, *South Australia House of Assembly*, September 2007.

- the service provider must have reasonable assurance that costs efficiently incurred – including a return on its capital costs – will be recovered over the life of the investment;
- consumers must be protected from the ability and incentive of the service provider to raise prices above the cost of supply in a substantial or sustained manner; and
- incentive mechanisms must be put in place that promote investment by the service provider to achieve productive efficiency gains.

The Revenue and Pricing Principles set out in section 24 of the law collectively reflect each of these well understood economic principles. The principle that a service provider must have a reasonable assurance that its efficient costs will be recovered is reflected more or less directly in section 24(2), which states that:¹⁸

A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in—

- (a) providing reference services; and
- (b) complying with a regulatory obligation or requirement or making a regulatory payment.

This principle is supplemented by those set out in sections 24(5) and (4), which, respectively, recognise the need for an appropriate return on capital, and for past values of that capital to be recognised in future price setting processes, thereby offering assurance that costs will be recovered over future time.

The protection of consumers is recognised through the existence of processes in the rules for establishing regulated tariffs, which establish the maximum price that is to be paid for pipeline services.

The reference above to the recovery of *at least* the efficient level of costs is consistent with the inclusion in the regulatory framework of incentive mechanisms that promote investment to improve productive efficiency by allowing the service provider to retain some of the benefits of achieving productive efficiency gains. The requirement for incentive mechanisms is also explicitly recognised in the Revenue and Pricing Principles, in section 24(3), which states that:¹⁹

A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes—

- (a) efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and
- (b) the efficient provision of pipeline services; and
- (c) the efficient use of the pipeline.

The two remaining revenue and pricing principles (being those set out at section 24(6) and 24(7)) reflect the existence of the trade-off between productive and allocative efficiency that I identify above and, in effect, allow consideration of the wider costs and risks of under/over investment and under/over utilisation of pipeline services when making that assessment.

In addition to the trade-off between productive and short-term allocative efficiency, I note that the regulatory task is made more challenging by the fact that the efficient outcome is itself constantly changing, and cannot be objectively determined. Consumer preferences and technologies change over time, thereby altering the most efficient mix of goods and services. Production technology also changes over time, reducing production costs and expanding the potential means by which a given mix of goods and services may be produced. In consequence, that which constitutes an efficient outcome is constantly evolving.

¹⁸ The law, section 24(2).

¹⁹ The law, section 24(3).

In practical terms, efficiency is an objective that businesses may be constantly working towards, without necessarily ever achieving, since the efficiency frontier itself is always moving, and there are constraints on the rate at which businesses can alter their mix of goods, services and production processes.

By contrast, the economics textbook definition of efficiency is underpinned by the concept of perfect competition. A perfectly competitive market ensures that businesses are always producing at least cost, and are constantly entering and exiting to ensure that those that remain are producing the optimal mix of goods and services at least cost over time.

However, beyond the textbook, companies' abilities to enter and exit markets, and to transform inputs into outputs efficiently will be constrained by their particular operating environments, and will vary over time. This is particularly true for businesses operating in industries that are capital intensive and where assets are long-lived, such as infrastructure businesses.

In addition, the attainment of perfect, frontier efficiency is not directly observable, and so the determination of what constitutes efficient expenditure is a matter of judgement. Under the construct of a perfectly competitive market, whether or not a business is operating on the efficiency frontier can be deduced from observing whether or not it continues to operate. Businesses that are not perfectly efficient will be undercut by businesses that are, so that inefficient businesses will no longer be able to sell their output. However, in practice businesses operate in markets that are less than perfectly competitive, and so this external gauge of whether a business is achieving frontier efficiency is not available.

In circumstances of less than perfect competition, the assessment of efficiency typically becomes a relative concept. A particular business' efficiency is measured by assessing its costs relative to those of other businesses. However, in practice, it is difficult to gauge the precise extent to which a business is performing efficiently.

Given these challenges, the role of effective incentive mechanisms within the regulatory framework is of particular importance in promoting the threefold efficiency objective at the foundation of the NGO. Consistent with this observation of principle, I noted above that the Revenue and Pricing Principles explicitly reference the need for the service provider to be provided with effective incentives in order to promote economic efficiency.

3.3 Building block approach reflects these principles

The rules require the application of a building block approach to determine the total revenue to be collected by a pipeline service provider in each regulatory year of an access arrangement period. The building blocks are:²⁰

1. a return on the projected capital base for the year;
2. depreciation on the projected capital base for the year;
3. the estimated cost of corporate income tax for the year;
4. increments or decrements for the year resulting from the operation of an incentive mechanism to encourage gains in efficiency; and
5. a forecast of operating expenditure for the year.

Taking the total revenue amount determined for each regulatory year, rules 94(3) and (5) (for distribution pipelines) and rule 95(1) (for transmission pipelines) require that the revenue expected to be received from all applicable tariffs permit a pipeline service provider to recover the expected revenue referable to those pipeline services.

²⁰ The rules, rule 76.

I highlight below the principal means by which the building block approach, applied in accordance with the rules, is consistent with the principles required to promote the achievement of the NGO.

3.3.1 The projected capital base

The building block approach involves determining a projected capital base, to which a rate of return is applied so as to calculate the return on the capital base, as well as depreciation. The projected capital base comprises two essential elements, being:

- the incorporation of capital expenditure incurred in the previous access arrangement period (subject to any assessment of efficiency and limited exceptions)²¹ – thereby establishing the opening capital base; and
- a forecast of future prudent and efficient capital expenditure, which is itself derived by reference to – among other considerations – a forecast of the future demand for natural gas services.²²

The rules calculate the opening capital base in a manner that guarantees the recovery of capital expenditure previously incorporated into the capital base notwithstanding that, in hindsight, that capital expenditure may or may not have turned out to have been fully efficient.²³ In other words, any assessment of efficiency is to be conducted at the time of the investment, and is not subsequently subject to review. This promotes economic efficiency in two ways, ie:

- it provides certainty to investors, and so encourages investment, which promotes dynamic and allocative efficiency; and
- it reduces the expected risk associated with investment, which reduces capital costs and promotes productive efficiency.

The rules also require that the projected capital base only include forecast capital expenditure as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services.²⁴ The use of the phrase ‘in accordance with accepted good industry practice’ recognises that an assessment is required (ie, involving a degree of subjectivity), which is conducted by reference to the practices of other industry participants, rather than the expenditure criteria reflecting an objective standard. This is consistent with the observation I make in section 3.2 above, that whether or not a business is operating efficiently cannot be directly observed.

It follows that the projected capital base component of the building block approach:

- promotes productive efficiency by ensuring services are produced at the lowest sustainable cost;
- promotes productive and allocative efficiency by ensuring capital expenditure forecasts are subject to regulatory review by reference to the criteria of prudence and efficiency, thereby avoiding the cost of over-investment; and
- promotes allocative efficiency by ensuring prices in a given regulatory year reflect only efficient capital expenditure in that year.

3.3.2 The return on capital

The building block approach requires that the return on capital for each regulatory year be determined by multiplying the allowed rate of return by the projected capital base in the respective year. Further, the rules

²¹ The rules, rule 77.

²² The rules, rules 78 and 79.

²³ The rules, rule 77.

²⁴ The rules, rule 79(1).

require that the allowed rate of return be determined such that it achieves the allowed rate of return objective, namely:²⁵

...the rate of return for a service provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of reference services.

It follows that in calculating the return on capital in accordance with the rules, application of this component of the building block approach will:

- provide assurance to investors that they will derive a return on investment commensurate with the degree of risk they bear, which encourages ongoing investment in pipeline infrastructure and services and so promotes productive and dynamic efficiency; and
- exploit measures to prevent investors from collecting a rate of return in excess of efficient financing costs, which promotes allocative and dynamic efficiency.

3.3.3 Depreciation

The depreciation building block is calculated in each regulatory year by reference to the projected capital base for that year, and acts to return capital to investors. The rules governing the determination of the depreciation building block require that:

- tariffs vary over time in a way that promotes efficient growth in the market for reference services, which promotes dynamic efficiency;²⁶
- the depreciation to be recovered over an asset's life not exceed the initial value of that asset, which promotes allocative and dynamic efficiency;²⁷ and
- the recovery of capital expenditure be spread over the economic life of the asset to which that expenditure relates, thereby promoting allocative and dynamic efficiency.²⁸

3.3.4 The estimated cost of corporate income tax

The building block approach includes an explicit allowance for the recovery of the cost of corporate income tax,²⁹ which promotes efficiency by:

- providing assurance to investors that they will be able to recover the cost of income tax, which promotes productive efficiency;
- reducing the estimated cost of income tax by the value of imputation credits, which ensures investors are not overcompensated and so promotes allocative and dynamic efficiency; and
- calculating the corporate tax allowance by reference to the tax that would be payable by a benchmark efficient entity, which encourages efficient tax management and so promotes allocative and dynamic efficiency.

3.3.5 Operating expenditure

The rules relating to the building block calculation for operating expenditure require the determination of an allowance for operating expenditure such as would be incurred by a prudent service provider acting

²⁵ The rules, rules 87(2) and (3).

²⁶ The rules, rule 89(1)(a).

²⁷ The rules, rule 89(1)(d).

²⁸ The rules, rules 89(1)(b) and (c).

²⁹ The rules, rule 87A.

efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of delivering pipeline services.³⁰

The rules provide that the AER may not withhold its approval of operating expenditure proposed by the service provider if it is consistent with these criteria.³¹ This provision provides reasonable assurance that operating costs – efficiently incurred – will be able to be recovered, thereby promoting productive and dynamic efficiency.

The rules relating to the operating expenditure building block also promote the NGO by encouraging service providers only to incur operating expenditure that is efficient, thereby providing services at the lowest sustainable cost, which promotes allocative efficiency.

3.3.6 Incentive mechanism to encourage efficiency improvements

The existence of a separate building block for ‘one or more incentive mechanisms to encourage efficiency in the provision of services by the service provider’ explicitly recognises the importance of providing incentives for efficiency in the application of economic regulation.³²

This building block enables a regulator to offer service providers financial incentives that take the place of those that would otherwise be provided by competition, in order to promote all three dimensions of economic efficiency. These incentives also provide for a service provider to be financially penalised for inefficiency.

I described above that the provision of incentives is important in addressing the constant evolution as to what constitutes efficient outcomes, due to changes in technology and consumer preferences, the competing demands of market participants across time, and the inability to observe directly whether businesses are operating efficiently.

The inclusion of a separate building block for increments or decrements resulting from an incentive mechanism therefore promotes the NGO by providing incentives for businesses to improve longer term productive efficiency, provided that these efficiency gains are eventually reflected in price, quality, safety, reliability and security outcomes for consumers.

3.3.7 Summary

To summarise, the essential architecture of the building block approach promotes efficiency by means of two key elements, namely:

- deriving forecast total revenue as the sum of a service provider’s expected costs; and
- ensuring that each cost building block draws reference – whether directly or through other, constituent elements of the rules – to the need for such costs to be those of a service provider acting efficiently and prudently, including through the operation of incentive arrangements designed to achieve such outcomes.

The former provides a reasonable assurance as to the ability of a service provider to recover its efficiently incurred expected costs, thereby promoting ongoing investment and dynamic efficiency. The latter serves to ensure that the framework of the rules operates for the long term benefit of consumers, consistent with productive, allocative and dynamic efficiency.

3.4 Building blocks and pricing principles necessary to promote the NGO

I described in section 3.3 above that each constituent component of the building block approach provides incentives and/or mechanisms that promote the threefold dimensions of efficiency, which represent the

³⁰ The rules, rule 91(1).

³¹ The rules, rules 91(2) and 40(2).

³² The rules, rule 98.

foundation of the NGO. In addition, the NGO requires that these components of the building block approach be applied such that, when there is tension between two elements of efficiency, the dynamic element is given preference so as ‘to promote the long term interests of consumers’.

By way of an example to the contrary, consider the return on capital building block. The rate of return objective provides for a service provider to pay a rate of return that is commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk.³³ If this component was not complied with, say through the determination of a rate of return that was below efficient financing costs, then the incentives for investment would be weakened, since investors could not be expected to derive a return on investment commensurate with the degree of risk they bear. Weakened incentives would give rise to the underfunding of expenditure necessary to ensure the safety and reliability of supply of natural gas services, thereby risking:

- productive inefficiency, since safety and security would have to be provided over the long term through inefficient, second-best options, perhaps involving a disproportionate emphasis on operating expenditure;
- allocative inefficiency, since the insufficient rate of return would translate to lower prices, and so unsustainably greater demand for natural gas services (compounding reliability issues), even though most customers may be willing and able to pay for greater reliability of supply; and
- dynamic inefficiency, since the interests of consumers today have not been balanced with the interests of future consumers, say through compromising reliability of supply issues for future consumers that all consumers, future and present, would have been willing to pay to avoid.

It follows that a decision that fails to comply with any constituent component of the building block approach will also fail to promote the NGO by failing to provide effective incentives and/or mechanisms for the promotion of efficiency. Therefore, if the AER were to make such a decision, it would not meet the requirement to contribute to the achievement of the NGO.

³³ The rules, rule 87(3).

4. Assessment of the AER's Draft Decision

In this section I present my assessment of certain aspects of the AER's approach in its Draft Decision, and in particular:

- summarise each material constituent component of the AER's decision, and the overall impact on the business of AGN over the next regulatory review period;
- summarise those matters adopted by, and errors made by, the AER in its Draft Decision, as identified by the expert reports that suggest the principles, building blocks or other rules have been offended; and
- provide my opinion on whether, taking into account the whole of the matters raised by the experts, the AER is likely to meet the NGO requirement.

4.1 Rate of return

The allowed rate of return ensures a benchmark pipeline service provider a return on assets to satisfy its providers of equity and debt capital. The rate of return is multiplied by the value of the regulatory asset base to calculate the return on capital building block.

In my previous report, I summarised the AER's approach in its rate of return guideline and then recent decisions to determining the allowed rate of return.³⁴ The AER's approach to determining the rate of return in the Draft Decision is largely consistent with that set out in its rate of return guideline.³⁵ In particular, the AER's Draft Decision is:

- to estimate the expected return on equity using a foundation model approach based upon the Sharpe-Lintner CAPM, populated with separately estimated and assessed input parameters, and assessed in turn against an alternative specification of the Sharpe-Lintner CAPM, independent estimates of the equity risk premium and the prevailing cost of debt;
- to estimate the return on debt using a trailing average approach (currently transitioning from an on-the-day approach), estimated using a simple average of data series published by the Reserve Bank of Australia and Bloomberg of debt with a benchmark credit rating of BBB+ over a term of 10 years and averaged each year over a sampling period chosen by the service provider; and
- lastly, to determine the weight given to the return on debt and return on equity in the rate of return through a gearing ratio, which is determined using a group of companies analogous to the benchmark efficient service provider – the AER has consistently adopted a gearing ratio of 60 per cent debt to 40 per cent equity.

The AER determined an allowed rate of return of 6.02 per cent for AGN in the 2016/17 year. This estimate is comprised of 40 per cent the estimated return on equity for 2016-21 of 7.3 per cent and 60 per cent the estimated return on debt for 2016/17 of 5.16 per cent with the trailing average updated annually through the regulatory period. These estimates depend on the application of particular sampling and averaging periods, and will therefore be updated in the Final Decision.³⁶

I have been provided with expert reports that identify shortcomings and errors in the AER's approach to determining the allowed rate of return.³⁷ I summarise these reports below.

³⁴ Houston, Greg, *Australian Gas Networks – AER gas price review*, 30 June 2015, pp 16-18, 23-24.

³⁵ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 3 (Rate of return)*, November 2015, pp 13-15.

³⁶ AER, *Rate of return fact sheet*, November 2015.

³⁷ A list of these expert reports can be found in the Letter of Instruction attached as Annexure A1 to this report.

4.1.1 Return on equity

The AER's approach to the return on equity is to produce both a point and range estimate of the return required by equity markets over the regulatory review period using the Sharpe-Lintner CAPM as a foundation model. The estimate is produced by populating the foundation model with three separately estimated input parameters, ie:

- a **risk free rate**, which is estimated using yields on Commonwealth Government Securities (CGS) as reported by the Reserve Bank of Australia (RBA);
- an **equity beta**, for which a range is estimated using a sample of Australian energy utilities and then a point estimate selected using additional information, including a sample of overseas energy networks and the theoretical principles of the Black CAPM, being the insight that Sharpe-Lintner CAPM estimates are downwardly biased for low-beta stocks; and
- a **market risk premium (MRP)**, for which a range is estimated using historical excess returns and then a point selected using additional information, including a dividend growth model (DGM) and decisions by other regulators, and the AER's regulatory judgement.

Lastly, the AER conducts a 'cross-check' of its foundation model point estimate to confirm that it achieves the allowed rate of return objective. This cross-check assesses the estimate against other relevant information, including the estimate from an alternative specification of the Sharpe-Lintner CAPM, equity risk premiums calculated by other market participants, and an interrelationship between the prevailing costs of equity and debt.

The AER has applied this approach in its Draft Decision, estimating a rate of return on equity for AGN of 7.3 per cent for the 2016 to 2021 access arrangement period.³⁸

In my previous report I described two principal shortcomings in the AER's approach to the return on equity that experts engaged by AGN have identified.³⁹ These shortcomings are that:

- the foundation model approach used by the AER does not have proper or sufficient regard to relevant information, including financial models and market data, as is required by the rules; and
- the AER's empirical application of the Sharp-Lintner CAPM precludes information the AER regards as secondary from affecting the estimate it produces.

The AER's approach in the Draft Decision does not depart from that set out in its guideline and other recent decisions, which is the approach that was reviewed by those experts. The AER has not therefore corrected these shortcomings in its approach. This is evident in expert reports by Frontier Economics and HoustonKemp that review the AER's approach to the return on equity in its Draft Decision.

The foundation model approach

Frontier's report reiterates its expert opinion that the AER's foundation model approach does not have regard to all relevant materials, as required by the rules,⁴⁰ and, in effect, maintains the same flawed approach to the return on equity that prompted the AEMC's November 2012 rule change on the allowed rate of return.⁴¹ Frontier explains that this gives rise to undesirable variance in the estimate over time:⁴²

This approach created a form of lottery for regulated businesses. Those businesses that were fortunate enough to have prices reset when government bond yields were high were allowed a

³⁸ AER, *Rate of return fact sheet*, November 2015.

³⁹ Houston, Greg, *Australian Gas Networks – AER gas price review*, 30 June 2015, pp 18-23.

⁴⁰ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, paras 54-55.

⁴¹ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, paras 16-18 and 53.

⁴² Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, paras 34-35 and 51.

high return on equity for the entire regulatory period, and other businesses received low returns for their five-year regulatory periods because government bond yields happened to be low at the time their resets were settled. The impact of this approach becomes more extreme during periods of volatility in which government bond yields move to extreme levels in one direction or the other.

Frontier explains that the AER itself has summarised the benefits of stable allowed returns, in effect identifying that more stability in allowed returns produces incentives that promote dynamic efficiency. Specifically, the AER stated that:⁴³

In our consultation paper, we stated that a relatively stable regulatory return on equity would have two effects:

- It would smooth prices faced by consumers.
- It would provide greater certainty to investors about the outcome of the regulatory process.

However, more stable allowed returns require stable estimates of returns. Frontier highlights that, while the AER notes in its guideline that stable estimates would be achieved using its cross checks (ie, the DGM and Wright approach to implementing the Sharpe-Lintner CAPM), it applies its foundation model approach such that it has no regard to these materials. Frontier explains that:⁴⁴

The reason that the prospect of some stability was not delivered is that the means of delivering that stability (the DGM and Wright approaches for estimating the MRP) have had no perceptible effect on the outcomes from the AER's decision making process...

In particular, the AER continues to add a fixed margin of 4.55 per cent to prevailing government bond yields to determine the equity risk premium,⁴⁵ notwithstanding that its application of the DGM shows that the MRP has risen as government bonds yields have fallen.

In contrast, the combination of a rising MRP and falling bond yields would be expected to deliver more stable estimates of the return on equity. However, the approach applied by the AER in the Draft Decision results in estimates of the return on equity that vary over time in concert with prevailing government bond yields.⁴⁶ It follows that by failing to have regard to all relevant materials, the AER's Draft Decision determines an estimate of the return on equity for a five-year regulatory period that fails to meet the allowed rate of return objective.

In Frontier's expert opinion, the lack of regard given to relevant material by the AER can be overcome by applying a multi-model approach to estimating the return on equity. The multi model approach derives estimates from all the financial models identified as relevant in the AER's guideline, and then weights the estimates derived from each model by reference to their respective strengths and weaknesses.⁴⁷ This conclusion is consistent with that expressed in expert reports I reviewed when preparing my earlier report.⁴⁸

Frontier estimates that the multi model approach gives rise to an estimate of the return on equity for the next regulatory control period equal to 9.76 per cent.⁴⁹

Notwithstanding that in Frontier's expert opinion the multi model approach gives rise to the best estimate of the return on equity, Frontier also considers how best to have regard to all relevant material using the foundation model approach – with the Sharpe-Lintner CAPM as the foundation model – applied by the AER

⁴³ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 40.

⁴⁴ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 52.

⁴⁵ Equity risk premium = equity beta x market risk premium = 0.7 x 6.5% = 4.55%.

⁴⁶ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, paras 48-51.

⁴⁷ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, paras 54-56.

⁴⁸ Houston, Greg, *Australian Gas Networks – AER gas price review*, 30 June 2015, p 20.

⁴⁹ Frontier Economics, *An updated estimate for the required return on equity*, January 2016, para 4.

in the Draft Decision.⁵⁰ Frontier's application of the AER's foundation model approach – with the Sharpe-Lintner CAPM as the foundation model – in a manner that has proper regard to all relevant information results in an estimate of the return on equity equal to 9.84 per cent for the next regulatory period.⁵¹

The expert reports provided to me also address several specific errors in the AER's foundation model approach. In particular, these reports address errors made by the AER:

- in estimating the equity beta for AGN, which preclude a selection of relevant information from entering the beta estimate and leave it unadjusted for known biases; and
- in estimating the MRP, which result in an estimate that does not reflect prevailing market conditions or all relevant information and is less stable over time.

These errors amount to the previously identified shortcoming that the AER's application of its foundation model fails to achieve the allowed rate of return objective. I summarise the findings of the expert reports in relation to these errors below.

Equity beta

When estimating the equity beta for use in its Sharpe-Lintner CAPM, the AER partitions materials it regards as relevant into 'primary' and 'secondary' evidence. Frontier explains that:⁵²

The AER considers evidence from domestic comparators to represent its "primary" evidence, and all other evidence to be secondary. The domestic comparators are used to estimate a primary range, and then all other relevant evidence is used (at most) to inform the selection of a point estimate from within that range.

This method is problematic for two reasons. First, this estimate of the equity beta 'has no regard to any evidence of systematic biases in the Sharpe-Lintner CAPM'.⁵³ As HoustonKemp explains, the Sharpe-Lintner CAPM produces an estimate of the return on equity for low beta stocks (ie, companies, including regulated utilities, with low systematic risk) that is systematically less than observed returns. Although the AER acknowledges this 'low-beta' bias, its primary evidence does not control for the bias.⁵⁴

The expert reports that I reviewed and summarised in my earlier report also highlighted that the Sharpe-Lintner CAPM suffers from a book-to-market bias.⁵⁵ In other words, stocks with a high ratio of book value to market value persistently earn higher returns than predicted by the Sharpe-Lintner CAPM. The AER's primary-secondary evidence approach also fails to have regard to this well accepted systemic bias in its foundation model.

Second, the evidence that can control for this bias, the AER's 'secondary' evidence, is restricted from doing so by the method for estimating beta. The AER has regard to the secondary evidence to adjust its point estimate. However, Frontier notes that the method is opaque, since the AER does not explain the extent of any adjustment that arises from any particular piece of evidence. By way of example, Frontier highlight that the AER:⁵⁶

...is vague and unclear about precisely what adjustment the AER has made to its starting point beta to correct for low-beta bias

⁵⁰ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 57.

⁵¹ Frontier Economics, *An updated estimate for the required return on equity*, January 2016, para 6.

⁵² Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 117.

⁵³ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 126.

⁵⁴ HoustonKemp, *The cost of equity – Response to the AER's Draft Decision*, January 2016, p vii.

⁵⁵ Houston, Greg, *Australian Gas Networks – AER gas price review*, 30 June 2015, p 19.

⁵⁶ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 12.

The implications of this non-systematic approach to considering relevant evidence or the adjustments necessitated by that evidence is highlighted by HoustonKemp's analysis, which demonstrates that:⁵⁷

...the adjustments that the AER makes in implementing the [Sharpe-Lintner] CAPM are insufficient to eliminate, or even render insignificant, the bias associated with the model.

Further, any adjustment by the AER is restricted to the range of estimates derived using its 'primary evidence', even though the empirical evidence suggests a beta estimate greater than the upper bound to that range. Frontier's analysis of the AER's method demonstrates this contradictory result:⁵⁸

That is, the Black CAPM evidence suggests that a beta strictly greater than 0.7 must be inserted into the SL-CAPM in order to produce estimates that are consistent with the empirical data. However, the AER has no regard to any estimates of the Black CAPM, even those that it defines to be plausible.

Frontier concludes that:⁵⁹

... the AER's approach of setting an initial immutable range on the basis of a subset of the relevant evidence effectively neuters the effect of the other relevant evidence.

Finally, Frontier demonstrates that the sample of firms that comprise the AER's primary evidence is too small to provide a reliable and stable estimate.⁶⁰ This limitation could be overcome by expanding the sample to include either similar Australian infrastructure firms or, preferably, USA energy distribution firms.⁶¹ Frontier demonstrates that, statistically, both these samples are a part of the same population as the AER's sample.⁶²

I understand from these expert reports that the errors identified in the AER's approach give rise to a biased and unreliable estimate of the equity beta. Further, the AER's adjustments to correct the known bias in the Sharpe-Lintner CAPM are inadequate. It is therefore unlikely that the AER's approach produces an estimate of the return on equity that achieves the allowed rate of return objective.

Market risk premium

I understand from Frontier's expert report that the AER's process for estimating the MRP also suffers from limitations caused by the AER designating evidence as primary and secondary:⁶³

The AER's November 2014 draft decisions and all subsequent decisions indicate that the AER implements its approach to estimating the MRP by first setting a primary range. This primary range is formed by taking the long-run average of excess returns over different historical periods. Other relevant evidence is then relegated to informing the selection of a point estimate from within that primary range.

Frontier demonstrates that the AER's secondary information for estimating the MRP supports an estimate materially higher than the upper bound of the AER's range (ie, 6.5 per cent). However, the AER's estimate remains constrained by this upper bound despite contemporary evidence. Its estimate of the MRP is therefore influenced more by average market conditions over the last 131 years than by prevailing market conditions.

⁵⁷ HoustonKemp, *The cost of equity – Response to the AER's Draft Decision*, January 2016, p 6.

⁵⁸ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 124.

⁵⁹ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 12.

⁶⁰ Frontier Economics, *Estimating the equity beta for the benchmark efficient entity*, January 2016, para 8.

⁶¹ Frontier Economics, *Estimating the equity beta for the benchmark efficient entity*, January 2016, paras 10-12.

⁶² Frontier Economics, *Estimating the equity beta for the benchmark efficient entity*, January 2016, para 9.

⁶³ Frontier Economics, *Estimating the equity beta for the benchmark efficient entity*, January 2016, para 11.

In Frontier's expert opinion:⁶⁴

... the DGM evidence, and other relevant evidence, should not be constrained by a cap of 6.5% that is based on the long-run arithmetic mean of historical excess returns. That approach has produced a MRP estimate of 6.5% even as the AER's own DGM evidence suggests that the contemporaneous MRP is further and further above 6.5%.

HoustonKemp's analysis of independent expert reports, updated to address comments from the AER's consultants, also supports an MRP estimate materially greater than the upper bound of the AER's estimated range.⁶⁵

I understand from the expert reports I have reviewed that the AER's approach to estimating the MRP is flawed and gives rise to an estimate of the MRP with a downward bias. Application of such an estimate would act to undercompensate for the financing costs of an efficient benchmark service provider.

Conclusion

I have reviewed five expert reports that have been provided to me, in addition to those that I reviewed and summarised in my earlier report, each addressing one or more aspects of the AER's approach in its Draft Decision to determining the return on equity. A common thread running through all of these reports is the inability of the AER's approach to have regard to all relevant material in estimating the return on equity.

The expert reports show that the required return on equity calculated under the AER's approach will undercompensate investors, given the perceived level of risk. It follows that this results in:

- an allowed rate of return that does not meet the allowed rate of return objective;
- compromise to the promotion of ongoing investment in the network, and so to dynamic or long term productive efficiency; and
- compromise to the promotion of the long term interests of consumers.

Consequently, the approach to determining the required return on equity in the Draft Decision, if replicated in the Final Decision, will not meet the NGO requirement.

Further, I understand from Frontier that a multi-model approach combining estimates from the Sharpe-Lintner CAPM with estimates from the Black CAPM, Fama-French model and dividend discount model analysis would overcome the empirical limitations of the Sharpe-Lintner CAPM based foundation model approach, ie:⁶⁶

In the context of the current Rules, we [Frontier] have previously proposed what has become known as a 'multi-model approach,' whereby each relevant model is estimated and the resulting estimates of the required return on equity are distilled into a single allowed return on equity by taking a weighted-average, where the weights reflect the relative strengths and weaknesses of each model. That remains our preferred approach...

Frontier's application of this approach gives rise to an estimate of the required rate of return on equity equal to 9.76 per cent for the next regulatory review period.⁶⁷ Further, I understand from JWS that the effect of the difference between Frontier's estimate and the AER's 7.3 per cent estimate on AGN's revenue allowance for the next regulatory review period is -\$95 million.

⁶⁴ Frontier Economics, *Estimating the equity beta for the benchmark efficient entity*, January 2016, para 11.

⁶⁵ HoustonKemp, *The cost of equity – Response to the AER's Draft Decision*, January 2016, pp xiii-xiv.

⁶⁶ Frontier Economics, *The required return on equity under a foundation model approach*, January 2016, para 8.

⁶⁷ Frontier Economics, *An updated estimate for the required return on equity*, January 2016, para 4.

In addition, Frontier shows that the AER's incorrect application of the foundation model approach has a material effect on its estimate of the return on equity. Frontier's application of the AER's foundation model approach – with the Sharpe-Lintner CAPM as the foundation model – in a manner that has proper regard to all relevant information results in an estimate of the return on equity equal to 9.84 per cent for the next regulatory period.⁶⁸ In contrast, the AER's application of the foundation model approach in the Draft Decision – which fails to have regard to all relevant information – gives rise to a materially lower estimate of the return on equity, ie, 7.3 per cent.⁶⁹

4.1.2 Return on debt

The AER's approach to the return on debt is to transition from its previous 'on the day' portfolio estimate of the cost of debt for the whole access period to an annually updating trailing average portfolio estimate established over a ten year period. The transitional arrangement estimates the allowed rate of return on debt as the rate of return from a portfolio consisting of 1/10 portions of debt entered into in each year of the transitional period following the first transitional year, and the remaining proportion set by reference to the yields prevailing in the first transitional year.⁷⁰

For each regulatory year, the AER proposes to estimate the prevailing rate of return on debt as the simple average of ten observed yields on debt with a BBB+ credit rating and maturity of 10 years, over a sampling period proposed that is to be no less than 10 days and no greater than 12 months. The prevailing rate of return on debt is to be estimated from an average of the data published by the Reserve Bank of Australia (RBA) and Bloomberg.

The AER has applied this approach in its Draft Decision, estimating a rate of return on debt for AGN of 5.16 per cent for 2016/17 of the next access arrangement period.⁷¹ The 2016/17 is the first year of the transitional period and the return on debt will be updated each year of the next access arrangement period in accordance with the specified transitional arrangements.

In my previous report I described a principal shortcoming in the AER's approach to the return on debt that experts engaged by AGN have identified.⁷² In particular, there are errors associated with the AER's choice of an approach to estimating the return on debt that transitions from its previous 'on the day' approach, given it now recognises the inefficiency of that approach.

The AER's approach in the Draft Decision does not depart from the approach set out in its guideline and other recent decisions, and so it has not corrected these shortcomings in its approach.

I have now been provided with several reports prepared by CEG that review the AER's approach to the return on debt in its Draft Decision. One of these reports reiterates the shortcoming identified previously. It provides further analysis on the efficient debt management strategy under the AER's 'on the day' approach, demonstrating that the 'on-the-day' approach was not efficient or achievable. It therefore demonstrates that the AER's chosen transition will not provide a pipeline service provider with a return on debt commensurate with the financing costs of the benchmark efficient entity.

The remaining reports address several errors in the AER's estimation of an efficient return on debt. In particular, these reports identify errors in:

- the AER's conclusion that efficient debt financing costs do not include a new issue premium, which it concludes primarily on the basis of misinterpreted advice from its consultants; and

⁶⁸ Frontier Economics, *An updated estimate for the required return on equity*, January 2016, para 6.

⁶⁹ AER, *Rate of return fact sheet*, November 2015.

⁷⁰ AER, *Rate of return guideline*, December 2013, section 6.3.

⁷¹ AER, *Rate of return fact sheet*, November 2015.

⁷² Houston, Greg, *Australian Gas Networks – AER gas price review*, 30 June 2015, pp 24-25.

- the AER's use of the average of data published by the RBA and Bloomberg to determine the return on debt.

I summarise the finding of the expert reports in relation to both these errors and the previously identified shortcoming below.

Approach to transition

CEG notes that the AER has adopted the practice of determining efficient debt management strategies by considering how the benchmark efficient entity would respond to its regulatory approach. In terms of its current approach:⁷³

...the AER has determined this by reference to the financing practices (and costs incurred pursuant to these practices) it considers a rational regulated entity would or should have adopted in response to the 'on-the-day' approach to setting the allowance for the cost of debt.

Although CEG disagrees with this framework, it analyses the efficient debt management strategy that would be employed in response to the AER's previous 'on the day' approach.⁷⁴ Further, CEG does so on the basis of the AER's assumption that efficient within the context of determining the return on debt entails the dual aim of minimising cost and risk.⁷⁵

CEG's analysis finds that a debt management strategy resulting in a 10-year trailing average of 10-year fixed rate debt with swaps to manage interest rate exposure would have been efficient. Crucially, CEG finds that less than 100 per cent of the portfolio should have been covered by swaps, ie, hedged. Indeed, its best estimate suggests only a third of the portfolio should have been covered.⁷⁶ This finding rests upon the empirical observation that swaps and the debt risk premium are negatively correlated.

Two of the AER's consultants, Chairmont Consulting and Dr Lally, disagree with CEG's opinion:⁷⁷

Both Lally and Chairmont have provided advice to the AER that our recommendation is not sound and that the AER should assume 100% hedging of the base rate of the debt portfolio was efficient.

However, CEG demonstrates that the reasoning used by these consultants is not only erroneous but also contradictory, ie:

- Dr Lally provides a mathematical proof that a negative correlation between the debt risk premium and swap rates implies the efficient hedging rate is less than 100 per cent of the debt portfolio – however, he is not convinced that the correlation is negative in practice;⁷⁸ while
- Chairmont is not convinced that there exists an efficient hedge for less than 100 per cent of the portfolio – however, it provides empirical analysis and a review of the literature demonstrating a negative correlation between swap rates and the debt risk premium.⁷⁹

It follows from CEG's analysis that the AER errs by adopting a transitional approach to the return on debt that does not transition from the efficient debt management strategy described above. CEG concludes that this error results from the AER continuing to reason that its transitional approach should claw back past gains under its 'on the day' approach.⁸⁰ CEG's analysis demonstrates that the transitional approach applied

⁷³ CEG, *Critique of the AER's approach to transition*, January 2016, para 3.

⁷⁴ CEG, *Critique of the AER's approach to transition*, January 2016, para 5.

⁷⁵ CEG, *Critique of the AER's approach to transition*, January 2016, para 7.

⁷⁶ CEG, *Critique of the AER's approach to transition*, January 2016, paras 8-9.

⁷⁷ CEG, *Critique of the AER's approach to transition*, January 2016, para 10.

⁷⁸ CEG, *Critique of the AER's approach to transition*, January 2016, paras 13-14.

⁷⁹ CEG, *Critique of the AER's approach to transition*, January 2016, para 15.

⁸⁰ CEG, *Critique of the AER's approach to transition*, January 2016, para 231.

by the AER in its Draft Decision does not produce an estimate of the return on debt that is commensurate with the efficient financing costs of the benchmark efficient entity.

The new issue premium

CEG has previously provided expert advice highlighting that efficient debt financing costs include a new issue premium – a higher yield on new issue bonds compared to those bonds traded in secondary markets that comprise the data for estimating debt costs.⁸¹ It follows that a pipeline service provider should be provided an allowance for the new issue premium in its return on debt. However, the AER rejected provision for such an allowance in the Draft Decision, stating a pair of 'in principle' arguments against the new issue premium:⁸²

First, the AER is not satisfied that a NIP [new issue premium] is consistent with efficient financing costs – even if it can be robustly established that a NIP exists on average for other firms; and

Second, the AER does not believe that the evidence is sufficiently clear to support a finding that a NIP exists in general...

I understand from the expert opinion of CEG that the AER's first contention above arises from advice provided by its consultant, Professor Handley. However, CEG demonstrates that the AER has misinterpreted Professor Handley's advice:

The quote reproduced by the AER from Handley does not support its rejection of compensating for the new issue premium.⁸³

The correct interpretation of Handley's advice is that the new issue premium is a cost incurred by a business and should be compensated.⁸⁴

CEG explains that the confusion arises from Professor Handley's observation that a separate allowance for the new issue premium would not be required if the AER had already made an appropriate allowance for the cost of debt.⁸⁵

The AER also states several contentions to the effect that the new issue premium observed in capital markets may be evidence of inefficient financing costs and would therefore not apply to the benchmark efficient entity. CEG demonstrates these arguments stem from a pair of logical errors:

The first is to treat market imperfections (relative to an idealised perfect market) as inefficient and therefore to conclude that these are not relevant to a [benchmark efficient entity]. We regard this as an error on the grounds that it confuses efficient conduct of the benchmark entity in the financial markets that actually exist with a hypothetical concept of an efficient financial market...⁸⁶

The second is that the AER argues that the [benchmark efficient entity] would not pay a [new issue premium] based on reasoning that applies not just to the [benchmark efficient entity] but to the vast majority of issuers of investment grade debt.⁸⁷

⁸¹ CEG, *Critique of AER analysis of new issue premium*, January 2016, para 5.

⁸² CEG, *Critique of AER analysis of new issue premium*, January 2016, para 8.

⁸³ CEG, *Critique of AER analysis of new issue premium*, January 2016, para 11.

⁸⁴ CEG, *Critique of AER analysis of new issue premium*, January 2016, para 12.

⁸⁵ CEG, *Critique of AER analysis of new issue premium*, January 2016, para 13.

⁸⁶ CEG, *Criteria for assessing fair value curves*, January 2016, para 19.

⁸⁷ CEG, *Criteria for assessing fair value curves*, January 2016, para 22.

Finally, CEG has previously provided robust empirical analysis documenting the existence of a new issue premium in both Australian and overseas markets, and in this report addresses the AER's concerns with that analysis.⁸⁸

Fair value curves

The AER uses the average of Bloomberg's 'BVAL' series and the RBA's fair value curve to estimate the return on debt.⁸⁹ I understand from CEG that these data sources have different sample selection criteria and properties that may or may not be desirable in terms of promoting the allowed rate of return objective.

CEG sets out five necessary criteria that, in its expert opinion, any source of 10-year BBB cost of debt data must comply in order for an estimate to meet the allowed rate of return objective. These criteria are:⁹⁰

- a. The source is derived from a dataset that best matches the characteristics of debt issued by a benchmark efficient entity (BEE).
- b. The source is derived from a sufficiently large data set of the type of bonds specified in criterion (a) (which provides confidence that the result is not unduly influenced by a small number of observations in the data set).
- c. The source is derived using a transparent methodology that is accurate and robust – in the sense that the source can be relied on to provide an accurate estimate of the cost of debt for a BEE that is not unduly influenced by a small number of observations in the dataset.
- d. The source is regularly published by an independent reputable organisation – independent in the sense that the source is not published for use in regulatory determinations.
- e. The source has a track record of accuracy.

CEG analyses the Bloomberg, RBA, Reuters and Economic Regulatory Authority of Western Australia (ERA) fair value curves against these criteria. This analysis shows that, at present, the RBA estimates are the only preferable source for estimating the cost of debt.⁹¹

The RBA curve is the only curve that performs well against all criteria. For these reasons we consider that the RBA is clearly the best performer against the five criteria. Consequently, if one were to limit oneself to choosing one, or a set of predetermined sources, with predetermined weights we consider that the RBA source should be selected with 100% weight.

It follows that, when updating the return on debt estimate in each year of a regulatory control period, the AER should not limit itself to the use of one or more predetermined sources of information. Rather, the AER should assess the compliance of various data sources using CEG's proposed criteria to derive an estimate of the return on debt that meets the allowed rate of return objective.

Further, CEG's analysis shows that estimates of the return on debt derived from Bloomberg BVAL:

- underperform the ERA estimates against CEG's criteria, and
- are more or less equivalent to that derived from Reuters data.

On this basis, CEG concludes that, if the AER uses more than one data source, it should not preference the data from Bloomberg over Reuters, ie, CEG states that:⁹²

⁸⁸ CEG, *Criteria for assessing fair value curves*, January 2016, para 32.

⁸⁹ CEG, *Criteria for assessing fair value curves*, January 2016, para 1.

⁹⁰ CEG, *Criteria for assessing fair value curves*, January 2016, para 4.

⁹¹ CEG, *Criteria for assessing fair value curves*, January 2016, para 25.

⁹² CEG, *Criteria for assessing fair value curves*, January 2016, para 26.

...there is no reason to give equal weight to the RBA and Bloomberg and zero weight to Reuters. Reuters' performance against the relevant criteria is at least as good as Bloomberg's performance.

Conclusion

I have reviewed four expert reports prepared by CEG that have been provided to me, in addition to those I reviewed when preparing my earlier report,⁹³ each addressing one or more aspects of the AER's approach to determining the return on debt for the next regulatory review period. The evidence in these reports shows that the AER's approach in its Draft Decision to determining the required return on debt has two principal shortcomings, namely:

- the AER's chosen approach replicates a debt management strategy that transitions from a previous debt management strategy that is shown to be inefficient and unachievable in practice, rather than a strategy that CEG demonstrates was, and is, achievable and efficient; and
- the AER under-estimates the prevailing cost of debt by using a less-than-reliable data source and failing to recognise that a pipeline service provider will need to pay a new issue premium on a portion of its debt portfolio.

In regard to the first shortcoming, in CEG's opinion the AER is misguided in its approach, which it identifies as stemming from the AER's erroneous intentions to fix past regulatory errors. Such an approach is not consistent with the principles that I set out in section 3.2 as being appropriate for a regulatory regime that promotes the NGO requirement and, in particular, the projected capital base building block that reflects those principles. In other words, the AER's approach does not provide certainty to investors and does not reduce the expected risk associated with investment.

The result of this misguided attempt to correct past regulatory errors is that the AER:

- adopts a transitional approach that will undercompensate AGN for the cost of debt financing, regardless of the efficient debt management strategy adopted under the previous 'on the day' approach;
- produces an estimate that will not represent the efficient financing costs of the benchmark efficient entity and so will not meet the allowed rate of return objective;
- adopts a transitional approach that compromises the promotion of ongoing investment in the network, and so too dynamic or long term productive efficiency; and
- compromises the promotion of the long term interests of consumers.

Further, I understand from JWS that the effect of the AER's errors in respect of the return on debt on AGN's revenue allowance for the next regulatory review period is -\$104.6 million (calculated by reference to an immediate transition to a trailing average). I note that the quantification of the errors for 2017/18 to 2020/21 are forecasts only, as the return on debt estimate will be updated for each of these years.

Finally, the principal shortcomings highlighted by the CEG reports mean that the approach to the required return on debt in the Draft Decision does not meet the NGO requirement, and will not meet the NGO requirement if repeated in the Final Decision.

4.2 Corporate income tax

The corporate income tax building block ensures that a pipeline service provider receives a revenue allowance for the net cost of corporate income tax. The AER's approach to determining the net cost of corporate income tax follows that set out in the rules. It is determined by reference to estimates of:⁹⁴

- the taxable income of a benchmark efficient entity;

⁹³ Houston, Greg, *Australian Gas Networks – AER gas price review*, 30 June 2015, pp 23-26.

⁹⁴ The rules, rule 87A.

- the expected statutory company income tax rate for that entity; and
- the value of tax imputation credits created by payment of company income tax to its equity holders.

4.2.1 The value of tax imputation credits (gamma)

Dividends paid to equity holders from Australian post-tax profits may have tax imputation credits attached to them, which capture the corporate income tax already paid on the company's profits. A proportion of these distributed imputation credits will be redeemed by equity holders against their personal tax obligations. The total return that equity holders receive from owning a regulated business will therefore be a combination of the residual cash flows of the business and the value they gain from imputation credits, which is denoted by gamma (γ).

It follows that the rate of return on equity and gamma are interrelated, since they collectively determine the return that equity investors require for investing, and the revenue that the service provider needs to collect from customers in order to deliver this expected return. The AER's guideline calculates the value of imputation credits created as:

$$\gamma = F \times \theta$$

where:

- F represents the distribution rate, ie, the proportion of credits that are distributed to investors by way of franked dividends; and
- θ (theta) represents the value of those distributed imputation credits in the hands of equity owners.

The AER has departed from its guideline in recent decisions, including the Draft Decision, by estimating gamma on a 'pre-personal costs' basis, which is equivalent to estimating gamma as the rate of utilisation by equity holders. On this basis it estimated theta as the rate of redemption by equity holders and revised its estimate of gamma from the 0.5 proposed in the guideline to a value of 0.4.⁹⁵

In my previous report I summarised expert reports provided to me that highlighted two shortcomings in the AER's approach to estimating gamma. Since the AER has not changed its approach to gamma in its Draft Decision, these shortcomings persist, ie:

- an inconsistency arising between the corporate income tax and allowed rate of return building blocks as a result of the AER's interpretation of theta, and therefore gamma; and
- the AER's estimate of the distribution rate of imputation credits not representing the distribution rate of the benchmark efficient entity.

I have now been provided with an expert report by Frontier Economics that identifies two principal errors in the AER's approach to gamma in its Draft Decision. The first of these errors amounts to the second shortcoming described above while the second error, which I have not previously discussed, is related to the first. I summarise the errors identified by Frontier below.

Estimating the distribution rate

Frontier notes, and the AER has previously specified, that the distribution rate is a firm specific parameter,⁹⁶ ie:⁹⁷

...the distribution rate should be interpreted as the proportion of imputation credits generated by the benchmark efficient entity that is distributed to investors.

⁹⁵ AER, *Rate of return fact sheet*, November 2015, p 2.

⁹⁶ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 16.

⁹⁷ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 19.

It follows that the distribution rate should be estimated using data selected by reference to the characteristics of the benchmark efficient entity. The AER's guideline defines the benchmark efficient entity broadly as a 'pure play, regulated energy network business operating within Australia'.⁹⁸ On this basis, Frontier notes that:⁹⁹

The top 20 listed companies differ from the benchmark efficient entity in their ability to distribute imputation credits via profits that have been sourced offshore.

In Frontier's opinion, listed multinational firms should therefore not be included in the data sample used to estimate the distribution rate:¹⁰⁰

Thus, the distribution rate should not be estimated with reference to the top 20 firms, or with reference to any estimate that is materially affected by the top 20 firms. For this reason, we would exclude the influence of the top 20 firms from the estimate of the distribution rate that is based on listed equity. But for the top 20 listed firms, the distribution rate estimate for listed equity is 70%.

Frontier identifies that the AER has therefore erred in placing equal weight on evidence from all listed companies in Australia, including the 20 largest, which produces an estimate of 77 per cent.¹⁰¹

Estimating the redemption rate

Frontier explains that the AER could estimate the redemption rate of imputation credits using either one of two approaches: an equity ownership approach or a tax statistics approach.¹⁰² In Frontier's expert opinion:¹⁰³

...the tax statistics estimate (being more direct and not relying on the assumptions required for the equity ownership approach) should be preferred to the equity ownership estimate.

Frontier explains that there several reasons that the equity ownership estimate may be both larger and less accurate than the tax statistics estimate. These reasons include:¹⁰⁴

- b. There are a number of concerns with the quality of the data, as documented by the ABS;
- c. The AER's equity ownership estimate will be upwardly biased to the extent that resident investors who receive imputation credits do not redeem them, either due to the 45-day rule or because the administrative costs outweigh the benefits to them (or for some other reason are unable or unwilling to redeem them); and
- d. The AER's equity ownership estimate will be upwardly biased to the extent that credits that are distributed to government entities are not redeemed.

Frontier therefore highlights that the AER errs in favouring the equity ownership estimate. Further, Frontier reiterates the point, also expressed in reports I reviewed when preparing my previous report, that this estimate of the redemption rate provides an upper bound for any estimate of theta:¹⁰⁵

Our view is that the redemption rate (whether actual or assumed) should be used as an upper bound for theta and that it should not be used as a point estimate for theta.

⁹⁸ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 21.

⁹⁹ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 54.

¹⁰⁰ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 55.

¹⁰¹ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 4 (Value of imputation credits)*, November 2015, p 19.

¹⁰² Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 13.

¹⁰³ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 14.

¹⁰⁴ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 14.

¹⁰⁵ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, paras 12 and 15.

Finally, Frontier notes in this report that:¹⁰⁶

Because theta is estimated as a market-wide parameter, this upper bound would apply whether the benchmark efficient entity is defined narrowly (as the firms that the AER regulates) or more broadly (as firms that are similar in some respect).

Put another way, this estimate of the redemption rate could be combined with an estimate of the distribution rate derived from either listed and/or privately held companies, ie, all equity.

Conclusion

I take the evidence provided by Frontier as indicating that the AER has erred in its approach to estimating both the distribution and redemption rate parameters, and therefore in estimating gamma. By means of this flawed approach, in Frontier's expert opinion the AER adopts an estimate of gamma that is materially higher than even a conservative estimate of gamma that reflects the efficient financing costs of the benchmark efficient entity. In other words, in its Draft Decision, the AER's approach overestimates both the distribution and benefit to investors of imputation credits and so undercompensates investors for the cost of corporate income tax.

Further, I understand from JWS that the effect of the AER's incorrect estimate of gamma gives rise to a revenue shortfall of \$5.1 million for AGN in the next regulatory control period.

By underproviding for the cost of corporate income tax, the AER's approach does not promote ongoing investment in the network and so does not promote dynamic and allocative efficiency. I explain in section 3 that offering a reasonable assurance as to the recovery of efficiently incurred costs is a core principle of a framework for economic regulation that has the objective of achieving the NGO. Moreover, this principle is explicitly reflected in the Revenue and Pricing Principles.

In my opinion, the result of these two shortcomings is that the approach to the value of gamma taken by the AER in its Draft Decision does not meet the NGO requirement. For these reasons I conclude that the AER will not meet the NGO requirement if it were to apply this approach in its Final Decision on AGN's access arrangement revision.

4.3 Financeability

The rules require that many cost building blocks are determined by reference to the level of cost that would be incurred by a benchmark efficient entity, eg, the rate of return, the capital expenditure, the operating expenditure and corporate income tax building blocks.

The AER accepted AGN's proposal that the cost of debt component of the rate of return building block should be estimated by reference to a benchmark efficient entity with a BBB+ credit rating.¹⁰⁷ Therefore, implicit in the Draft Decision is an assumption that a benchmark efficient business could maintain a BBB+ credit rating throughout the access arrangement period.

I have been provided with an expert report prepared by Incenta Economic Consulting (Incenta), which refers to a separate report by NAB Client Solutions and Advisory (NAB) that considers the likely effect of various constituent decisions in the Draft Decision on the financeability of AGN.

Regulated cash flows are not sufficient to maintain a credit rating of BBB+

Incenta evaluates whether the regulated cash flows arising from the Draft Decision are sufficient for AGN to maintain a BBB+ credit rating, which would afford it a reasonable opportunity to recover its efficient costs in accordance with the revenue and pricing principles.

¹⁰⁶ Frontier Economics, *The appropriate use of tax statistics when estimating gamma*, January 2016, para 15.

¹⁰⁷ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 3 (Rate of return)*, November 2015, p 13.

Incenta calculates financial metrics using the cash flows that would arise under the Draft Decision and compares these metrics with the thresholds used by credit rating agencies. Incenta finds that the regulated cash flows arising from the Draft Decision would be insufficient to maintain a BBB+/Baa1 credit rating. Incenta explains that, under the Draft Decision:¹⁰⁸

...the credit metrics generated for a benchmark efficient regulated energy network would be substantially below the threshold required to maintain a BBB+/Baa1 credit rating, with the projected “funds from operation to debt” ratio projected to be below 7 per cent for much of the period, materially below the threshold for BBB+/Baa1 of 9 per cent. Indeed, the FFO to debt ratio is again sufficiently low that it is questionable whether the benchmark efficient regulated energy network could receive and retain a BBB (Baa2) credit rating.

Further, Incenta notes that:¹⁰⁹

...the report from experts at the NAB for AGN applies a very similar exercise to what I did when advising on the likely credit rating of a benchmark efficient entity under the Draft Decision, and applies the same critical values for the relevant financial indicators. I take this as confirmation that I had validly replicated the analysis – and reached the conclusions – that the major ratings agencies would be expected to reach.

Advancing cash flows to maintain a credit rating of BBB+

Incenta concludes that, where cash flow is not sufficient to maintain a credit rating of BBB+, a service provider should be permitted to advance its cash flow such that a benchmark efficient entity would be expected to maintain a credit rating of BBB+. Incenta explains that such an advancement of cash flow is consistent with the revenue and pricing principles.

The revenue and pricing principles stipulate that a service provider should be provided a reasonable opportunity to recover at least its efficient costs.¹¹⁰ Taking this requirement as its reference point, Incenta highlights that the AER's description of a benchmark efficient entity would recover its efficient costs, and that this is fundamental to cost-based regulation and so the achievement of the revenue and pricing principles and the NGO. Incenta explains that:

...if the hypothetical benchmark efficient entity would not recover its efficient costs (due to the actual cost of debt exceeding the benchmark), then there is a real prospect that real-life firms would be denied such an opportunity even if they are efficient.¹¹¹

...a requirement for maintaining an expectation of cost recovery is that the cash flows that are generated by AGN's reference tariffs should be consistent with maintaining the credit rating that the AER considers to be an appropriate benchmark in setting the cost of debt for a benchmark efficient regulated energy network.¹¹²

Incenta also highlights that advancing cash flow at a time when credit metrics are lower than normal will make it easier for a regulated business such as AGN to access the low-cost pools of debt finance, and so promote efficient investment.¹¹³ Incenta explains that:¹¹⁴

...it is clearly in the long term interests of consumers (all else constant) for the capacity of regulated businesses to access finance to be maximised so that they are well placed to make necessary

¹⁰⁸ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 23.

¹⁰⁹ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 36.

¹¹⁰ The law, section 24(2).

¹¹¹ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 9.

¹¹² Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 55.

¹¹³ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 10.

¹¹⁴ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 54.

investments for the benefit of end-use consumers. For this reason, it is also my view that this outcome would promote the NGO and the revenue and pricing principles.

Incenta also observes that the revenue and pricing principles require that service providers be provided with effective incentives to promote economic efficiency, which includes efficient investment.¹¹⁵

Advancing cash flows by bringing forward the recovery of depreciation

Incenta recommends that the requisite advancement of cash flow is implemented by means of a revenue neutral adjustment to regulatory depreciation.¹¹⁶ In Incenta's opinion, rule 89(1)(e) gives explicit recognition to the desirability of using regulatory depreciation as a mechanism for addressing such financeability issues.¹¹⁷ Rule 89(1)(e) stipulates that:¹¹⁸

The depreciation schedule should be designed... so as to allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs

In particular, Incenta recommends that a fixed 'offset factor' is applied to the annual indexation of the RAB such that, rather than indexing the RAB by consumer price inflation (CPI), the RAB is indexed by CPI less Z per cent, where Z per cent is the offset factor.¹¹⁹ Incenta notes that this approach is revenue neutral and does not shorten asset lives.

On the basis of the Draft Decision, Incenta calculates that an offset factor of at least two percentage points is required to ensure that a benchmark efficient entity would be expected to maintain a credit rating of BBB+.¹²⁰ Further, Incenta explains that, if credit metrics improve, it may be appropriate for the AER to reduce or remove the offset factor in future regulatory review periods.¹²¹

To summarise, I understand from the expert opinion of Incenta that an advancement of cash flow is required – by means of advancing the recovery of depreciation – so as to maintain a credit rating of BBB+ and, in so doing:¹²²

- to ensure that a benchmark efficient entity would have a reasonable opportunity to recover its efficient costs and to promote efficient investment, consistent with the revenue and pricing principles;
- to meet the requirements established by rule 89(1)(a) and rule 89(1)(e) of the NGR; and
- to promote the long term interest of consumers and so the NGO.

Conclusion

I take the expert reports provided to me to support the proposition that the regulated cash flow arising from the Draft Decision is not sufficient to maintain a credit rating of BBB+, and may even be insufficient to maintain a credit rating of BBB.¹²³

This would not provide AGN with a reasonable opportunity to recover its efficient costs, consistent with the revenue and pricing principles. It follows that the draft decision not to allow advancement of cash flow:

¹¹⁵ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 10.

¹¹⁶ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 7.

¹¹⁷ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, paras 12 and 53.

¹¹⁸ The rules, rule 89(1)(e).

¹¹⁹ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 7.

¹²⁰ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 7.

¹²¹ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 8.

¹²² Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, paras 9-14.

¹²³ Incenta, *Assessing financeability for a benchmark regulated energy network*, January 2016, para 1.

- does not promote ongoing investment in the gas pipeline infrastructure and services and so does not promote productive and dynamic efficiency;
- does not comply with the revenue and pricing principles; and
- does not promote the long term interests of consumers.

For these reasons, in my opinion if the Final Decision replicates the Draft Decision in not allowing advancement of cash flow, the Final Decision will not meet the NGO requirement.

4.4 Operating expenditure (productivity factor)

The AER's Draft Decision provides an allowance for operating expenditure that is approximately 10 per cent, or \$16 million, less than that in AGN's Revised Proposal.

Although AGN does not agree with the AER's decision on opex, in its Revised Proposal AGN accepts most aspects of the AER's approach to opex in its Draft Decision. However, the AER's decision to apply a productivity adjustment to AGN's opex forecast is a key aspect of the Draft Decision that AGN did not accept in its Revised Proposal. The AER's decision to apply a productivity adjustment gives rise to an allowance for operating expenditure over the next access arrangement period that is \$5.7 million less than that in AGN's Revised Proposal.

I have been provided with an expert report prepared by Huegin that reviews the AER's application of a productivity growth adjustment along with an expert report prepared by ACIL Allen Consulting (ACIL) that forecasts AGN's opex partial productivity over the next regulatory review period.

The AER's use of a cost function analysis is inappropriate

The AER uses a cost function analysis in the Draft Decision to determine and apply a forecast of productivity growth to future opex. In Huegin's opinion, there are a number of shortcomings in the analysis underpinning the AER's decision to apply a productivity adjustment, including problems associated with the sensitivity of the results to changes in model specifications, data comparability and adjustments for environmental variable.

Huegin highlights that businesses adopt different definitions of what constitutes capex and opex, approaches to measuring physical variables and network strategies, eg, some businesses may substitute capex for opex. Consequently, Huegin finds that:¹²⁴

...there remains uncertainty around the comparability of data between businesses.

Huegin also explains that:¹²⁵

In the recent electricity distribution determinations the technique that was adopted (opex partial productivity or stochastic frontier analysis) resulted in significantly different estimates of efficiency when compared to the frontier firm. In the context of benchmarking in the gas industry, it is likely that benchmarking results would also be sensitive to changes in the modelling technique selected.

In light of these findings, Huegin explains that:¹²⁶

The productivity factor is intrinsically driven by the model specification and the data used in the benchmarking analysis. Setting aside the concerns with reliance of productivity estimates upon industry data and model specification there has been little adherence to the [expenditure forecast assessment guideline] principles listed above. Specifically, there has been limited consideration

¹²⁴ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 9.

¹²⁵ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 9.

¹²⁶ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 13.

of operating environment factors and no justification of why the models used to inform the productivity adjustment are appropriate. In addition, the limitations of the econometric modelling (rendering the technique unreliable in the context of determining relative efficiency) also implies they are unreliable for the estimation of productivity adjustments.

Huegin concludes that:¹²⁷

The decision to apply a 0.5% productivity adjustment factor to AGN's forecast opex is not based on a process that could be considered to accord with the principles of the Expenditure Forecast Assessment Guideline, nor comply with the National Gas Rules.

Further, Huegin highlights that the data underpinning the productivity factor of 0.5 per cent are not specific to AGN but, rather, are specific to ActewAGL's circumstances. Consequently, Huegin concludes that the approach in the AER's guideline is not consistent with rule 74,¹²⁸ explaining that:¹²⁹

...the selective application of a productivity adjustment factor taken from a model and data that does not consider AGN's circumstances cannot sufficiently satisfy the criteria of the NGR. Given the existence of the EBSS (and associated argument that a productivity adjustment is not required) and the uncertainty around the method of calculating an appropriate productivity adjustment, Huegin considers that the application of anything other than a 0% productivity factor represents a decision that cannot be demonstrated to comply with principles outlined in the AER's Forecast Assessment Guidelines or the NGR.

Similarly, ACIL concludes that the AER's use of a productivity factor specific to ActewAGL:¹³⁰

...is inappropriate given the fact that AGN's growth drivers are significantly different from those of ActewAGL, and we would expect the partial productivity forecasts to differ as a result.

The AER's productivity adjustment is overstated

Huegin concludes that:¹³¹

Even if one were to accept that a productivity adjustment was warranted in the context of the AGN forecast, the evidence presented does not constitute a cogent argument or compelling case for the adoption of a 0.5% productivity adjustment.

The 0.5 per cent productivity adjustment in the AER's Draft Decision is taken from an expert report prepared by ACIL Allen for ActewAGL and is specific to ActewAGL. Huegin observes that the approach used for ActewAGL is inconsistent with the rate of change approach and, if shortcomings in this approach were corrected:¹³²

...ActewAGL's opex productivity estimate would have been negative.

Similarly, Huegin highlights that Jemena Gas Networks' productivity estimate of 0.59 per cent:¹³³

...is also overstated in terms of the productivity adjustments that AGN can reasonably achieve.

Huegin concludes that:¹³⁴

¹²⁷ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 13.

¹²⁸ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 13.

¹²⁹ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 15.

¹³⁰ ACIL Allen Consulting, *Opex partial productivity forecasts*, January 2016, p 14.

¹³¹ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 17.

¹³² Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 18.

¹³³ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 18.

¹³⁴ Huegin, *The use of economic benchmarking in the gas distribution industry*, January 2016, p 16.

The comparisons with other productivity forecasts are misleading and overestimate the actual productivity gains that can be expected given AGN's circumstances.

ACIL prepares opex partial productivity forecasts for AGN that are consistent with Huegin's conclusions.

ACIL forecasts AGN's opex partial productivity using parameter estimates from the preferred cost functions models (ie, random effects, feasible generalised least squares and stochastic frontier analysis) and forecasts of AGN's customer numbers, RAB and pipeline length. Further, ACIL undertakes this analysis under two separate scenarios, ie:

- using the growth drivers from the AER's Draft Decision for AGN; and
- using the growth drivers from AGN's revised access arrangement proposal submitted in response to the AER's Draft Decision.

All three of the abovementioned cost function models give rise to a forecast decline in partial productivity in both scenarios. In other words, both scenarios produce a negative partial productivity growth rate. Specifically, ACIL concludes that, on the basis of the growth drivers in the Draft Decision:¹³⁵

...the average forecast opex partial productivity growth rate is -0.20 per cent per annum.

Similarly, ACIL concludes that the growth drivers in AGN's Revised Proposal result in:¹³⁶

...an average forecast opex partial productivity growth rate of -1.80 per cent per annum.

Conclusion

I take the expert opinions of Huegin and ACIL Allen to support the proposition that the AER's decision to apply a partial productivity factor of 0.5 per cent will give rise to an allowance for operating expenditure that is less than that which would be incurred by a prudent service provider acting efficiently.

In my opinion, it follows that the allowance for operating expenditure in the Draft Decision:

- does not meet the operating expenditure criteria and so the requirements of rule 91(1); and
- does not promote dynamic and allocative efficiency for the long term interests of consumers.

For these reasons, in my opinion the allowance for operating expenditure in the Draft Decision does not meet the NGO requirement, and will not meet the NGO requirement if repeated in the Final Decision.

4.5 Capital Expenditure (mains replacement)

The Draft Decision rejected AGN's proposal to replace 1,273 kilometres of mains on the basis that the proposed mains replacement program did not have enough information to validate that the proposed capex complied with rule 79. Rule 79 sets out the capex criteria, including that:¹³⁷

...capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services

Rule 79(2)(c) stipulates that capital expenditure is justifiable if it is necessary:¹³⁸

- to maintain and improve the safety of services; or

¹³⁵ ACIL Allen, *Opex partial productivity forecasts*, January 2016, p 13.

¹³⁶ ACIL Allen, *Opex partial productivity forecasts*, January 2016, p 14.

¹³⁷ The rules, rule 79(1)(a).

¹³⁸ The rules, rule 79(2)(c).

- to maintain the integrity of services; or
- to comply with a regulatory obligation or requirement...

AGN's Revised Proposal included a rigorous risk assessment and a cost impact analysis in support of its revised proposal to replace 1,265km of mains in the next access arrangement period.¹³⁹ In particular, AGN propose to replace cast iron and unprotected steel mains and HDPE mains.¹⁴⁰ AGN explains that its mains replacement program is aimed at ensuring the safe, reliable, and secure supply of natural gas by replacing mains that are at risk of fracturing or cracking.¹⁴¹

I have been provided with an expert report prepared by Jacobs that considers whether AGN's mains replacement program is consistent with a service provider acting 'in accordance with accepted good industry practice' and reviews the risk assessment underpinning the mains replacement program. I have also been provided with an affidavit by John Leslie Ferguson, who is the Group Executive networks of APA Group.

Industry practice

In Jacobs' expert opinion, it is appropriate for the AER to consider experience with piping materials in the United States of America (US) and the United Kingdom (UK), since the piping materials in those countries are broadly the same as that used in AGN's network.¹⁴²

Jacobs highlights that, in both the US and UK, it was recognised that the disproportionate number of incidents associated with cast iron pipe must be addressed, and that these concerns led to the acceleration of cast iron replacement programs in both countries.¹⁴³

Jacobs identifies a number of incidents involving cast and wrought iron pipelines in the US that resulted in multiple deaths, injuries, property damage and burden on the community, utility, state and industry. With reference to these incidents and the risks associated with aging and failing infrastructure, Jacob's explains that:¹⁴⁴

...utilities across the US have been systematically removing cast and ductile iron materials from the distribution system and have removed unprotected steel at the same time.

Similarly, Jacobs identified a number of incidents in the UK that reinforced the will of the Health and Safety Executive to accelerate the removal of cast iron from the UK system. Consistent with this observation, in 2002 the Health and Safety Executive decided that, given uncertainty around the risks posed by the remaining iron mains pipes, they should be replaced as fast as practicable.¹⁴⁵

Jacobs considers that the conditions under which failures occurred in the US and UK apply equally to the South Australian networks and that AGN's mains replacement program addresses the same risks faced in those countries.¹⁴⁶

¹³⁹ AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 8.9 (Capital expenditure)*, January 2016, p 4

¹⁴⁰ AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 8.9 (Capital expenditure)*, January 2016, p 7.

¹⁴¹ AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 8.9 (Capital expenditure)*, January 2016, p 7.

¹⁴² Jacobs, *Mains replacement program review*, January 2016, p 7.

¹⁴³ Jacobs, *Mains replacement program review*, January 2016, pp 7-8.

¹⁴⁴ Jacobs, *Mains replacement program review*, January 2016, p 8.

¹⁴⁵ Jacobs, *Mains replacement program review*, January 2016, p 8.

¹⁴⁶ Jacobs, *Mains replacement program review*, January 2016, p 9.

In Jacobs' expert opinion, AGN's mains replacement program is supported by the approaches adopted in the US and UK, and:¹⁴⁷

...complies with the obligation under NGR 79 (1)(a) that the service provider must be acting 'in accordance with accepted good industry practice', when incurring capital expenditure.

AGN's risk analysis

AGN conducted a risk assessment of hazards associated with the mains distribution network in accordance with standard AS/NZS 4645, which is the base requirement for the management of a gas distribution network in Australia.¹⁴⁸ For each hazard identified, AGN considered the consequences and likelihood of that hazard occurring. This assessment identified 2,619km of at risk mains, ie, those with an inherent risk ranking of extreme or high, which require AGN to take action as soon as practicable.

Jacobs concluded that AGN's risk assessment represented a conservative application of AS/NZS 4645 in relation to AGN's assessment of the severity and frequency of hazards, ie, Jacobs would have assessed certain risks as being greater than that determined by AGN, and so it could be said that Jacobs would recommend a more extensive mains replacement program. By way of example, Jacobs states that:¹⁴⁹

The risk ratings that result from the application of the severity class and the frequency class are in our opinion overly conservative.

On the basis of its review of AGN's risk assessment, Jacobs concludes that it:¹⁵⁰

...support[s] the approach and outcomes, with the proviso that we believe it may underestimate the risk for some of the assets. However, the outcomes (risk treatment actions) are consistent with our expectation and experience in that those assets that pose an unacceptable risk should be replaced as soon as practicable.

Further, in the affidavit of Mr Ferguson provided to me by JWS, Mr Ferguson states that the mains replacement program proposed by AGN:

...is required to ensure AGN/APA discharge the obligations and requirements under section 55 of the Gas Act 1997 (having regard in particular to the application of AS 4645 given statutory force by that section), clause 5 of AGN's distribution licence and the *Work Health and Safety Act 2012*...¹⁵¹

...represents expenditure which would be undertaken by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services. A prudent service provider would act so as to ensure its network complies with applicable laws and to reduce risks to safety from the network to a level as low as reasonably practicable.¹⁵²

Conclusion

I understand the expert opinion of Jacobs to support the proposition that the AER erred in its Draft Decision by not approving all the capex for AGN's mains replacement program and, if the Draft Decision is replicated in the Final Decision, there will be adverse implications for the safe operation of the network.

In particular, I understand from Jacobs and the affidavit of Mr Ferguson that:

¹⁴⁷ Jacobs, *Mains replacement program review*, January 2016, p 22.

¹⁴⁸ See Jacobs, *Mains replacement program review*, January 2016, p 25; and AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 8.9 (Capital expenditure)*, January 2016, p 8.

¹⁴⁹ Jacobs, *Mains replacement program review*, January 2016, p 28.

¹⁵⁰ Jacobs, *Mains replacement program review*, January 2016, p 2.

¹⁵¹ Affidavit of John Leslie Ferguson, 5 January 2016, para 91.

¹⁵² Affidavit of John Leslie Ferguson, 5 January 2016, para 94.

- the mains replacement program in AGN's Revised Proposal is consistent with best practice in the US and UK, ie, it accords with accepted good industry practice;
- the risk assessment underpinning AGN's mains replacement program complies with AS/NZS 4645;
- the proposed program is also considered to be both prudent and efficient;
- AGN has applied a conservative approach to risk assessment, ie, Jacobs would have assessed certain risks as being greater than that determined by AGN, and so it could be said that Jacobs would recommend a more extensive mains replacement program;
- the mains replacement program proposed by AGN is required to discharge the obligations and requirements under section 55 of the Gas Act 1997, clause 5 of AGN's distribution licence and the *Work Health and Safety Act 2012*; and
- the outcomes of AGN's risk assessment are consistent with the expectations and expert experience of Jacobs in that relevant assets pose an unacceptable risk and should be replaced as soon as practicable.¹⁵³

It follows that the allowance for capital expenditure in the Draft Decision:

- does not meet the capital expenditure criteria and so the requirements of rule 79;
- does not promote the efficient operation of AGN's gas network, and so does not promote productive and dynamic efficiency;
- does not contribute to the safety, reliability and security of supply of natural gas, as referred to in the NGO; and
- does not promote the long term interests of consumers.

For these reasons, in my opinion, if the Final Decision replicates the Draft Decision in not allowing capex for AGN's mains replacement program, the Final Decision will not meet the NGO requirement.

4.6 Incentive Schemes

The AER's Draft Decision:

- amends the efficiency carryover mechanism (ECM) for operating expenditure (opex) proposed by AGN and applies formulas to calculate the incremental efficiency gains (losses) outlined in the AER's efficiency benefit sharing mechanism (EBSS); and
- rejects the capital expenditure sharing scheme (CESS) proposed by AGN.

The principal features of the ECM, when combined with the future opex allowance being reset by reference to the revealed opex costs in a 'base year', include that:

- financial incentives are symmetric, so that a business is rewarded (penalised) for any opex underspend (overspend) relative to its opex allowance in a given year;
- financial incentives are invariant to the timing of efficiency or gains or losses in the access period; and
- any efficiency gains or losses are shared in the ratio of approximately 30/70 between the business and its customers.

The Draft Decision rejected the CESS proposed by AGN, and so precludes the realisation of benefits associated with a capex incentive scheme. In its review of the capex incentives for electricity network service

¹⁵³ Jacobs, *Mains replacement program review*, January 2016, p 2.

providers, the Australian Energy Market Commission (AEMC) identified four benefits of introducing a capex incentive mechanism, ie:¹⁵⁴

- they encourage appropriate network investment;
- they encourage NSPs to look for efficiencies, such as by innovation;
- they provide an incentive for NSPs to reveal their efficient costs; and
- they can be designed to provide for a continuous incentive, that is, the incentives could be set so that the incentive power is the same no matter in which year of a regulatory control period an investment is made.

The AEMC also noted that a scheme providing a continuous (constant) incentive gives rise to the desirable attribute that:¹⁵⁵

A constant incentive power is relevant in capex in order to provide an equal incentive to invest in each year of a regulatory control period. Anything other than an equal incentive may provide incentives for NSPs to defer expenditure, even where it is not efficient to do so. In addition a declining incentive in capex and a constant incentive in opex may encourage inefficient substitution between opex and capex.

The AER outlined three main reasons for not implementing a CESS in the Draft Decision. First, the AER considered that AGN already faced sufficient incentives to incur prudent and efficient capex, because:¹⁵⁶

In the short term, AGN may retain capex underspends until the start of the next access arrangement period. In the longer term, to the extent gas is a fuel of choice, it is in AGN's interests to supply gas efficiently in order to compete with electricity as an energy source. Further, the NGR require us to complete an ex post assessment of whether capex undertaken in an access arrangement is conforming at the time of the next review.

In support of this proposition, the AER highlights that AGN has a history of underspending capex relative to approved forecasts, which suggests that it already has incentives to act efficiently and is doing so.¹⁵⁷

Second, the AER stated its preference for a capex incentive scheme to be introduced alongside quantifiable service reliability measures so as to mitigate the risk that:¹⁵⁸

...by achieving capex underspends, a service provider may also undermine its network reliability levels or network safety...

Finally, the AER noted that the introduction of a capex incentive scheme is best considered as part of an industry-wide consultation process, rather than through a review of an individual access arrangement revision.

¹⁵⁴ AEMC, *Final position paper – Economic regulation of network service providers, and price and revenue regulation of gas services*, 15 November 2012, p 97.

¹⁵⁵ AEMC, *Final position paper – Economic regulation of network service providers, and price and revenue regulation of gas services*, 15 November 2012, p 98.

¹⁵⁶ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 14 (Other incentive schemes)*, November 2015, p 10.

¹⁵⁷ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 14 (Other incentive schemes)*, November 2015, pp 10-11.

¹⁵⁸ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 14 (Other incentive schemes)*, November 2015, p 11.

Identified deficiencies in the Draft Decision

In its Revised Proposal, AGN accepted all aspects of the AER's decision on incentive arrangements, other than that not to introduce a CESS. AGN proposes to apply a CESS which is identical to that currently applied to electricity distributors.¹⁵⁹

AGN's Revised Proposal identified a number of errors in the Draft Decision not to include a CESS in the access arrangement period. AGN notes that it is not correct to claim that a CESS had not been subject to an industry wide consultation, since the proposed CESS has been subject to industry-wide consultation prior to its introduction for electricity network service providers. Although this consultation process was not targeted specifically at the gas pipeline industry, AGN notes that:¹⁶⁰

The AER's position in respect of the CESS however is contradictory to its justification for its application of its preferred approach to developing opex forecasts (the base-step-trend approach) and the EBSS; each of which were developed through an electricity industry consultation program. That is, both the base-step-trend approach to forecasting opex and the EBSS have been applied by the AER to gas distributors despite there having been no industry wide consultation process.

AGN also highlights that there already exists a quantifiable safety and reliability scheme to complement the introduction of a CESS in the access arrangement period. This includes:

- the requirements in AGN's gas distribution licence to conduct its operations so as to:¹⁶¹
 - (a) prevent death or injury to, persons or damage to property;
 - (b) minimize leakage of gas; and
 - (c) account for the total amount of gas lost from the distribution system as a result of leakage or an activity...
- the requirements to report to both the Essential Services Commission of South Australia and the South Australian Office of the Technical Regulator AGN's performance against Asset Management Plan (AMP), including:
 - > the maintenance of a 24-hour, seven day a week facility for public reporting of natural gas leaks;
 - > setting the time of repairing of a natural gas leak; and
 - > setting time periods for undertaking routine surveys of mains to check for natural gas leaks.
- AGN's proposal voluntarily to report to stakeholders and the general public the performance of all AGN networks against the measures of safety, reliability and customer services set out in its Vision Statement, including performance against:
 - > answering 90 per cent of all calls to our emergency call centre within 10 seconds;
 - > attending 95 per cent of all publically reported natural gas leaks within two hours;
 - > repairing all network leaks within the required time periods contained in the AMP; and
 - > completing routine natural gas leak survey in the required times periods contained in the AMP.

AGN observes that these performance reporting requirements will enable the AER quickly to identify inefficient deferral of capex by AGN to maximise CESS outcomes. Further, failure to meet these targets

¹⁵⁹ AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 12.1 (Incentive Arrangements)*, January 2016, p 3.

¹⁶⁰ AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 12.1 (Incentive Arrangements)*, January 2016, p 3.

¹⁶¹ AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 12.1 (Incentive Arrangements)*, January 2016, p 5.

exposes AGN to the risk of losing its gas distribution licence or, at the least, have customers disconnect from the network due to it being unreliable and/or unsafe.

Importantly, AGN also highlights that the CESS complements the EBSS.¹⁶² The CESS and EBSS complement each other since they have similar incentive properties, ie, notionally the business retains 30 per cent of any opex or capex savings, thereby encouraging the business to adopt least cost solutions and avoid any bias towards a particular form of expenditure, ie, capex versus opex.

In response to various contentions by the AER, AGN also explains that:¹⁶³

- while gas being a fuel of choice does create incentives to pursue cost efficiencies, as a regulated business, AGN still responds to incentives provided by the regulatory framework;
- ex-post reviews of capex have recognised limitations and that a sharing mechanism generates more effective incentives to invest efficiently while having a lesser impact on regulatory risk; and
- a history of underspending capex relative to the approved forecast is not a reasonable basis on which to conclude that no further incentives are required, and that this was not considered by the AER in its decision to apply the CESS to the electricity businesses with a history of underspending capex.

Finally, AGN highlights that the introduction of the CESS would:¹⁶⁴

...rectify the key deficiency of the current capex incentive regime, which reflects that incentives of the business to seek further efficiencies declines as the regulatory period progresses.

Conclusion

The complementary opex and capex incentive mechanisms proposed by AGN create an incentive framework where:

- both opex and capex is subject to similar financial incentives with a notional 30 percent of any efficiency gain (loss) retained by the business;
- all expenditure incentives are invariant to the timing of efficiency or gains or losses in the access period; and
- financial incentives are symmetric, so that a business is both rewarded for any expenditure underspend relative to its allowances and penalised for any overspend relative to its allowances in a given year.

The benefits of AGN's proposed expenditure incentive framework over that set out in the Draft Decision include:

- discouraging inefficient substitution between opex and capex by incentivising the business to adopt a least cost combination of capital and operating inputs, thereby promoting the efficient provision of pipeline services;
- removing the financial incentive inefficiently to defer capex savings from the end of an access period to the start of subsequent period, and so encouraging efficient investment in pipeline assets; and
- promoting symmetry in the incentives allows businesses to pursue programs that reduce opex and capex in the long term by allowing businesses efficiently to trade-off the near term cost of implementing efficiency programs against future efficiency gains.

¹⁶² AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 12.1 (Incentive Arrangements)*, January 2016, p 6.

¹⁶³ AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 12.1 (Incentive Arrangements)*, January 2016, p 7.

¹⁶⁴ AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 12.1 (Incentive Arrangements)*, January 2016, p 8.

To summarise, the CESS proposed by AGN provides financial incentives to use the least cost combination of both capital and operating inputs while also encouraging the pursuit of long term productive and allocative efficiency gains. These attributes are not present in the expenditure incentive framework contained in the AER's Draft Decision.

Further, AGN's Revised Proposal also challenges the stated reasons contained in the Draft Decision for rejecting a capital incentive mechanisms, including:

- the existence of a quantifiable safety and reliability scheme will operate in the access arrangement period, which complements the proposed expenditure incentive mechanisms;
- that AGN's proposed CESS has already been subject to an industry wide consultation process identical to the one applying to the EBSS and the base-step-trend approach to forecasting opex, which the AER is proposing to adopt for the next regulatory review period;
- that an ex-ante capex incentive mechanism such as the CESS generates more effective incentives for capex efficiency, while having a lesser impact on regulatory risk, as compared with ex-post reviews of capex; and
- that a history of underspending capex relative to its approved forecasts is not a reasonable basis on which implicitly to conclude that existing incentives are correct and sufficient to provide incentives for a business to minimise the total cost of providing gas pipeline services.

The Draft Decision therefore has the effect of diminishing, or undermining, the incentive for AGN to improve the efficiency of its capex. In section 3.3.6 I highlighted the importance of effective incentive arrangements in a regulatory regime that promotes the NGO, consistent with the revenue and pricing principles.

I understand from AGN's Revised Proposal that the AER's decision not to apply a CESS to capex in the next access arrangement period gives rise to incentive arrangements that will not promote productive efficiency, ie, the efficient investment in and operation of natural gas services for the long term interests of consumers.

For these reasons, in my opinion, if the Final Decision replicates the Draft Decision by not applying the CESS to capex in the next access arrangement period, the Final Decision will not meet the NGO requirement.

4.7 Forecast Inflation

The AER uses a forecast of the level of inflation to model the value of the RAB, in dollars of the day terms, over the course of a regulatory review period. The AER's approach in its Draft Decision is to forecast inflation over a ten year period equal to an average of:¹⁶⁵

- the RBA's short term inflation forecast; and
- the midpoint of the RBA's targeted inflation band (ie, 2.5 per cent).

I have been provided with an expert report prepared by CEG that highlights shortcomings in the approach to forecasting inflation in the Draft Decision, and proposes an alternate approach that provides the best estimate of the level of inflation expected over any given future period.

CEG explains that the AER's post tax revenue model (PTRM) and roll forward model (RFM) interact to deliver a nominal return, ie, a return that includes compensation for inflation. In particular, the PTRM and RFM deliver a nominal return that comprises two parts:

- a real return during a regulatory review period, calculated equal to the nominal rate of return less expected inflation; and

¹⁶⁵ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 3 (Rate of return)*, November 2015, p 262.

- compensation for inflation that is delivered in the form of a higher RAB in the RFM, which is based on outturn inflation.

CEG highlight that these:¹⁶⁶

... two processes will only work together to deliver an expected nominal return equal to the nominal return used as an input to the PTRM if forecast inflation in the PTRM is the best forecast of inflation that will be used in the RFM.

Shortcomings in the AER's approach

Implicit in the AER's approach is an assumption that investors expect inflation to be in the middle of the AER's targeted range beyond one to two years.¹⁶⁷ In an earlier report prepared by CEG and referred to in the more recent CEG report provided to me, CEG explains that:¹⁶⁸

The AER's methodology for estimating expected inflation is to take the longest available forecast of future inflation from the RBA's most recent Statement on Monetary Policy (published quarterly) and to assume that inflation beyond that forecast period is equal to the midpoint of the RBA's inflation targeting range (2.5%).

Given that the RBA's forecasts only tend to extend out one or two years into the future and the AER is estimating expected inflation with a 10 year horizon, then this result inevitably centres very strongly on 2.5%.

CEG highlights that, while this is reasonable in most market circumstances, it is not reasonable in current market circumstances, where the risks of below-target inflation are heightened.¹⁶⁹ CEG calculates inflation expectations implied by the difference between nominal government bonds and CPI indexed government bonds, referred to as 'break-even inflation', and find that:¹⁷⁰

...breakeven inflation is expected to remain below 2.0% over the next 4 years, rising to be approximately equal to 2.5% only after 7 years.

By way of illustration, CEG observe that outturn inflation between December 2014 and September 2015 has been an annual rate of 1.75 per cent, which is much lower than 2.5 per cent, and that:¹⁷¹

Were the AER to use 2.50% as its best estimate of inflation (and make no other adjustments to its PTRM inputs) then this would mean that the actual nominal return delivered to investors for the first 0.75 years of the regulatory period would be 0.75% (2.50% less 1.75%) lower than the nominal returns used as inputs into the PTRM.

Further, with reference to the yields on CGS, CEG demonstrates the counter-intuitive implications arising from application of the AER's approach to forecasting inflation expectations.¹⁷²

The PTRM and RFM only deliver an expected nominal return equal to that used as an input to the PTRM if forecast inflation in the PTRM is the best forecast of inflation that will be used in the RFM.¹⁷³ In CEG's expert opinion, the AER's approach to forecasting inflation in the Draft Decision should be amended to:¹⁷⁴

¹⁶⁶ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 8.

¹⁶⁷ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 27.

¹⁶⁸ CEG, *Measuring expected inflation for the PTRM*, June 2015, paras 21-22.

¹⁶⁹ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 27.

¹⁷⁰ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 36.

¹⁷¹ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 46.

¹⁷² CEG, *Measuring expected inflation for the PTRM*, January 2016, paras 30 to 33.

¹⁷³ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 8.

¹⁷⁴ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 2.

- forecast inflation based on the break-even inflation rate implied by the difference between nominal and CPI indexed government bond yields; and
- give more weight (at least 60%) to inflation forecasts over a 5 year period rather than a 10 year period.

Best estimate of forecast inflation

In CEG's expert opinion:¹⁷⁵

...breakeven inflation provides the best estimate of inflation expected over any given future period. This can depart significantly from the midpoint of the RBA range.

CEG explains that breakeven inflation is a better estimate of expected inflation, as compared with the approach in the Draft Decision, because:¹⁷⁶

- it takes its estimate of medium to long term inflation from traded prices in bond markets, whereas the AER's approach of assuming expected inflation is 2.5 per cent beyond 1-2 years is not reasonable where the risks of below-market expectations are heightened; and
- the reasons for ceasing to estimate expected inflation using break-even inflation no longer apply since the indexed bond market has had much greater and deeper issuances, which improved liquidity.

Further, CEG explains that there is a tension between the correct horizon for forecasting inflation since:

- the cost of debt must be deflated by a five year horizon forecast of inflation; while
- the cost of equity requires a ten year horizon forecast of inflation.

For this reason CEG recommends that:¹⁷⁷

...the inflation forecast used in the PTRM should be a weighted average of the inflation expectations at the 5 and 10 year horizons where the weights are 60% to the five year horizon and 40% to the 10 year horizon – consistent with the weights of debt and equity in the RAB.

CEG explains that, while the AER has not disputed the veracity of CEG's recommended approach, the AER considers that the rate of return guideline review is the appropriate forum in which to subject CEG's analysis to review.¹⁷⁸ Nevertheless, if the AER is obliged to retain its current approach to estimating expected inflation in the PTRM, CEG notes that it is still possible to correct the problems identified in the Draft Decision approach by either:¹⁷⁹

- Amend[ing] the nominal cost of debt/equity inputs into the PTRM so that, when combined with the PTRM (including the PTRM inflation forecast) and the RAB RFM, they are expected to deliver the correct level of nominal compensation; or
- Amend[ing] (or signal an intention to amend) the RAB roll-forward model to use forecast inflation rather than actual inflation when escalating the RAB (at least for the debt component of the RAB).

¹⁷⁵ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 3.

¹⁷⁶ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 27.

¹⁷⁷ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 41.

¹⁷⁸ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 49.

¹⁷⁹ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 75.

Conclusion

I take CEG's opinion to support the proposition that the approach to forecasting inflation expectations in the Draft Decision does not produce the best estimate of forecast inflation and may give rise to an expected nominal return that is not equal to the nominal return used as an input to the PTRM.

I understand that CEG's recommended approach to forecasting inflation expectations, ie, using a weighted average of break-even inflation over a five and ten year horizon, produces the best estimate of expected inflation to be used as a PTRM input.

Further, CEG highlights that the approach to forecasting inflation expectations in the Draft Decision has a number of shortcomings that, in current market circumstances, may give rise to an expected nominal return that is not equal to the nominal return used as an input to the PTRM. Of some importance is CEG's observation that, over the December 2014 to September 2015 period, if the AER were to adopt a best estimate of 2.5 per cent with no other adjustments to the PTRM, the actual nominal return delivered to investors would be 0.75 per cent less than that used in the PTRM.¹⁸⁰

I explain in section 3.3.2 that providing assurances to investors that they will derive a return on investment commensurate with the degree of risk they bear (being the nominal rate of return used as an input in the PTRM), encourages ongoing investment in pipeline infrastructure and services and so promotes productive and dynamic efficiency.

To summarise, the Draft Decision:

- does not incorporate a best estimate of expected inflation for use in the PTRM;
- does not promote ongoing investment in gas pipeline infrastructure;
- does not promote productive and dynamic efficiency; and
- does not promote the long term interests of consumers.

For these reasons, in my opinion, if the Final Decision replicates the approach to forecasting inflation expectations in the Draft Decision, the Final Decision will not meet the NGO requirement.

4.8 Conclusion

I have reviewed reports prepared by eight experts, each addressing one or more constituent decisions arising in the application of the building block methodology to determine the total revenue in each regulatory year, and so reference tariffs for AGN. An overwhelming theme across each of these reports is the magnitude of the gap between the methodological approach adopted and the outcome of applying that approach, as between AGN's Revised Proposal and the Draft Decision of the AER.

One means of gaining some perspective on that gap is the extent to which either AGN's Revised Proposal or the AER's Draft Decision departs from the status quo. Although the status quo does not accord any explicit weight in the application of the rule 76 building blocks or the promotion of the NGO, in my opinion it draws significance from the fact that AGN is a privately owned, for-profit entity operating an established business under an incentive based framework of economic regulation. This combination of economic forces gives rise to the presumption that AGN's current mode of operation can be presumed generally to be prudent and efficient, and in accordance with accepted good industry practice. By virtue of the sustainability implied by these criteria, it can also be presumed to be in the long term interests of consumers.

Consistent with this presumption, I understand from JWS that AGN's Revised Proposal involves forward-looking average prices for 2016/17 (expressed in terms of revenue per GJ) that are within -5.5 per cent of prices at the end of the last regulatory period. By contrast, the AER's Draft Decision contemplates a downward adjustment to average prices in 2016/17 of -22.8 per cent, as compared with average prices at

¹⁸⁰ CEG, *Measuring expected inflation for the PTRM*, January 2016, para 46.

the end of the last regulatory period. In my opinion, the AER's contention that changes of such magnitude – driven primarily by cuts to allowances for capital expenditure, forecast inflation and the rate of return – can meet the NGO contribution requirement, stretches credulity.

By nature of these cuts to allowances, and the resultant adverse implications for the long term interests of customer, in my opinion, the AER's Draft Decision is strongly characterised by a short term perspective that does not extend beyond the next regulatory review period.

In my opinion, if the Final Decision replicates the constituent components of the Draft Decision that I have reviewed in this section, the Final Decision will not meet the NGO requirement.

5. A preferable and materially preferable decision

I conclude in section 4 that, if the Final Decision replicates the constituent components of the Draft Decision that I have reviewed, the Final Decision will not meet the NGO requirement. Notwithstanding this conclusion, in this section I address the final two substantive questions put to me. These are whether, in my opinion:

- if the AER's Final Decision contains the errors identified in the expert reports, the AER will have met the requirement that, where two or more possible designated reviewable regulatory decisions can be made, it must make the one that contributes to the NGO to the greatest degree (the preferable decision); and
- if the errors were corrected on merits review by the Australian Competition Tribunal (the Tribunal), and having regard to all other relevant considerations, this would, or would be likely to, result in a materially preferable designated NGO decision overall.

5.1 Context

By way of context, it is helpful to explain the relevance of my conclusions in section 4 to these two questions. Section 28 of the law requires that:¹⁸¹

The AER must, in performing or exercising an AER economic regulatory function or power, perform or exercise that function or power in a manner that will or is likely to contribute to the achievement of the national gas objective.

I refer to this requirement as the 'NGO requirement'. I conclude in section 4 that the AER's Draft Decision is not likely to have met the NGO requirement. Section 28 of the law also requires that:¹⁸²

...if the AER is making a designated reviewable regulatory decision, if there are two or more possible designated reviewable regulatory decisions that will or are likely to contribute to the achievement of the national gas objective... [the AER must] make the decision that the AER is satisfied will or is likely to contribute to the achievement of the national gas objective to the greatest degree...

I refer to a designated reviewable regulatory decision that will or is likely to contribute to the achievement of the NGO to the greatest degree as a 'preferable decision'. Relevantly, the first of the final substantive questions that I have been asked requires me to draw a conclusion as to whether the AER's decision in relation to AGN's access arrangement revision proposal, assuming it adheres to the recent decisions, is a preferable decision, and so meets the above requirement in section 28 of the law. I make this assessment notwithstanding my conclusion in section 4 that, if the Final Decision replicates the constituent components of the Draft Decision that I have reviewed, the Final Decision will not meet the NGO requirement.

The second of the final substantive questions that I have been asked by JWS is distinct from the others in that it does not relate to a requirement on the AER, but rather an obligation falling to the Tribunal in circumstances where there is an application for a merits review of a designated reviewable regulatory decision. If there was to be such an application, section 259 of the law requires that:¹⁸³

... the Tribunal may only make a determination if the Tribunal is satisfied that to do so will, or is likely to, result in a decision that is materially preferable to the designated reviewable regulatory

¹⁸¹ The law, section 28(1)(a).

¹⁸² The law, section 28(1)(b)(iii).

¹⁸³ The law, section 259(4a)(c).

decision in making a contribution to the achievement of the national gas objective (a materially preferable designated NGO decision)...

I refer to such a determination to be made by the Tribunal as a 'materially preferable decision'. It follows that section 259 of the law requires the Tribunal to undertake an additional task, as compared with the AER, in that it is required not only to assess whether a decision is preferable, but also whether it is a *materially* preferable decision.

In the remainder of this section, I apply an economic perspective to form my opinion as to whether:

- if the Draft Decision is replicated in the Final Decision with respect to AGN's access arrangement revision, the AER will have made a preferable decision; and
- if any errors in the Draft Decision were corrected, and having regard to all other relevant considerations, this would be likely to result in a materially preferable decision.

In addressing these questions, it is helpful first to set out the economic framework I have adopted in assessing whether the AER's decisions meet the preferable decision requirement, and whether an alternative decision may be judged to be a materially preferable NGO decision. I contrast this with the framework that appears to have been adopted by the AER in its Draft Decision in concluding that its decisions meet the preferable decision requirement.

5.2 Framework

In this section I set out the economic framework I have applied for assessing whether a particular decision:

- is a preferable decision; and
- is a materially preferable decision.

5.2.1 The long-term interests of consumers is paramount

The expert panel appointed to review the limited merits review regime (the LMR expert panel) considered how to assess whether one decision is preferable to another with reference to the criteria, ie, the NGO and Revenue and Pricing Principles, and recommended that:¹⁸⁴

... the ultimate end, and therefore the ultimate test, is the long-term interests of consumers (there should be no displacement of ends (consumer interests) by means to those ends such as economic efficiency, not least because not all efficient outcomes are in consumers' interests).

Similarly, in the second reading of the limited merits review bill, the Minister for Energy explained that there may be several possible economically efficient decisions with different implications for the long term interests of consumers, and went on to state that:¹⁸⁵

The long term interests of consumers must be the Australian Competition Tribunal's paramount consideration in determining that a materially preferable decision exists.

5.2.2 Determining the preferable decision

Consistent with the law and statements by both the LMR expert panel and the Minister of Energy, I have taken the preferable decision to be that which promotes the long term interests of consumers of natural gas services to the greatest degree.

I conclude in section 3.4 that failure to give effect to each and every building block, and to comply with each of the main Revenue and Pricing Principles would compromise the achievement of the NGO requirement. It

¹⁸⁴ Expert Panel, *Review of the limited merits review regime – Stage 2 report*, September 2012, p 4.

¹⁸⁵ Hansard, *South Australia House of Assembly*, February 2005.

follows that a designated reviewable regulatory decision that offends the Revenue and Pricing Principles and the building block requirements set out in the rules will not meet the NGO requirement. Such a decision would not be a preferable decision. An alternative decision that was consistent with the Revenue and Pricing Principles and the building block requirements in the rules would clearly be preferable, since this would promote the long term interests of consumers to the greatest degree.

A more difficult task is identifying the preferable decision where there are two or more possible decisions that will, or are likely to, contribute to the NGO requirement. Although the promotion of the long term interests of consumers remains the fundamental test, in this case it is necessary to identify the precise attributes of a decision that promotes the long term interests of consumers of natural gas to the greatest degree, so that the preferred alternative decision can be identified.

I explained in section 3.1.2 that economic efficiency is the means by which the long term interests of consumers is promoted, but that promoting economic efficiency, in and of itself, does not necessarily promote the long term interests of consumers.

Consistent with this reasoning, the promotion of the long term interests of consumers is likely to be identified by first isolating the dimension or dimensions of efficiency that best promote the long term interests of consumers. Regulatory decisions can then be assessed and compared by reference to the extent to which one or other promotes this dimension or these dimensions of economic efficiency without unduly compromising others. Conversely, a preferable decision should not compromise the dimension or dimensions of economic efficiency that promote consumers' long term interests in favour of promoting other dimensions of efficiency.

The extent to which a decision promotes dimensions of efficiency that are favourable to consumers' long term interests at the expense of those that are not is a matter of judgement. However, the need to strike such a balance when promoting the long term interests of consumers is an intrinsic requirement of well-functioning economic regulation, and was recognised by the Minister of Energy, who stated that:¹⁸⁶

The long term interests of consumers are not delivered by any one of [the NGO's] factors in isolation, but rather require a balancing of the range of factors.

Similarly, the LMR expert panel stated that:¹⁸⁷

There are trade-offs among these various dimensions [of efficiency] that need to be resolved by reference to some balancing or weighting of the different elements, and this balancing/weighting usually depends upon a value system beyond the notion of economic efficiency itself.

The LMR expert panel went on to state that the reference in the NEO, and similarly the NGO, to the 'long term interests of consumers' provided this value system.

In my opinion, the long term interests of consumers will best be served by promoting dynamic efficiency, which is the dimension of efficiency that requires a balance be struck between the interests of current and future consumers.¹⁸⁸ This is consistent with the interpretation of the NGO that I set out in section 3.1.1, ie, by way of the NGO's reference to the 'long term' interests of consumers:¹⁸⁹

...the NGO is structured so as to clarify that the balance of emphasis is to be given to the long term, dynamic dimension of efficiency.

Promoting dynamic efficiency can be described as promoting productive and allocative efficiency through time, ie, in successive time periods. It follows that the trade-off, or balancing, to which I refer above relates to the extent that a decision promotes efficient production and consumption in the current period without unduly

¹⁸⁶ Hansard, *South Australia House of Assembly*, February 2005.

¹⁸⁷ Expert Panel, *Review of the limited merits review regime – Stage 2 report*, September 2012, p 38.

¹⁸⁸ See section 3.1.1.

¹⁸⁹ See section 3.1.1.

compromising the potential for efficient production and consumption in the future. Correspondingly, a designated reviewable regulatory decision should not promote short term productive and/or allocative efficiency at the expense of dynamic efficiency.

At a high level, this trade-off can be characterised as one between the interests of consumers in the short term, as promoted by short term allocative and productive efficiency, and the interests of consumers in the long term, as promoted by dynamic efficiency. Indeed, this fundamental trade-off was recognised by the LMR expert panel, which noted that:¹⁹⁰

To the extent that the AER is required to engage in ‘balancing’ judgments, the chief balancing required is between the interests of consumers at different points in time.

For the avoidance of doubt, the primacy I give to the long term interests of consumers through the dynamic dimension of efficiency should not be interpreted as disregarding the interests of consumers in the short term. I explain above that a designated reviewable regulatory decision should promote the dimension of efficiency that goes to the long term interests of consumers without unduly compromising other dimensions of efficiency. This is consistent with the opinion of the LMR expert panel, which stated that:

It is the long-term interests of consumers that are relevant. This cannot reasonably be interpreted as meaning that the interests of consumers today are irrelevant, and that the only thing that matters is the welfare of energy consumers at some distant point in time.

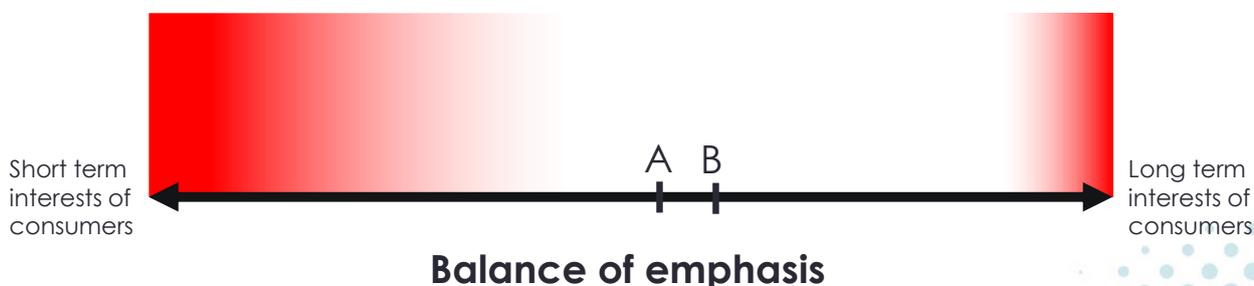
To summarise, in my opinion the preferable decision is that which promotes the long term interests of consumers of natural gas to the greatest degree. Further, in my opinion the long term interests of consumers will be best served by promoting dynamic efficiency to the greatest extent, without unduly compromising short term productive and allocative efficiency.

By way of an example to the contrary, a regulatory decision that is not preferable would be of a form that promotes the short term interests of consumers in such a manner that the benefit to consumers in the short term is outweighed by the much greater cost to consumers in the long term. In these circumstances, a preferable decision is one that rebalances the benefit derived by consumers such that, notwithstanding the existence of some cost to consumers in the short term, a disproportionately larger benefit (or the avoidance of disproportionately large costs) is realised in the long term.

5.2.3 Identifying a preferable decision

It follows from the above discussion that an assessment as to whether a decision is preferable should be made by reference to the balance struck between the long-term and short-term interests of consumers. I illustrate this balance in Figure 5.1, below.

Figure 5.1: A preferable decision



This assessment is an inherently difficult task because:

¹⁹⁰ Expert Panel, *Review of the limited merits review regime – Stage 1 report*, June 2012, p 37.

- it requires assessment of a designated reviewable regulatory decision and, in particular, the likely effect of the decision on incentives for dynamic efficiency; and
- it must be informed by the particular circumstances and context of a decision.

This difficulty notwithstanding, the requirement for a preferable decision to promote the long term interests of consumers without unduly compromising their short term interests means that decisions that place excessive weight on either short term or long term outcomes are unlikely to be preferable. Such decisions would sit at either ‘extreme’ of the trade-off, ie, the shaded areas in Figure 5.1. They are likely not to meet the NGO requirement because they will offend one or more of the principles set out in the building block framework or the Revenue and Pricing Principles. Further, the emphasis in the NGO on long-term interests suggests that decisions that place substantial weight on short term outcomes are more likely to offend the NGO requirement than those that place substantial weight on long term outcomes.

The more difficult task is to identify where potential decisions sit within these ‘extremes’. In Figure 5.1, decision B is preferable to decision A, because it places greater weight on the long term interests of consumers without unduly compromising short term interests. However, in order to draw this comparison, the relative balance of interests under each of the decisions needs to be assessed.

In my opinion, the identification of where two decisions may sit relative to each other can usefully be informed by consideration of:

- the differing potential short and long term effects of the different decisions, in relation to both cost and service outcomes, and the extent of trade-off or mutual exclusivity between these effects; and
- the extent to which the differences between the decisions relate to fundamental elements of the overall framework, and therefore may be expected to have significant long term consequences for future outcomes.

5.2.4 Identifying a materially preferable decision

For the Tribunal to make a determination to vary or set aside a designated reviewable regulatory decision, it must be satisfied that to do so will, or is likely to, result in a decision that is ‘materially preferable’ to the designated reviewable regulatory decision in making a contribution to the achievement of the NGO.¹⁹¹

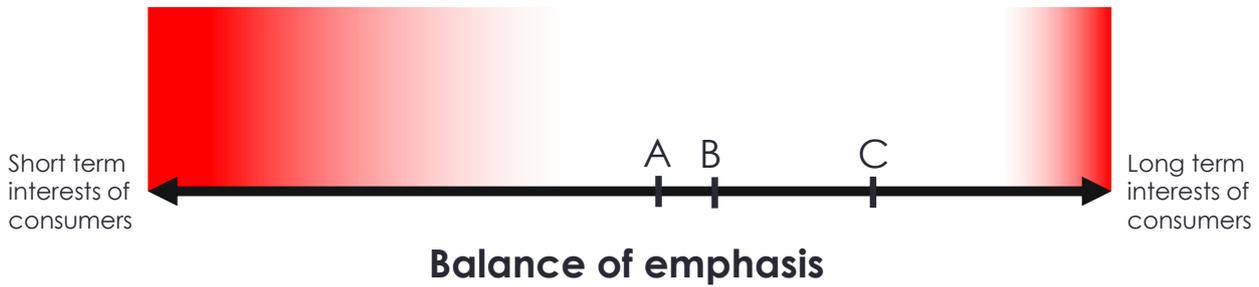
The framework I present above focuses on identifying – from the perspective of economic reasoning – when a decision is likely to be a preferable decision. The additional consideration required of the Tribunal is to determine that an alternative decision is *materially* preferable. In other words, it is necessary for the Tribunal to determine that the outcomes are sufficiently different under the two decisions to be material in terms of the balance between the short and long term interests of consumers.

In order for a decision to be considered materially preferable in economic terms, it needs to reflect a significantly greater long term benefit to customers than an alternative decision. I note that this is the test I proposed in my earlier report and that, at the time of preparing this report, the Tribunal has not yet released its decision on the appeals of the AER’s recent distribution determinations for the NSW and ACT distribution network businesses.

In Figure 5.2, decision B is preferable to decision A, but not materially preferable. In contrast, decision C would be materially preferable.

¹⁹¹ The law, section 259(4a)(c).

Figure 5.2: A materially preferable decision



The assessment of the materiality of the difference between outcomes should again focus on the extent to which an alternative decision would further dynamic efficiency, without compromising short term efficiency. The economic elements of a decision that are likely to be relevant for drawing this conclusion include those I list above, namely:

- the differing short and long term potential effects of the different decisions, in relation to both cost and service outcomes, and the extent of trade-off or mutual exclusivity between these effects; and
- the extent that the differences between the decisions relate to fundamental elements of the overall framework, and may therefore be expected to have significant long term consequences for future outcomes.

In addition, the extent of the difference between the revenue allowances implied under the alternative decisions is also likely to be relevant, with greater differences more likely to lead to materially different outcomes.

At the time of writing this report, the Tribunal has not released its decision on the appeals of the AER’s recent final determinations for the New South Wales and Australian Capital Territory distribution network businesses.¹⁹² Nevertheless, the economic framework that I explain above is consistent with previous statements made by the Tribunal as to the promotion of the long term interests of consumers, including that:

Consumers will benefit in the long run if resources are used efficiently, i.e. resources are allocated to the delivery of goods and services in accordance with consumer preferences at least cost. As reflected in the revenue and pricing principles, this in turn requires prices to reflect the long run cost of supply and to support efficient investment, providing investors with a return which covers the opportunity cost of capital required to deliver the services.¹⁹³

While consumers might benefit today from the lowest possible prices which do not provide an adequate return on investment, such prices are not in their long term interest...If those prices were sustained, they would not generally support the allocation of sufficient resources, including capital, to maintain and increase the supply of the affected service in accordance with the value consumers place on it. This would be contrary to the promotion of efficient investment and the long term interest of consumers.¹⁹⁴

¹⁹² The AER’s final determinations for the New South Wales and Australian Capital Territory distribution network businesses was appealed to the Tribunal by Public Interest Advocacy Centre Ltd, Ausgrid, Endeavour Energy and Essential Energy ([2015] ACompT 2), ActewAGL Distribution ([2015] ACompT 3) and Jemena Gas Networks (NSW) Limited ([2015] ACompT 4).

¹⁹³ Australian Competition Tribunal, *Re Application by ElectraNet Pty Limited (No 3)* [2008] ACompT 3, 30 September 2008, para 15.

¹⁹⁴ Australian Competition Tribunal, *Re Application by ElectraNet Pty Limited (No 3)* [2008] ACompT 3, 30 September 2008, para 251.

5.3 AER's framework for identifying a preferable decision

The law does not prescribe how the AER is to assess the degree to which a particular decision contributes to the achievement of the NGO. However, it does require that the AER provide reasons as to the basis on which it is satisfied that its decision is the preferable decision.¹⁹⁵

5.3.1 Summary of the AER's approach

In making its Draft Decision the AER provides only very limited guidance as to the framework it applied in determining whether the Draft Decision is the preferable decision. At a high level, the AER appears to recognise that whether or not a decision it makes is in the long term interests of consumers requires a balance to be struck between the different (efficiency) factors captured within the NGO, ie:¹⁹⁶

The long term interests of consumers are not delivered by any one of the NGO's factors in isolation, but rather by balancing them in reaching a regulatory decision.

The AER explicitly recognises that:¹⁹⁷

... The nature of decisions under the NGR is such that there may be a range of economically efficient decisions, with different implications for the long term interests of consumers.

The AER also recognises that, in deciding between such decisions, giving too much emphasis to one or other of the dimensions of efficiency is unlikely to contribute to the achievement of the NGO:¹⁹⁸

For example, we do not consider that the NGO would be advanced if allowed revenues encourage overinvestment and result in prices so high that consumers are unwilling or unable to efficiently use the network. This could have significant longer term pricing implications for those consumers who continue to use network services.

Equally, we do not consider the NGO would be advanced if allowed revenues result in prices so low that investors are unwilling to invest as required to adequately maintain the appropriate quality and level of service, and where customers are making more use of the network than is sustainable. This could create longer term problems in the network and could have adverse consequences for safety, security and reliability of the network.

In addition to these 'in principle' examples of outcomes that would not advance the NGO, the AER acknowledges that:¹⁹⁹

...there will almost always be several potential, overall decisions. More than one of these may contribute to the achievement of the NGO. Where this is the case, our role is to make an overall decision that we are satisfied contributes to the achievement of the NGO to the *greatest* degree.

The AER explains that it sets the amount of revenue that service providers can recover from customers so as to balance the elements of the NGO and that it considers the Revenue and Pricing Principles.

The AER appears to conclude that its Draft Decision contributes to the NGO to the greatest degree on the basis that it:²⁰⁰

- considered AGN's proposal;
- examined each of the building blocks along with the incentive mechanisms;

¹⁹⁵ The law, section 28(1)(b)(iii).

¹⁹⁶ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Overview*, November 2015, p 53.

¹⁹⁷ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Overview*, November 2015, p 53.

¹⁹⁸ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Overview*, November 2015, pp 53-54.

¹⁹⁹ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Overview*, November 2015, p 56.

²⁰⁰ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Overview*, November 2015, pp 56-57.

- considered submissions received in regard to AGN's Revised Proposal;
- engaged expert consultants to help understand if and how AGN's proposal contributes to the achievement of the NGO;
- considered interrelationships between the different constituent components of the Draft Decision;
- had regard to, and 'weighed up', all of the information before it; and
- made as much information publicly available as possible.

However, the AER offers no explanation or explanatory material as to how it has assessed what will contribute to the NGO to the greatest degree.

Rather, the AER's description as to how it will make decisions by reference to the intrinsic need for balancing the NGO factors distinguishing the short and long term interests of consumers is limited to the statement – appearing at an earlier point in its discussion of the framework it has applied – that:²⁰¹

In general, we consider that we will achieve this balance and, therefore, contribute to the achievement of the NGO, where consumers are provided a reasonable level of safe and reliable service that they value at least cost in the long run.

Put another way, the AER explicitly recognises both the potential for there to be more than one decision that promotes the NGO, and that many elements of its decisions depart from material put before it that is held also to promote the NGO. However, the AER does not anywhere explain how it has determined which of two possible decisions that will contribute to the achievement of the NGO will do so to the greatest degree. Rather, the AER simply discusses each constituent component of its decision by reference to the applicable rules and its direct assessment of the proposal of the relevant service provider.

5.3.2 Evaluation of the AER's framework

I agree with the principle identified by the AER that the extent to which a particular designated reviewable regulatory decision contributes to the achievement of the NGO will be determined by the degree to which it achieves a favourable balance between the factors that comprise the NGO.

However, the AER's framework for determining whether or not the balance between the factors that comprise the NGO is favourable, and then assessing alternative decisions by reference to this, is neither clear nor focused on achieving the long term interests of consumers. The AER's guiding criteria of 'a reasonable level of safe and reliable service that they [consumers] value, at least cost in the long run'²⁰² does not explicitly contemplate either the existence of a trade-off between the short and long term interests of consumers, or shed any light on the means by which it has identified and evaluated those trade-offs.

Consistent with this, in the Draft Decision the AER emphasises the degree of compliance with its own assessment made under the rules, rather than providing any assessment of the balance of considerations between the factors that underpin the NGO. In my opinion, this is not an adequate framework and is not geared towards identifying the decision that best meets the long term interests of consumers.

By way of example, it is unclear how the degree of compliance with the rules has any bearing on achieving a favourable balance between the allocative and dynamic dimensions of efficiency, even though this is a fundamental requirement of the NGO. Indeed, there may be multiple decisions that comply with the rules, but which have different implications as to economic efficiency, and therefore the long term interests of consumers.

In contrast, the framework I describe in section 5.2 seeks to balance the factors that comprise the NGO by reference to the long term interests of consumers, and provides guidance on how to identify the precise

²⁰¹ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Overview*, November 2015, p 53.

²⁰² AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Overview*, November 2015, p 53.

attributes of a decision that promotes the long term interests of consumers. It allows alternative decisions to be assessed relative to each other. Such an approach is also consistent with statements by the LMR expert panel and the Minister of Energy. In recognition of the inevitable trade-offs inherent in economic regulation and the need to balance the factors that comprise the NGO, the LMR expert panel states that:

... this balancing/weighting usually depends upon a value system beyond the notion of economic efficiency itself. It is the Panel's view that this is precisely what the reference to 'for the long-term interests of consumers' in the legislation provides.²⁰³

Similarly, the Minister of Energy stated that:

The long term interests of consumers must be the Australian Competition Tribunal's paramount consideration in determining that a materially preferable decision exists.²⁰⁴

And, further:

The Australian Competition Tribunal likewise will consider the contribution of the regulatory decision to achieving the objective by considering and balancing the combination of factors in the objective, and arriving at the decision that best serves the long-term interests of consumers.²⁰⁵

It is unclear whether and, if so, how, the application of the AER's framework gives primacy to the long term interests of consumers in determining the appropriate balance between the factors that comprise the NGO, and so the preferable decision. Further, the emphasis given by the Minister of Energy and the LMR expert panel to balancing the factors that comprise the NGO when determining the preferable decision give weight to the proposition that compliance with the rules is not sufficient to conclude that the decision promotes the long term interests of consumers to the greatest degree, and subsequently to conclude that it is a preferable decision.

I conclude that the AER has not applied any explicit framework for determining how, when there are two or more possible designated reviewable regulatory decisions that could be made, it has made the decision that would allow it to be satisfied will contribute to the NGO to the greatest degree.

5.4 Would the AER's decision represent a preferable decision?

I concluded in section 3.4 that failure to give effect to each and every building block, and to comply with each of the main Revenue and Pricing Principles, would compromise the achievement of the NGO requirement. In section 4 I concluded that, having had regard to the shortcomings and errors in the AER's Draft Decision identified by the expert reports that have been provided to me, the AER has offended the building block requirements in the rules and the Revenue and Pricing Principles. In particular, I identified that, although not explicitly weighing the trade-off between the short and long term interests of consumers, the AER's Draft Decision is strongly characterised by a short term perspective that does not extend beyond the next regulatory review period.

In terms of the framework I set out in section 5.2, in the absence of any explicit assessment and so weighting given to the long term interests of consumers it is infeasible for the AER's Draft Decision to reflect the long term interests of consumers. It is therefore infeasible for the Draft Decision to contribute to the NGO, regardless of the level of short term benefit the decision may provide. It follows that such a decision would fall outside of the range of those that are consistent with the NGO, as illustrated by decision D in Figure 5.3.

²⁰³ Expert Panel, *Review of the limited merits review regime – Stage 2 report*, September 2012, p 38.

²⁰⁴ Hansard, *South Australia House of Assembly*, February 2005.

²⁰⁵ Hansard, *South Australia House of Assembly*, February 2005.

Figure 5.3: The NGO requirement



In my opinion, such a decision cannot therefore be a preferable decision. An alternative decision that does not offend the building block requirements and the Revenue and Pricing Principles would clearly be a preferable designated reviewable regulatory decision, because this would promote the long term interests of consumers to the greatest degree, without unduly compromising the short term interests of consumers.

Notwithstanding this conclusion, I have also considered whether the AER's Draft Decision could be a preferable decision, putting aside my (important) conclusion that the AER's Draft Decision does not meet the NGO requirement, see section 4.

I discuss in section 5.2.2 above that the preferable decision is that which, when two or more decisions are possible, will promote the long term interests of consumers of natural gas to the greatest degree. Further, I set out my opinion that the long term interests of consumers will best be served by promoting dynamic efficiency to the greatest extent, without unduly compromising short term productive and allocative efficiency.

As such, the framework I describe in section 5.2 requires an assessment of the AER's decision by reference to the extent to which it promotes dynamic efficiency. I have also had regard to:

- the differing potential short and long term effects of the different decisions, in relation to both cost and service outcomes, and the extent of trade-off or mutual exclusivity between those effects; and
- the extent to which the differences between the decisions relate to significant elements of the overall framework, and so may be expected to have wider reaching consequences for future outcomes.

I note in section 4 that I have been provided with a number of expert reports, each of which supports the proposition that the relevant constituent component of the AER's Draft Decision does not promote the NGO. This is a consequence of a range of both errors and shortcomings in the AER's approach.

The expert reports prepared by CEG, HoustonKemp and Frontier Economics give weight to the contention that the allowed rate of return in the Draft Decision is not commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as AGN. Specifically, the allowed rate of return in the Draft Decision will undercompensate investors, given the perceived level of risk. This will not encourage ongoing investment in gas pipeline services and so will promote neither productive and dynamic efficiency nor the long term interests of consumers.

In Frontier's expert opinion, the AER has erred in its approach to estimating gamma, namely in relation to estimating the distribution and redemption rate parameters. Specifically, the AER's approach overestimates both the distribution and benefit to investors of imputation credits and so undercompensates investors for the cost of corporate income tax. Consequently, the AER's decision on gamma does not promote ongoing investment in gas pipeline services and so does not promote productive and dynamic efficiency.

I understand from the expert opinion of CEG that the AER's approach to forecasting inflation is not the best estimate of inflation and, in current market circumstances, gives rise to investors deriving an actual nominal return that is not equal to the nominal return used in the PTRM. Notwithstanding the abovementioned errors

in the AER's approach to estimating the rate of return, this will not promote ongoing investment in gas network infrastructure and so acts to compromise productive and dynamic efficiency.

The expert opinion of Incenta shows that the Draft Decision not allowing advancement of cash flow will not provide AGN with a reasonable opportunity to recover its efficient financing costs. Similarly, the conclusions drawn by ACIL Allen Consulting and Huegin add weight to the contention that the decision to apply a productivity adjustment in calculating AGN's opex allowance does not provide AGN with a reasonable opportunity to recover its efficient costs. Consequently, these elements of the AER's Draft Decision promote neither productive nor dynamic efficiency.

Consistent with the AER's apparent focus on promoting short term allocative and productive efficiency, the Draft Decision provides a capex allowance for AGN's mains replacement program over the next regulatory control period that is approximately \$158 million less than that in AGN's Revised Proposal.²⁰⁶ The conclusions drawn by Jacobs support the proposition that this element of the Draft Decision will have adverse implications for the safe operation of the network to the detriment of the long term interests of consumers. Further, the significance of this conclusion is magnified by the risks addressed by AGN's mains replacement program, which include loss of life and injuries.

I understand from AGN's Revised Proposal that the AER's decision not to apply a CESS to capex in the next access arrangement period has the effect of diminishing, or undermining, the incentive for AGN to improve the efficiency of its capex. It follows that not applying a CESS to capex in the next access arrangement period will result in AGN facing incentives that are inconsistent with dynamic efficiency and the long term interests of consumers.

The expert reports provided to me identify a number of significant shortcomings across the breadth of constituent components that comprise the AER's Draft Decision. However, the common theme arising from my review of these expert reports is the implicit focus in the Draft Decision on reducing prices in the short term.

Such lower prices for pipeline services would be expected to give rise to some increase in short term allocative efficiency, since there is likely to be some increase in the number of consumers served and/or the quantity of gas they consume. However, a corollary of these circumstances is the inability of AGN to recover its efficient costs and to attract ongoing investment in gas pipeline services. This can be expected to have pronounced and long-lasting adverse effects on the long term interest of consumers. In particular, it places at risk the investments consumers must pay for in order to connect to gas pipeline services.

AGN will be at risk of not achieving future productivity gains that are likely to be available, and future customers will pay higher prices for a deteriorating service. The potential for future productive and allocative efficiency is therefore compromised. This represents a loss in dynamic efficiency; a welfare gain of current customers is being traded for a greater loss in welfare of future customers.

The expert reports provided to me demonstrate that the approach adopted by the AER in its Draft Decision places undue weight on short term allocative efficiency, at the expense of longer-term considerations of dynamic efficiency. I understand from these reports that this shortcoming could be addressed by adopting the approach in AGN's Revised Proposal.

I conclude that the AER's constituent decision on the allowed rate of return has not given sufficient weight to dynamic efficiency, and therefore the long term interests of consumers.

I explained in section 5.2 that identification of a preferable decision requires consideration of the differing short and long term effects associated with different decisions. Differences of the magnitude that exist between the AER's Draft Decision and the alternatives proposed by the expert reports will inevitably lead to different outcomes. Further, the AER's decisions to substitute efficiency for a short term gain in the allocative

²⁰⁶ Calculated equal to \$326 million less \$168 million. See AGN, *Revised access arrangement information for AGN's South Australian gas distribution network 2016-21 – Attachment 8.9 (Capital expenditure)*, January 2016, pp 5-6.

efficiency of prices involves a trade-off between significant potential effects on price and quality outcomes over the short and long term.

The AER appears to recognise the potential implications of this trade-off:²⁰⁷

...[the AER] do not consider that the NGO would be advanced if allowed revenues encourage overinvestment and result in prices so high that consumers are unwilling or unable to efficiently use the network. This could have significant longer term pricing implications for those consumers who continue to use network services.

Equally, we do not consider the NGO would be advanced if allowed revenues result in prices so low that investors are unwilling to invest as required to adequately maintain the appropriate quality and level of service, and where customers are making more use of the network than is sustainable. This could create longer term problems in the network and could have adverse consequences for safety, security and reliability of the network.

However, in attempting to strike a balance between differing short and long term effects, I conclude from the evidence provided in the expert reports that the AER has – albeit implicitly – placed too great an emphasis on the short term effects of its decision.

The final relevant consideration in the assessment of whether a decision is preferable is the extent to which differences between possible decisions relate to significant elements of the overall framework, and so may be expected to have wide reaching consequences for future outcomes.

The AER's decision to give primacy in its foundation model approach to information and methods used under a previous version of the rules for determining the allowed rate of return amounts to the substantial disregard of relevant information, to which the current rules require it to have regard. This has implications for the expected rate of return AGN is allowed to earn and can therefore be expected to have wide reaching consequences for the future actions of AGN and service-related outcomes.

The AER appears to be of the opinion that the rules *permit* it to take account of relevant evidence when determining the allowed rate of return:²⁰⁸

The Australian Energy Market Commission (AEMC) in its final rule determination considered that the estimation of the required rate of return could be improved by permitting us to take account of a broad range of information.²⁰⁹

The rate of return framework provides for us to take into account a wide range of relevant estimation methods, financial models, market data and other evidence as well as considering inter-relationships between parameter values.²¹⁰

This is incorrect; when determining the allowed rate of return, regard *must be had* to this information.²¹¹ Although the rules do not stipulate the weight to be placed on each piece of relevant information, this does not absolve the AER of the requirement to have regard to all relevant information when estimating an allowed rate of return that is commensurate with the efficient financing costs of the benchmark efficient entity,²¹² or the requirement to produce the best estimate possible in the circumstances.²¹³ However, I understand from the expert reports provided to me that the AER has chosen an approach to determining the allowed rate of return that cannot have regard to all relevant information and models.

²⁰⁷ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Overview*, November 2015, p 53.

²⁰⁸ AER, *Final decision TransGrid transmission determination 2015-18 – Attachment 3 (Rate of return)*, April 2015, pp 16-17.

²⁰⁹ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 3 (Rate of return)*, November 2015, p 17.

²¹⁰ AER, *Draft decision Australian Gas Networks access arrangement 2016-21 – Attachment 3 (Rate of return)*, November 2015, p 18.

²¹¹ The rules, rule 87(5).

²¹² The rules, rule 87(2).

²¹³ The rules, rule 74(2)(b).

The difference between this approach of the AER and the alternative approaches proposed by the expert reports relate to a significant element of the overall framework, on which the AER sought change in order to improve the outcome of the regulatory process. A decision that fails to have regard to a fundamental change to the regulatory framework, while at the same time being subject to substantial criticism in relation to the adequacy of the approach underpinning the decision, is unlikely to represent a preferable decision.

Similarly, the AER's decision not to apply a CESS to capex in the next regulatory control relates to a significant and fundamental element of the regulatory framework, ie, providing service providers with incentives that take the place of those that would otherwise be provided by competition, in order to promote all three dimensions of economic efficiency. It follows that not applying a CESS to capex in the next access arrangement period will result in AGN facing incentives that are not consistent with economic efficiency and the long term interests of consumers.

Further, the potential for the absence of a CESS to result in inefficient substitution between opex and capex gives weight to the proposition that the AER has not adequately taken into account the interdependencies between the opex, capex and incentive scheme constituent components of the Draft Decision. Similarly, the draft decision not to advance cash flow by means of advancing the recovery of depreciation, and the resultant implications on the financing costs of a benchmark efficient entity, supports the proposition that the AER has not adequately taken into account the interdependencies between the rate of return and return of capital constituent components of its Draft Decision.

My assessment of the AER's Draft Decision and the expert reports provided to me against the framework I set out in section 5.2 leads me to conclude that the AER has not met the preferable decision requirement. The AER's Final Decision, should it reflect the Draft Decision, will not provide sufficient weight to dynamic efficiency, being that element of efficiency directed to the long term interests of consumers.

Rather, the AER's decision appears to be predicated on a view that near term allocative efficiency is the most important dimension of efficiency in determining revenue allowances. The AER's Draft Decision is not consistent with the emphasis given in the NGO to the long-term interests of consumers. It is also inconsistent with the guidance provided by the law, the LMR expert panel and the Minister for Energy, that the preferable decision should be determined by reference to the long-term interests of consumers.

5.5 Is the AER's decision a materially preferable decision?

I explain in section 5.2.4 that, adopting an economic perspective, in order for a decision to be materially preferable, it must be expected to provide a significantly greater long term benefit to consumers than a specified alternative without unduly compromising short term interests.

The expert reports I review and summarise in section 4 identify a number of errors and shortcomings in the constituent components of the AER's Draft Decision. By consequence of these errors, the approach adopted by the AER involves a disproportionate emphasis on the short term interests of consumers to the detriment of their long term interests.

The extent of this misdirected emphasis is reinforced by the substantively different cost building blocks and revenue allowance in the Draft Decision, as compared with that derived using the approach recommended by the expert reports. In Table 1 below I show the different cost allowances that arise from the errors in the AER's Draft Decision that I summarise in section 4, as provided to me by JWS.



Table 1: The financial implications of the errors in the AER's Draft Decision over 2016 to 2021

	Effect of errors on AGN's revenue allowance (nominal \$ million)
Rate of Return	
Return on debt	-95.5
Return on equity	-104.6
Corporate income tax	
Gamma	-5.1
Forecast inflation	-35.2
Opex (productivity factor)	-6.4
Capex (mains replacement program)	-19.7
Total	-266.5

Notes: (1) the financial implications of the errors in the AER's Draft Decision on financeability and incentive schemes are not easily quantified at this time; (2) the impact of the AER's errors in respect of the return on debt are forecasts only for 2017/18 to 2020/21.

I outlined in section 4.1 that the return on capital provided for by the AER's approach is \$200 million less than the return provided for by the alternative approaches recommended by the experts to take account of the errors they identify.

The AER's Draft Decision disallows \$158 million of capex associated with AGN's mains replacement program. Since capex is included in the asset base and recovered over the life of the corresponding assets, the financial implications of the AER's draft decision on the mains replacement program will extend beyond the next regulatory control period and be materially greater than the \$19 million revenue shortfall to be experienced by AGN in the next regulatory control period.

I understand that the primary basis of the mains replacement program is to avoid injury to consumers of AGN's gas pipeline services caused by accidents arising from a poorly maintained gas pipeline. In my opinion, it is necessarily concordant with the NGO and, in particular, the long term interests of consumers, that such injuries be prevented if achievable at reasonable cost. Therefore, having regard to the materiality of the risks outlined in the Jacobs report, it is in the long term interest of consumers for those risks to be addressed by incurring the expenditure identified by the mains replacement program.

The emphasis on the short term interests of consumers in the AER's Draft Decision can be expected to cause prices to be lower for the next access arrangement period. However, the scale of cuts to AGN's expenditure allowances, as identified in the expert reports provided to me, is highly likely to have adverse implications on the price, quality, safety, reliability and security of natural gas services over an extended time horizon. These effects can be expected to begin to be felt even within the next access arrangement period. Such outcomes alone would serve to mitigate any benefit to consumers that may arise in the form of lower prices for natural gas services in the short term.

I have outlined above that the scale of the reductions in allowed revenues and the incentive arrangements in the Draft Decision will have substantive, adverse implications for:

- AGN's ability to continue to attract finance and the cost of such finance;
- the incentives on AGN to improve efficiency of its expenditure;
- the future costs that AGN will need to incur to maintain and improve pipeline service quality; and
- the price, quality, safety, reliability and security of pipeline services provided to customers.

Each of these factors amounts to evidence that the decision will not promote the long term interests of consumers.

By contrast, an alternative decision by the Tribunal that corrects the errors and shortcomings I discuss in section 4 would re-align the balance of emphasis so that primacy is given to the long term interests of consumers. In particular, the expert reports provided to me highlight that:

- AGN's Revised Proposal reflects a rate of return based on an alternative approach that uses all relevant information to produce a reliable estimate incorporating prevailing market conditions, rather than relegating relevant information to a position of secondary evidence from which it cannot materially impact the final estimate, as is the AER's current approach.
 - > An estimate calculated using this approach is more likely to reflect efficient financing costs in all market conditions and, in particular, will not underestimate efficient financing costs in currently prevailing market conditions, and so is more consistent with achieving dynamic and long term productive efficiency and therefore the long term interests of consumers.
- The expert reports provided to me recommend an alternative approach to estimating gamma that uses a value of the distribution rate of imputation credits previously accepted by the Tribunal as reflecting the distribution rate of the benchmark efficient entity, rather than the approach taken by the AER in its recent decisions that chooses to depart from using this value.
 - > An estimate of gamma using this approach is more likely to reflect efficient financing costs of the benchmark efficient entity, and so is more consistent with achieving dynamic and allocative efficiency and therefore the long term interests of consumers.
- The Revised Proposal incorporates an approach to forecasting expected inflation that produces a best estimate, under all market conditions. This will ensure that the operation of the PTRM and RFM work together to deliver an expected actual nominal return that is equal to the nominal return used as an input to the PTRM and determined in accordance with the rate of return objective.
 - > A forecast of expected inflation determined using this approach will ensure that investors expect to derive a return commensurate with the perceived level of risk and so promote ongoing investment in gas network services and so promote productive and dynamic efficiency as well as the long term interests of consumers.
- AGN's Revised Proposal advances cash flow – by means of advancing the recovery of depreciation – sufficient to maintain the credit rating used to determine the allowance for cost of debt. This will ensure that AGN has a reasonable opportunity to recover its efficient financing costs and adequately takes account of the interdependency between depreciation and the return on capital.
 - > Such an advancement of cash flow will encourage ongoing investment in gas network services and, consequently, promote productive and dynamic efficiency along with the long term interests of consumers.
- The allowance for opex in AGN's Revised Proposal does not incorporate an adjustment for opex productivity since the application of a positive partial productivity factor would not provide AGN with a reasonable opportunity to recover its efficient costs.
 - > The absence of an opex productivity adjustment will, in AGN's circumstances, promote ongoing investment in gas network services and, in so doing, promote productive and dynamic efficiency along with the long term interests of consumers.
- AGN's Revised Proposal includes an allowance for the capex required to implement its mains replacement program, since the implementation of this plan is consistent with the AS/NZS 4645 standard and required to mitigate the risks associated with mains that are at risk of fracturing or cracking, which include loss of life, injuries and property damage.
 - > A capex allowance that permits the full implementation of AGN's mains replacement program will support the safe, reliable, and secure supply of natural gas and so contribute to the long term interest of consumers.

- AGN's Revised Proposal includes a CESS to AGN's capex in the next regulatory control period so as to provide AGN with financial incentives to use the least cost combination of both capital and operating, inputs while also encouraging the pursuit of efficiency improvements. Further, it will discourage inefficient substitution between opex and capex and remove the incentives to inefficiently defer capex savings that would otherwise exist, and so take account of the interdependencies that exists between incentive arrangements, capex and opex.
 - > The application of a CESS to AGN's capex in the next regulatory control period will promote productive and dynamic efficiency and so promote the long term interests of consumers.

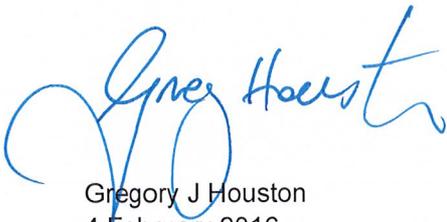
My assessment of the expert reports indicates that such an alternative decision, which is more likely to result in outcomes that enable AGN to recover its efficient costs and to provide appropriate incentives for AGN to achieve efficiencies going forward, is achievable by either the AER or, if necessary, the Tribunal.

Such an alternative decision would, as a consequence, promote dynamic efficiency to a greater degree. Compliance with the building block requirements in the rules (such as the requirement for an allowed rate of return to be commensurate with the efficient financing costs of a benchmark efficient entity) ensures that the proposal does not unduly compromise short term productive and allocative efficiency. The expert reports I have been provided with suggest that future service quality would not be compromised by a decision that adopts the alternative approaches they suggest, in contrast to likely future outcomes under the AER's decision.

In my opinion, a decision that corrects the errors identified in each of the expert reports – either separately or in combination – would result in a materially preferable designated NGO decision, because it is more likely to promote the long term interests of consumers to a materially greater degree without compromising the short term interests of consumers, as compared with the decision made by the AER in its Draft Decision.

6. Declaration

In accordance with the CM7 Guidelines, I confirm that I have made all inquiries that I believe are desirable and appropriate, and that no matters of significance that I regard as relevant have, to my knowledge, been withheld from the Court.



Gregory J Houston
4 February 2016

Annexure A1 – Letter of instruction



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4 February 2016

Mr Greg Houston
HoustonKemp Economists
Level 40, 161 Castlereagh Street
SYDNEY NSW 2000

BY EMAIL

Dear Sir

Australian Gas Networks Limited – AER Gas Price Review

We act for Australian Gas Networks Limited (**AGN**). We refer to your previous report prepared for AGN dated 30 June 2015 entitled “*Australian Gas Networks – AER Gas Price Review*” (**Previous Report**). AGN wishes to retain you to provide a further report as outlined below in response to the Draft Decision issued by the Australian Energy Regulator (**AER**).

The background to the preparation of the report is as follows.

Terms of Reference

AER Draft Decision

AGN submitted its access arrangement revision proposal for its South Australian gas distribution network to the AER on 1 July 2015. On 26 November 2015, the AER published its Draft Decision on AGN’s revision proposal.

The AER’s Draft Decision has rejected a number of aspects of AGN’s access arrangement revision proposal, including in relation to:

- the rate of return;¹
- the value of imputation credits (gamma);²
- the “financeability” of the overall proposal;³

¹ Draft Decision, Attachment 3.

² Draft Decision, Attachment 4.

- AGN's forecast operating expenditure (through the application of a productivity factor adjustment);⁴
- AGN's forecast capital expenditure in respect of its mains replacement programme;⁵ and
- AGN's proposed incentive schemes.⁶

Following submissions and other material which AGN has submitted and will shortly submit to the AER in response to the Draft Decision, the AER is required to make a designated reviewable regulatory decision⁷ (which will be the Final Decision).

Obligations on the AER: contribution to NGO

Under the National Gas Law (NGL), the AER must, in performing or exercising an economic regulatory function or power, including the making of a designated reviewable regulatory decision, perform or exercise that function or power in a manner that will or is likely to contribute to the achievement of the national gas objective⁸ (referred to below as the "contribution to NGO requirement").

The national gas objective (NGO) is defined in section 23 of the NGL as:

"The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."

Further, under the NGL, if the AER is making a designated reviewable regulatory decision, it must⁹ specify:

- (a) the manner in which the constituent components of the decision relate to each other; and
- (b) the manner in which that interrelationship has been taken into account in the making of the decision.

Where there are two or more possible designated reviewable regulatory decisions – preferable test

Further, under the NGL, in making a designated reviewable regulatory decision, where there are two or more possible designated reviewable regulatory decisions that could be made, the AER is required:

- (a) to make the one that the AER is satisfied will, or is likely to, contribute to the achievement of the national gas objective (as stated above) to the greatest degree (defined in the NGL as "the preferable designated reviewable regulatory decision"); and

³ Draft Decision, Attachments 3 (pp 3-220 to 3-224) and 5 (sections 5.2 and 5.4.1).

⁴ Draft Decision, Attachment 7.

⁵ Draft Decision, Attachment 6.

⁶ Draft Decision, Attachment 14.

⁷ See s 2(1) of the NGL.

⁸ See s28(1)(a) of the NGL.

⁹ As required by s28(1)(b)(ii) of the NGL.

(b) to specify the reasons for the basis of that satisfaction,¹⁰

(collectively “*the preferable designated reviewable regulatory decision requirement*”).

Tribunal review – materially preferable test

Further, on any merits review by AGN before the Australian Competition Tribunal, the Tribunal is only entitled to vary or set aside the reviewable regulatory decision if it is satisfied that to do so will, or is likely to, result in a decision that is materially preferable to the AER’s decision in making a contribution to the achievement of the national gas objective (“*a materially preferable designated NGO decision*”).¹¹

Errors identified in the Draft Decision by experts retained by AGN

AGN has (individually and jointly with other regulated service providers) retained a number of experts who have reviewed the Draft Decision and who have expressed certain opinions in relation to the rate of return, gamma, the mains replacement programme, financeability and productivity in the context of operating expenditure. These experts have concluded that the AER has fallen into error in a number of respects as outlined in their reports (**Further Expert Reports**). A list of the experts, together with the Further Expert Reports, and the key areas covered by those reports, is set out in the Table below.

Expert	Subject Matter/Title
<i>Return on debt</i>	
Competition Economists Group	Critique of the AER’s approach to transition
Competition Economists Group	Criteria for assessing fair value curves
Competition Economists Group	Critique of AER analysis of New Issue Premium
Competition Economists Group	Curve testing and selecting averaging periods
<i>Return on equity</i>	
HoustonKemp Economists	The Cost of Equity: Response to the AER’s Draft Decisions for the Victorian Electricity Distributors, ActewAGL Distribution and Australian Gas Networks
Frontier Economics	The relationship between government bond yields and the market risk premium
Frontier Economics	The required return on equity under a foundation model approach
Frontier Economics	Estimating the equity beta for the benchmark efficient entity
Frontier Economics	An updated estimate of the required return on

¹⁰ See s28(1)(b)(iii) of the NGL.

¹¹ As that term is defined in s259(4a)(c) of the NGL.

Expert	Subject Matter/Title
<i>equity</i>	
<i>Rate of return (overall)</i>	
Competition Economists Group	Measuring expected inflation for the PTRM
<i>Gamma</i>	
Frontier Economics	The appropriate use of tax statistics when estimating gamma
<i>Financeability</i>	
Incenta Economic Consulting	Assessing financeability for a benchmark regulated business: comment on the Draft Decision
<i>Mains replacement programme</i>	
Jacobs	Mains replacement program review
John Ferguson (APA Group)	Affidavit
<i>Operating expenditure and productivity</i>	
Huegin	The use of economic benchmarking in the gas distribution industry
ACIL Allen Consulting	Opex partial productivity forecasts

Our letter of instruction dated 25 June 2015 (for your Previous Report) identified a number of reports from experts who had reviewed the AER's Rate of Return Guideline and a number of (then) recent decisions of the AER and expressed certain opinions in relation to the rate of return and gamma, including that the AER had fallen into error in a number of respects as outlined in those reports (**Previous Expert Reports**). A number of those errors are present in the AER's Draft Decision.

In this letter, we refer collectively to the Previous Expert Reports and the Further Expert Reports identified above as the **Expert Reports**.

AGN has not retained any experts to opine on its proposed incentive schemes. In respect of this topic and the others mentioned above, you should also refer to AGN's response to the Draft Decision dated 6 January 2016 (**AGN Response**), which identifies what AGN believes to be the errors made by the AER in the Draft Decision.

Request to prepare Expert Report

We request that you prepare a report addressing the following issues:

First Issue – whether the NGO requirement is met by the Draft Decision

- 1 If the AER's Final Decision in relation to AGN's revised access arrangement proposal continues to contain the errors in the Draft Decision identified in the Expert Reports and the AGN Response, please give your opinion whether, in making the

Final Decision for AGN, the AER will have met the contribution to NGO requirement. When expressing your opinion on this issue, would you please:

- (a) set out your understanding of the NGO requirement;
- (b) having regard to paragraph (a) above, set out the principles which should be adopted in a regulatory regime which promotes the NGO requirement. Please explain how the revenue and pricing principles in section 24 of the NGL may be relevant in this regard;
- (c) having regard to paragraphs (a) and (b) above, explain the role of the building blocks approach under the National Gas Rules (**Rules**) and whether it is concordant with those principles and therefore the NGO requirement;
- (d) having regard to paragraphs (a) to (c) above, explain how in your view (if at all) a failure to comply with those principles and/or the Rules as they relate to the building blocks approach (and any other Rules in any other relevant regard) will, or is likely to, result in a failure to meet the NGO requirement;
- (e) summarise any matters adopted by, and errors made by, the AER in the Draft Decision as identified in the Expert Reports, the AGN Response and any other materials referred to above, which suggest that the principles (including the revenue and pricing principles), the building blocks and the other Rules you have identified in paragraphs (b) to (d) above have been offended;
- (f) summarise each material constituent component of the Draft Decision and, in turn, the overall impact of the Draft Decision on the business of AGN over the regulatory review period (2016 to 2020); and
- (g) opine on whether, having regard to the matters above which will be dealt with in your report, the AER is likely to have met the NGO requirement. When assessing whether in your opinion the AER has met the NGO requirement, please take into account the whole of the matters raised in the Expert Reports, not only the errors as identified by the experts, together with the other materials referred to above.

Second Issue – whether the preferable designated reviewable regulatory decision requirement is met by the Draft Decision

- 2 Having regard to the opinions you have expressed when addressing the first issue above, please assess and report on whether, having regard to the Expert Reports, the AGN Response and the other materials referred to above, the AER will have met the preferable designated reviewable regulatory decision requirement. Please note again that, when assessing whether in your opinion the AER has met this requirement, you should take into account the whole of the matters raised in the Expert Reports, not only the errors as identified by the experts, together with matters you consider relevant in the other materials referred to above.

Third Issue – whether a materially preferable designated NGO decision will result if the identified errors are corrected

- 3 Further, please assess and report on whether, having regard to the Expert Reports, the AGN Response and the other materials referred to above, either separately or collectively,¹² the errors identified in each of those documents, if corrected, would, or would be likely to, result in a materially preferable designated NGO decision overall.

¹² See s246(1a) of the NGL.

- 4 If you make an affirmative assessment in relation to the issue in question 3 above, please provide the basis upon which you make that assessment.
- 5 In particular, in making the assessment in relation to the issue in question 3 above, would you please include the following in your report:¹³
- (a) a consideration of how the constituent components of those parts of the decision which each expert has been asked to consider (and which are dealt with in the AGN Response and the other materials) interrelate with each other and with the matters which each expert (and AGN and otherwise dealt with in the other materials) has raised as errors (and which may therefore be grounds for review);
 - (b) how you have taken into account the revenue and pricing principles;¹⁴ and
 - (c) in assessing the extent of the contribution of the correction(s) identified in the Expert Reports (and otherwise dealt with in the AGN Response and in the other materials referred to above) to the achievement of the NGO, your consideration of the decision as a whole in respect of the topics the experts have reviewed and which are otherwise dealt with in the AGN response and in the other materials referred to above. When addressing this issue, would you please relate your consideration to the matters you raise when addressing paragraphs (a) to (h) of question 1 above.

In relation to question 5 above, we stress that this is not an exhaustive list and that any other matter that may be relevant under the NGL should be taken into account.¹⁵

If you are in doubt about whether a matter may or may not be relevant in this regard, please include your consideration of it in your report. In particular, you should take into account any other matter you reasonably consider material and relevant and should indicate the relevant matter or matters which informs your opinions on the “materially preferable” issue referred to in question 3 above.

Further, in relation to questions 3 to 5 above, please note that¹⁶ the following matters do not, in themselves, determine the question about whether a materially preferable decision exists, namely:

- (a) the establishment of a ground for review under section 246(1) of the NGL – that is, whether there is error or are errors;
- (b) consequences for, or impacts on, the average annual regulated revenue of a covered pipeline service provider; or
- (c) that the amount that is specified in or derived from the decision exceeds the threshold amount required for the granting of leave (under section 249(2) of the NGL).

Use of Report

It is intended that your report will be submitted by AGN to the AER as a submission in response to the Draft Decision. The report may be provided by the AER to its own advisers. The report must be expressed so that it may be relied upon both by AGN and by the AER.

¹³ Which the Tribunal itself is required under s259(4b) of the NGL to have regard to when assessing whether a result will be, or will be likely to be, materially preferable.

¹⁴ Those principles are set out in s24 of the NGL.

¹⁵ The opening words of s259(4b) of the NGL make this clear.

¹⁶ As s259(4b) of the NGL indicates.

The AER may ask queries in respect of the report and you will be required to assist in answering these queries. The AER may choose to interview you and if so, you will be required to participate in any such interviews.

The report will be reviewed by AGN's legal advisers and will be used by them to provide legal advice as to its respective rights and obligations under the NGL and the Rules.

If AGN was to challenge any decision ultimately made by the AER, that review will be made to the Australian Competition Tribunal and your report will be considered by the Tribunal. AGN may also seek review by a court and the report would be subject to consideration by such court. You should therefore be conscious that the report may be used in the resolution of a dispute between the AER and AGN. Due to this, the report will need to comply with the Federal Court requirements for expert reports, which are outlined below.

Timeframe

Submissions in respect of the Draft Decision must be made by **4 February 2016** and your report will need to be finalised by that time.

Compliance with the Code of Conduct for Expert Witnesses

Attached is a copy of the Federal Court's Practice Note CM 7, entitled "*Expert Witnesses in Proceedings in the Federal Court of Australia*", which comprises the guidelines for expert witnesses in the Federal Court of Australia (**Expert Witness Guidelines**).

Please read and familiarise yourself with the Expert Witness Guidelines and comply with them at all times in the course of your engagement by AGN.

In particular, your report should contain a statement at the beginning to the effect that the author of the report has read, understood and complied with the Expert Witness Guidelines.

Your report must also:

- 1 contain particulars of the training, study or experience by which the expert has acquired specialised knowledge;
- 2 identify the questions that the expert has been asked to address;
- 3 set out separately each of the factual findings or assumptions on which the expert's opinion is based;
- 4 set out each of the expert's opinions separately from the factual findings or assumptions;
- 5 set out the reasons for each of the expert's opinions; and
- 6 otherwise comply with the Expert Witness Guidelines.

The expert is also required to state that each of the expert's opinions is wholly or substantially based on the expert's specialised knowledge.

It is also a requirement that the report be signed by the expert and include a declaration that "*[the expert] has made all the inquiries that [the expert] believes are desirable and appropriate and that no matters of significance that [the expert] regards as relevant have, to [the expert's] knowledge, been withheld from the report*".

Please also attach a copy of these terms of reference to the report.

Terms of Engagement

Your contract for the provision of the report will be directly with AGN. You should forward AGN any terms you propose govern that contract as well as your fee proposal.

Please sign a counterpart of this letter and return it to us to confirm your acceptance of the engagement.

Yours faithfully



Enc: Federal Court of Australia Practice Note CM 7, "Expert Witnesses in Proceedings in the Federal Court of Australia"

.....
Signed and acknowledged by Greg Houston

Date

FEDERAL COURT OF AUSTRALIA
Practice Note CM 7
EXPERT WITNESSES IN PROCEEDINGS IN THE
FEDERAL COURT OF AUSTRALIA

Practice Note CM 7 issued on 1 August 2011 is revoked with effect from midnight on 3 June 2013 and the following Practice Note is substituted.

Commencement

1. This Practice Note commences on 4 June 2013.

Introduction

2. Rule 23.12 of the Federal Court Rules 2011 requires a party to give a copy of the following guidelines to any witness they propose to retain for the purpose of preparing a report or giving evidence in a proceeding as to an opinion held by the witness that is wholly or substantially based on the specialised knowledge of the witness (see **Part 3.3 - Opinion** of the *Evidence Act 1995* (Cth)).
3. The guidelines are not intended to address all aspects of an expert witness's duties, but are intended to facilitate the admission of opinion evidence¹, and to assist experts to understand in general terms what the Court expects of them. Additionally, it is hoped that the guidelines will assist individual expert witnesses to avoid the criticism that is sometimes made (whether rightly or wrongly) that expert witnesses lack objectivity, or have coloured their evidence in favour of the party calling them.

Guidelines

1. General Duty to the Court²

- 1.1 An expert witness has an overriding duty to assist the Court on matters relevant to the expert's area of expertise.
- 1.2 An expert witness is not an advocate for a party even when giving testimony that is necessarily evaluative rather than inferential.
- 1.3 An expert witness's paramount duty is to the Court and not to the person retaining the expert.

¹ As to the distinction between expert opinion evidence and expert assistance see *Evans Deakin Pty Ltd v Sebel Furniture Ltd* [2003] FCA 171 per Allsop J at [676].

²The "*Ikarian Reefer*" (1993) 20 FSR 563 at 565-566.

2. The Form of the Expert's Report³

- 2.1 An expert's written report must comply with Rule 23.13 and therefore must
- (a) be signed by the expert who prepared the report; and
 - (b) contain an acknowledgement at the beginning of the report that the expert has read, understood and complied with the Practice Note; and
 - (c) contain particulars of the training, study or experience by which the expert has acquired specialised knowledge; and
 - (d) identify the questions that the expert was asked to address; and
 - (e) set out separately each of the factual findings or assumptions on which the expert's opinion is based; and
 - (f) set out separately from the factual findings or assumptions each of the expert's opinions; and
 - (g) set out the reasons for each of the expert's opinions; and
 - (ga) contain an acknowledgment that the expert's opinions are based wholly or substantially on the specialised knowledge mentioned in paragraph (c) above⁴; and
 - (h) comply with the Practice Note.
- 2.2 At the end of the report the expert should declare that "[the expert] has *made all the inquiries that [the expert] believes are desirable and appropriate and that no matters of significance that [the expert] regards as relevant have, to [the expert's] knowledge, been withheld from the Court.*"
- 2.3 There should be included in or attached to the report the documents and other materials that the expert has been instructed to consider.
- 2.4 If, after exchange of reports or at any other stage, an expert witness changes the expert's opinion, having read another expert's report or for any other reason, the change should be communicated as soon as practicable (through the party's lawyers) to each party to whom the expert witness's report has been provided and, when appropriate, to the Court⁵.
- 2.5 If an expert's opinion is not fully researched because the expert considers that insufficient data are available, or for any other reason, this must be stated with an indication that the opinion is no more than a provisional one. Where an expert witness who has prepared a report believes that it may be incomplete or inaccurate without some qualification, that qualification must be stated in the report.
- 2.6 The expert should make it clear if a particular question or issue falls outside the relevant field of expertise.
- 2.7 Where an expert's report refers to photographs, plans, calculations, analyses, measurements, survey reports or other extrinsic matter, these must be provided to the opposite party at the same time as the exchange of reports⁶.

³ Rule 23.13.

⁴ See also *Dasreef Pty Limited v Nawaf Hawchar* [2011] HCA 21.

⁵ The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565

⁶ The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565-566. See also Ormrod "*Scientific Evidence in Court*" [1968] Crim LR 240

3. Experts' Conference

- 3.1 If experts retained by the parties meet at the direction of the Court, it would be improper for an expert to be given, or to accept, instructions not to reach agreement. If, at a meeting directed by the Court, the experts cannot reach agreement about matters of expert opinion, they should specify their reasons for being unable to do so.

J L B ALLSOP

Chief Justice

4 June 2013

Annexure A2 – Curriculum vitae



Greg Houston

Partner

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Web: HoustonKemp.com



Overview

Greg Houston is a founding partner of the firm of expert economists, HoustonKemp. He has twenty five years' experience in the economic analysis of markets and the provision of expert advice in litigation, business strategy, and policy contexts. His career as a consulting economist was preceded by periods working in a financial institution and for government.

Greg has directed a wide range of financial, competition and regulatory economics assignments during this consulting career. His work in the Asia Pacific region principally revolves around the activities of the enforcement and regulatory agencies responsible for these areas, many of whom also number amongst his clients. On competition and antitrust matters he has advised clients on merger clearance processes, competition proceedings involving allegations of anticompetitive conduct ranging from predatory pricing, anti-competitive agreements, anti-competitive bundling and price fixing. Greg also has deep experience of infrastructure access regulation matters, and intellectual property and damages valuation. In his securities and finance work Greg has advised clients on a large number of securities class actions, as well as market manipulation and insider trading proceedings, and on cost of capital estimation.

Greg's industry experience spans the aviation, beverages, building products, cement, e-commerce, electricity and gas, forest products, grains, medical waste, mining, payments networks, office products, petroleum, ports, rail transport, retailing, scrap metal, securities markets, steel, telecommunications, thoroughbred racing, waste processing and water sectors.

Greg has acted as expert witness in valuation, antitrust and regulatory proceedings before the courts, in various arbitration and mediation processes, and before regulatory and judicial bodies in Australia, Fiji, New Zealand, the Philippines, Singapore, the United Kingdom and the United States.

Greg was until April 2014 a Director of the global firm of consulting economists, NERA Economic Consulting, where for twelve years he served on its United States' Board of Directors, for five years on its global Management Committee and for sixteen years as head of its Australian operations.

Greg also serves on the Competition and Consumer Committee of the Law Council of Australia.

Qualifications

1982 **University Of Canterbury, New Zealand**
B.Sc. (First Class Honours) in Economics

Prizes and Scholarships

1980 University Junior Scholarship, New Zealand

Career Details

2014-	HoustonKemp Economists Partner, Sydney, Australia
1989-2014	NERA Economic Consulting Director (1998-2014) London, United Kingdom (1989-1997) Sydney, Australia (1998-2014)
1987-89	Hambros Bank, Treasury and capital markets Financial Economist, London, United Kingdom
1983-86	The Treasury, Finance sector policy Investigating Officer, Wellington, New Zealand

Project Experience¹

Competition and Mergers

2015	King & Wood Mallesons/Confidential Client Competition analysis Analysis and advice in the context of the ACCC's inquiry into Eastern and Southern Australia wholesale gas prices.
2015	Corrs/Confidential Client Merger clearance Analysis, advice and expert report submitted to the ACCC in the context of a proposed acquisition in the office products sector.
2014-15	Australian Government Solicitor/Commonwealth of Australia Competition and trade analysis Expert report on competition and trade in tobacco products, prepared in the context of the World Trade Organisation dispute settlement proceedings concerning Australia's tobacco plain packaging legislation.
2014-15	King & Wood Mallesons/Confidential Client Competitive effects of agreement Analysis and advice prepared in context of an ACCC investigation of agreements between a supplier and its major customers that are alleged to harm competition.
2014-15	Ashurst/Confidential Client Competitive effects of agreement Analysis and advice prepared in context of an ACCC investigation of agreements between a supplier and its major customers that are alleged to harm competition.
2013-14	Corrs/Australian Competition and Consumer Commission Effect of cartel conduct Expert report on the price effects of an alleged market sharing arrangement in relation to the supply of forklift gas, prepared in the context of Federal Court proceedings brought against Renegade Gas (Supagas).

¹ Past ten years only.

- 2013-14** **Australian Competition and Consumer Commission**
Merger clearance
Expert report and testimony before the Competition Tribunal in the context of the ACCC's decision to oppose the acquisition of Macquarie Generation by AGL Energy.
- 2013-14** **Ashurst/BlueScope**
Merger clearance
Expert reports submitted to the ACCC in the context of the clearance of three approved transactions in the domestic steel industry.
- 2013-14** **Australian Government Solicitor/ACCC**
Merger clearance
Analysis and advice prepared in the context of the ACCC's review of the proposed acquisition by of petrol retailing sites in South Australia.
- 2012-13** **Minter Ellison/Confidential Client**
Merger clearance
Expert reports submitted to the ACCC in the context of a confidential application for clearance of a proposed acquisition in the industrial gases industry.
- 2011-12** **Gilbert + Tobin/Pact Group**
Merger clearance
Expert reports submitted to the ACCC on the competitive implications of the proposed acquisition of plastic packaging manufacturer Viscount Plastics by Pact Group.
- 2010-12** **Mallesons/APA**
Merger clearance
Expert reports submitted to the ACCC on the competitive implications of the proposed acquisition of the gas pipeline assets of Hastings Diversified Utilities Fund by APA Group.
- 2010-11** **Johnson Winter & Slattery/ATC and ARB**
Competitive effects of agreement
Expert reports and testimony in Federal Court proceedings concerning the competitive effects of restrictions on the use of artificial breeding techniques in the breeding of thoroughbred horses for racing.
- 2010-11** **Victorian Government Solicitor/State of Victoria**
Competitive effects of agreement
Expert report prepared for the State of Victoria on the effects of certain restrictions applying to the trading of water rights on inter-state trade in the context of a constitutional challenge brought against the state of Victoria by the state of South Australia.
- 2009-11** **Arnold + Porter/Visa Inc, Mastercard Inc and others**
Payment card markets
Expert reports and deposition testimony on behalf of defendants in the United States Re Payment Card Interchange Fee and Merchant Discount Antitrust Litigation, on the effects of regulatory interventions in the Australian payment cards sector.

- 2010** **Australian Competition and Consumer Commission**
NBN Points of Interconnection
Report and advice on the competition implications in the markets for both telecommunications backhaul and retail broadband services of different choices as to the number of 'points of interconnection' in the proposed architecture of the national broadband network.
- 2010** **JWS, Gilbert & Tobin/Jetset Travelworld, Stella Travel Services**
Merger clearance
Advice on the competitive implications of the merger between Jetset Travelworld and Stella Travel Services.
- 2009-10** **Australian Government Solicitor/ACCC**
Misuse of market power
Expert report and testimony in the context of Federal Court proceedings brought by the ACCC against Cement Australia in relation to conduct alleged to have breached sections 45, 46 and 47 of the Trade Practices Act.
- 2008-10** **Gilbert & Tobin/Confidential**
Merger assessment
Advice on the competitive implications of the then proposed merger and then subsequently the proposed iron ore production joint venture between BHP Billiton and Rio Tinto.
- 2008-10** **Allens Arthur Robinson/Amcor**
Cartel damages assessment
Advice and preparation of an expert report on the approach to and quantification of economic loss in the context of two separate actions seeking damages arising from alleged cartel conduct.
- 2009** **State Solicitor's Office/Forest Products Commission**
Alleged breach of s46
Expert advice in the context of Federal Court proceedings alleging breaches of section 46 of the Trade Practices Act.
- 2009** **Clayton Utz/Confidential Client**
Joint venture arrangement
Reviewed the competitive implications under s50 of the Trade Practices Act of a proposed joint venture transaction in the rail industry.
- 2009** **Blake Dawson Waldron/Airservices**
Effect of potential industrial action by Air Traffic Controllers
Prepared an expert report in the context of a potential application to the Australian Industrial Relations Commission for termination or suspension of a bargaining period addressing the economic effect that certain forms of industrial action by Air Traffic Controllers would be likely to have on passengers, businesses, and the Australian economy.
- 2005-06, 08-09** **Phillips Fox/Fortescue Metals Group**
Access to bottleneck facilities
Expert report and testimony in the Federal Court proceedings concerning whether or not access to the BHP Billiton and Rio Tinto rail lines, serving iron ore export markets in the Pilbara, amounted to use of a production process. Subsequently, prepared expert reports on matters arising in interpreting the criteria for declaration under Part IIIA, and testified before the Competition Tribunal in late 2009.

- 2009** **Clayton Utz/Confidential Client**
Competitive implications of agreement
Advice on the competitive effects of a joint venture arrangement in the port terminal sector, in the context of Federal Court proceedings brought by the ACCC under section 45 of the Trade Practices Act.
- 2009** **Australian Competition and Consumer Commission**
Competitive effects of buy-sell agreements
Advice to the ACCC on the extent to which buy-sell arrangements between the four major refiner-marketers of petroleum products in Australia may be inhibiting competition in a relevant market.
- 2008-09** **Watson Mangioni/ICS Global**
Alleged misuse of market power
Expert report prepared in the context of Federal Court proceedings alleging breaches of section 46 of the Trade Practices Act.
- 2008-09** **Australian Competition and Consumer Commission**
Competitive effects of various agreements
Expert advice on potential theories of competitive harm arising from agreements between competitors in the oil and gas, and petroleum retailing industry sectors.
- 2008** **Johnson Winter & Slattery/Pepsico**
Merger analysis
Advice on the competitive implications certain potential transactions in the soft drinks sector.
- 2008** **Australian Competition and Consumer Commission**
Exemption from access undertaking
'Peer review' report of the ACCC's draft decision on applications by Telstra for exemption from its standard access obligations (SAOs) for the supply by resale of the local carriage service (LCS) and wholesale line rental (WLR) in 387 exchange service areas in metropolitan Australia.
- 2008** **Deacons/eBay**
Exclusive dealing notification
Expert report submitted to the ACCC analysing the competitive effects of eBay's proposal that users of its online marketplace be required to settle transactions using eBay's associated entity, PayPal
- 2007-08** **Australian Energy Market Commission**
Wholesale market implications for retail competition
Retained to provide an overview of the operation and structure of the wholesale gas and electricity markets within the National Electricity Market (NEM) jurisdictions and to identify the issues that the AEMC should consider when assessing the influence of the wholesale markets on competition within the retail gas market in each jurisdiction.
- 2006-07** **Essential Services Commission of South Australia**
Competition assessment
Directed the preparation of a comprehensive report analysing the effectiveness of competition in retail electricity and gas markets in South Australia.
- 2006-07** **Allens Arthur Robinson/Confidential Client**
Merger clearance
Retained to provide advice on competition issues arising in the context of s50 clearance of a proposed merger in the board packaging industry.

- 2006-07** **Johnson Winter & Slattery/Confidential Client**
Damages assessment
Advice on the quantification of damages arising from alleged cartel conduct in the electricity transformer sector.
- 2006** **Minter Ellison/Confidential Client**
Misuse of market power
Expert economic advice in relation to market definition, market power and taking advantage in the context of an alleged price squeeze between wholesale and retail prices for fixed line telecommunications services, for proceedings brought under section 46 of the Trade Practices Act. The proceedings were withdrawn following regulatory amendments by the ACCC.
- 2006** **DLA Phillips Fox/Donhad**
Merger clearance
Preparation of an expert report on competition issues arising in the context of s50 clearance for the proposed Smorgon/One Steel merger.
- 2006** **Johnson Winter & Slattery/Qantas Airways**
Competition effects of proposed price fixing agreement
Assessed the competition effects of the proposed trans-Tasman networks agreement between Air New Zealand and Qantas Airways.
- 2006** **Phillips Fox/ACCC**
Vertical foreclosure
Advice in the context of proceedings before the Federal Court concerning the acquisition of Patrick Corporation by Toll Holdings. The proceedings were subsequently withdrawn following a S87B undertaking made by Toll.
- 2006** **Gilbert + Tobin/AWB**
Arbitration, access to bottleneck facilities
Expert report and testimony in an arbitration concerning the imposition of throughput fees for grain received at port and so bypassing the grain storage, handling and rail transport network in South Australia.
- 2006** **Qantas Airways, Australia/Singapore**
Assessment of single economic entity
Advice in the context of Qantas' Application for Decision to the Competition Commission of Singapore that the agreement between it and Orangestar did not fall within the ambit of the price-fixing and market sharing provisions of the Singapore Competition Act.
- 2005-06** **Qantas Airways, Australia/Singapore**
Competition effects of price fixing agreement
Expert report submitted to the Competition Commission of Singapore evaluating the net economic benefits of a price fixing/market sharing agreement, in relation to an application for exemption from the section 34 prohibition in the Competition Act of Singapore.
- 2005-06** **Australian Competition Consumer Commission**
Electricity generation market competition
Advice on the competition effects under S50 of the Trade Practices Act of three separate proposed transactions involving the merger of generation plant operating in the national electricity market.

- 2005** **Gilbert + Tobin/Hong Kong Government, Hong Kong**
Petrol market competition
Directed a NERA team working with Gilbert + Tobin that investigated the effectiveness of competition in the auto-fuel retailing market in Hong Kong.
- 2005** **Phillips Fox/National Competition Council**
Access and competition in gas production and retail markets
Retained as expert witness in the appeal before the WA Gas Review Board of the decision to revoke coverage under the gas code of the Goldfields pipeline. Proceedings brought by the pipeline operator were subsequently withdrawn.
- 2004-05** **Gilbert + Tobin/APCA**
Competition and access to Eftpos system
Economic advisor to the Australian Payments Clearing Association in connection with the development of an access regime for the debit card/Eftpos system, so as to address a range of competition concerns expressed by the Reserve Bank of Australia and the ACCC. This work included an expert report examining barriers to entry to Eftpos and the extent to which these could be overcome by an access regime.
- 2003-05** **Phillips Fox/Austrac**
Misuse of market power
Retained to assist with all economic aspects of a potential Federal Court action under s46 of the Trade Practices Act alleging misuse of market power in the rail freight market.

Regulatory Analysis

- 2015** **Government of New South Wales**
Economic regulation for privatisation
Advisor to government of New South Wales on all economic regulatory aspects of the proposed partial lease the electricity transmission and distribution entities, TransGrid, AusGrid and Endeavour Energy.
- 2015** **ActewAGL**
Regulatory price review
Expert report on the economic interpretation of provisions in the national electricity law and rules in relation to the application of the national electricity objective to the entire price determination of the Australian Energy Regulator.
- 2014-15** **Atco Gas**
Access price review
Expert reports on the economic interpretation of provisions in the national gas law and rules in relation to depreciation and the application of the national gas objective to the entire draft decision, submitted to the Economic Regulation Authority of WA.
- 2014-15** **Government of Victoria**
Economic regulation for privatisation
Advisor to government of Victoria on the economic regulation of the Port of Melbourne Corporation in the context of the proposed privatization of the port by way of long term lease.

- 2013** **Actew Corporation**
Interpretation of economic terms
Advice on economic aspects of the draft and final decisions of the Independent Competition and Regulatory Commission in relation to the price controls applying to Actew.
- 2012-13** **Gilbert + Tobin/Rio Tinto Coal Australia**
Price review arbitration
Analysis and expert reports prepared in the context of an arbitration concerning the price to be charged for use of the coal loading facilities at Abbott Point Coal Terminal.
- 2012-13** **Ashurst/Brisbane Airport Corporation**
Draft access undertaking
Advice, analysis and expert reports in the context of the preparation of a draft access undertaking specifying the basis for determining a ten year price path for landing charges necessary to finance a new parallel runway at Brisbane airport.
- 2012** **King & Wood Mallesons/Origin Energy**
Interpretation of economic terms
Expert reports and testimony in the context of judicial review proceedings before the Supreme Court of Queensland on the electricity retail price determination of the Queensland Competition Authority.
- 2012** **Contact Energy, New Zealand**
Transmission pricing methodology
Advice on reforms to the Transmission Pricing Methodology proposed by Electricity Authority.
- 2011-12** **Energy Networks Association**
Network pricing rules
Advice and expert reports submitted to the Australian Energy Market Commission on wide-ranging reforms to the network pricing rules applying to electricity and gas transmission and distribution businesses, as proposed by the Australian Energy Regulator.
- 2010-12** **QR National**
Regulatory and competition matters
Advisor on the competition and regulatory matters, including: a range of potential structural options arising in the context of the privatisation of QR National's coal and freight haulage businesses, particularly those arising in the context of a 'club ownership model' proposed by a group of major coal mine owners; and an assessment of competitive implications of proposed reforms to access charges for use of the electrified network.
- 2002-12** **Orion New Zealand Ltd, New Zealand**
Electricity lines regulation
Advisor on regulatory and economic aspects of the implementation by the Commerce Commission of the evolving regimes for the regulation of New Zealand electricity lines businesses. This role has included assistance with the drafting submissions, the provision of expert reports, and the giving of expert evidence before the Commerce Commission.

- 2011** **Meridian Energy, New Zealand**
Undesirable trading situation
Advice to Meridian Energy on the economic interpretation and implications of the New Zealand electricity rule provisions that define an 'undesirable trading situation' in the wholesale electricity market.
- 2011** **Ausgrid**
Demand side management
Prepared a report on incentives, constraints and options for reform of the regulatory arrangements governing the role of demand side management in electricity markets.
- 2010-11** **Transnet Corporation, South Africa**
Regulatory and competition policy
Retained to advise on the preparation of a white paper on future policy and institutional reforms to the competitive and regulatory environment applying to the ports, rail and oil and gas pipeline sectors of South Africa.
- 2010-11** **Minter Ellison/UNELCO, Vanuatu**
Arbital review of decision by the Vanuatu regulator
Expert report and evidence before arbitrators on a range of matters arising from the Vanuatu regulator's decision on the base price to apply under four electricity concession contracts entered into by UNELCO and the Vanuatu government. These included the estimation of the allowed rate of return including its country risk component, and the decision retrospectively to bring to account events from the prior regulatory period.
- 2007-11** **Powerco/CitiPower**
Regulatory advice
Wide ranging advice on matters arising under the national electricity law and rules, such as the framework for reviewing electricity distribution price caps, the treatment of related party outsourcing arrangements, an expert report on application of the AER's efficiency benefit sharing scheme, the potential application of total factor productivity measures in CPI-X regulation, and arrangements for the state-wide roll out of advanced metering infrastructure.
- 1999-2004,**
2010-11 **Sydney Airports Corporation**
Aeronautical pricing notification
Wide ranging advice on regulatory matters. This includes advice and expert reports in relation to SACL's notification to the ACCC of substantial reforms to aeronautical charges at Sydney Airport in 2001. This involved the analysis and presentation of pricing principles and their detailed application, through to discussion of such matters at SACL's board, with the ACCC, and in public consultation forums. Subsequent advice on two Productivity Commission reviews of airport charging, and notifications to the ACCC on revised charges for regional airlines.
- 2010** **Industry Funds Management/Queensland Investment Corporation**
Due diligence, Port of Brisbane
Retained to advise on regulatory and competition matters likely to affect the future financial and business performance of the Port of Brisbane, in the context of its sale by the Queensland government.
- 2009-10** **New Zealand Electricity Industry Working Group, New Zealand**
Transmission pricing project
Advice to a working group comprising representatives from lines companies, generators, major users and Transpower on potential improvements to the efficiency of New Zealand's electricity transmission pricing arrangements.

- 2007-09** **GDSE, Macau**
Electricity tariff reform
Advice to the regulator of electricity tariffs in Macau on a series of potential reforms to the structure of electricity supply tariffs.
- 2001-09** **Auckland International Airport Limited, New Zealand**
Aeronautical price regulation
Advice and various expert reports in relation to: the review by the Commerce Commission of the case for introducing price control at Auckland airport; a fundamental review of airport charges implemented in 2007; and the modified provisions of Part IV of the Commerce Act concerning the economic regulation of airports and other infrastructure service providers.
- 2008** **Western Power**
Optimal treatment and application of capital contributions
Advice on the optimal regulatory treatment of capital contributions, taking into account the effect of alternative approaches on tariffs, regulatory asset values, and network connection by new customers.
- 2000-08** **TransGrid**
National electricity market and revenue cap reset
Regulatory advisor to TransGrid on a range of issues arising in the context of the national electricity market (NEM), including: the economics of transmission pricing and investment and its integration with the wholesale energy market, regulatory asset valuation, the cost of capital and TransGrid's 2004 revenue cap reset by the ACCC.
- 2007** **Johnson Winter & Slattery/Multinet**
Review of outsourced asset management contracts
Expert report developing a framework for assessing the prudence of outsourcing contracts in the context of the Gas Code, and evaluating the arrangements between Multinet and Alinta Asset Management by reference to that framework.
- 2007** **Ministerial Council on Energy**
Review of Chapter 5 of the National Electricity Rules
Advice on the development of a national framework for connection applications and capital contributions in the context of the National Electricity Rules.
- 2006-07** **Ministerial Council on Energy**
Demand side response and distributed generation incentives
Conducted a review of the MCE's proposed initial national electricity distribution network revenue and pricing rules to identify the implications for the efficient use of demand side response and distributed generation by electricity network owners and customers.
- 2006** **Ministerial Council on Energy**
Electricity network pricing rules
Advice on the framework for the development of the initial national electricity distribution network pricing rules, in the context of the transition to a single, national economic regulator.
- 2005-06** **Minister for Industry**
Expert Panel
Appointment by Hon Ian Macfarlane, Minister for Industry, Tourism and Resources, to an Expert Panel to advise the Ministerial Council on Energy on achieving harmonisation of the approach to regulation of electricity and gas transmission and distribution infrastructure.

- 2005-06** **Australian Energy Markets Commission**
Transmission pricing regime
Advice to the AEMC on its review of the transmission revenue and pricing rules as required by the new National Electricity Law.
- 1998-2006** **Essential Services Commission of Victoria**
Price cap reviews
Wide ranging advice to the Essential Services Commission (formerly the Office of the Regulator-General), on regulatory, financial and strategic issues arising in the context of five separate reviews of price controls/access arrangements applying in the electricity, gas distribution, ports, rail and water sectors in Victoria. This work encompassed advice on the development of the Commission's work program and public consultation strategy for each review, direct assistance with the drafting of papers for public consultation, the provision of internal papers and analysis on specific aspects of the review, drafting of decision documents, and acting as expert witness in hearings before the Appeal Panel and Victorian Supreme Court.
- 2004-05** **Ministerial Council of Energy**
Reform of the National Electricity Law
Retained in two separate advisory roles in relation to the reform of the institutions and legal framework underpinning the national energy markets. These roles include the appropriate specification of the objectives and rule making test for the national electricity market, and the development of a harmonised framework for distribution and retail regulation.
- 2004-05** **Johnson Winter Slattery, ETSA Utilities**
Price determination
Advice on a wide range of economic and financial issues in the context of ETSA Utilities' application for review of ESCOSA's determination of a five year electricity distribution price cap.

Securities and Finance

- 2015** **O'Donnell Legal/Representative proceeding**
Misleading and deceptive conduct
Expert report submitted to the Federal Court assessing the effect of alleged misstatements in relation to the annual accounts and associated going concern assumption in relation to Tamaya Resources Ltd (in liquidation).
- 2013-15** **Sydney Water Corporation**
Cost of capital estimation
Preparation of three expert reports for submission to the Independent Pricing and Regulatory Tribunal (IPART) on the framework for determining the weighted average cost of capital for infrastructure service providers, and on estimation of an appropriate equity beta.
- 2012-15** **HWL Ebsworth/Confidential client**
Insider trading
Expert advice and analysis in the context of criminal proceedings alleging insider trading in certain ASX-listed securities (2012-13). Subsequent expert report filed in Supreme Court of Tasmania estimating price effects of inside information in context of subsequent 'proceeds of crime' proceedings.

- 2014** **Wotton Kearney/Genesys Wealth Advisors**
Misleading and deceptive conduct
Expert report submitted to the Supreme Court of Victoria assessing the accuracy of product disclosure statements and other information in relation to two fixed interest investment funds offered by Basis Capital.
- 2014** **TransGrid**
Cost of capital estimation
Preparation of an expert report for submission to the Australian Energy Regulator (AER) estimating the weighted average cost of capital for electricity network service providers.
- 2011-13** **Slater & Gordon/Modtech**
Shareholder damages assessment
Expert reports and testimony in representative proceedings before the Federal Court alleging misstatement and/or breach of the continuous disclosure obligations of the ASX-listed entity, GPT.
- 2011-12** **Freehills/National Australia Bank**
Shareholder damages assessment
Expert advice in connection with representative proceedings before the Federal Court alleging misstatement and/or breach of the continuous disclosure obligations of an ASX-listed entity.
- 2012** **Johnson Winter & Slattery/Victorian gas distributors**
Cost of equity estimation
Expert report submitted to the AER on the appropriate methodology for estimating the cost of equity under the Capital Asset Pricing Model.
- 2009-13** **Minter Ellison/Confidential client**
Misleading and deceptive conduct
Expert report and related advice in light of investor claims and pending litigation following the freezing of withdrawals from a fixed interest investment trust that primarily held US-denominated collateralised debt obligations (CDOs), as offered by a major Australian financial institution. Analysis undertaken includes the extent to which the investment risks were adequately described in the fund documents, and the quantum of any potential damages arising.
- 2011** **Barringer Leather/Confidential client**
Market manipulation
Expert report prepared in the context of criminal proceedings brought in the Supreme Court of NSW alleging market manipulation in the trading of certain ASX-listed securities.
- 2010-11** **Wotton Kearney/Confidential client**
Misleading and deceptive conduct
Expert report and analysis in light of investor claims and pending litigation following the freezing of withdrawals from two fixed interest investment trusts that primarily held US-denominated collateralised debt obligations (CDOs).
- 2010-11** **Maurice Blackburn/Confidential client**
Shareholder damages assessment
Analysis prepare for use in connection with representative proceedings before the Federal Court alleging misstatement and/or breach of the continuous disclosure obligations of an ASX-listed entity.

- 2010-11** **Mallesons/ActewAGL**
Judicial review of rate of return determination
Expert report and testimony in Federal Court proceedings seeking judicial review of a decision by the Australian Energy Regulator of its determination of the risk free rate of interest in its price setting determination for electricity distribution services.
- 2009-11** **William Roberts/Clime Capital**
Shareholder damages assessment
Preparation of two expert reports in representative proceedings before the Federal Court alleging misstatement and/or breach of the continuous disclosure obligations of ASX-listed entity, Credit Corp.
- 2009** **Jemena Limited**
Cost of equity estimation
Co-authored an expert report on the application of a domestic Fama-French three-factor model to estimate the cost of equity for regulated gas distribution businesses.
- 2008-09** **Clayton Utz/Fortescue Metals Group**
Materiality of share price response
Preparation of expert report and testimony before the Federal Court addressing alleged breaches of the ASX continuous disclosure obligations and the associated effect on the price of FMG securities arising from statements made by it in 2004.
- 2008-09** **Energy Trade Associations – APIA, ENA and Grid Australia**
Value of tax imputation credits
Preparation of expert report on the value to investors in Australian equities of tax imputation credits, for submission to the Australian Energy Regulator.
- 2008-09** **Freehills/Centro Properties**
Shareholder damages assessment
Assistance in the estimation of potential damages arising in representative proceedings concerning accounting misstatements and/or breach of the continuous disclosure obligations of an ASX-listed entity.
- 2008** **Slater & Gordon/Boyd**
Shareholder damages assessment
Preparation of an expert report for submission to a mediation on the damages arising in representative proceedings before the Federal Court alleging accounting misstatements and/or breach of the continuous disclosure obligations of EDI Downer.
- 2007-08** **Maurice Blackburn/Watson**
Shareholder damages assessment
Preparation of advice estimating the damages arising in representative proceedings before the Federal Court alleging accounting misstatements and/or breach of the continuous disclosure obligation by the ASX-listed entity, AWB Limited.
- 2007** **Freehills/Telstra Corporation**
Shareholder damages assessment
Advice and assistance in the preparation of the expert report of Dr Fred Dunbar submitted to the Federal Court in the context of proceedings alleging breaches of the continuous disclosure obligations by Telstra. The principal subject of this work was the assessment of the extent to which of material alleged not to have been disclosed was already known and incorporated in Telstra's stock price.

- 2006-07** **Maurice Blackburn/Dorajay**
Shareholder damages assessment
Advice and assistance in the preparation of the expert report of Dr Fred Dunbar submitted to the Federal Court in the context of proceedings between Dorajay and Aristocrat Leisure. The principal subject of this work was the assessment of the extent and duration of share price inflation arising from various accounting misstatements and alleged breaches of the continuous disclosure obligations.

Valuation and Contract Analysis

- 2014-15** **Minter Ellison/Foxtel Management Pty Ltd**
Assessment of reasonable licence fee
Expert reports prepared in the context of proceedings before the Copyright Tribunal concerning the appropriate valuation of the rights to be paid by Foxtel for the broadcast and communication of commercial recordings licensed by the Phonographic Performance Company of Australia.
- 2014-15** **Rahmat Lim & Partners/Port Dickson Power Berhad**
Power purchase agreement arbitration
Expert reports submitted in the context of an international arbitration held in Kuala Lumpur concerning the interpretation of the price indexation provisions in a power purchase contract between Port Dickson Power Berhad and Tenaga Nasional Berhad.
- 2013** **Johnson Winter & Slattery/Origin**
Gas supply agreement price review
Analysis and advice on the implications of certain contract terms for the price of gas, to be determined in a potential arbitration concerning the terms of a substantial long term gas supply agreement.
- 2013** **Herbert Smith Freehills/Santos**
Gas supply agreement price review
Analysis and advice on factors influencing the market price of gas in eastern Australia, to be determined in a potential arbitration concerning the terms of a substantial long term gas supply agreement.
- 2012-13** **Herbert Smith Freehills/North West Shelf Gas**
Gas supply agreement arbitration
Expert reports on the implications of certain contract terms for the price of gas under a substantial long term gas supply agreement.
- 2012-13** **Allens/BHP Billiton-Esso**
Gas supply agreement arbitration
Analysis, advice and expert report on the implications of certain contract terms for the price of gas under a substantial long term gas supply agreement.
- 2012** **King & Wood Mallesons/Ausgrid**
Power purchase agreement arbitration
Expert report prepared and filed in an arbitration on the in relation to the effect of the government's newly introduced carbon pricing mechanism on the price to be paid under a long term power purchase and hedge agreement between an electricity generator and retailer.

- 2011** **Kelly & Co/Cooper Basin Producers**
Wharfage dues agreement arbitration
Expert report and testimony in arbitration proceedings to determine the 'normal wharfage dues' to be paid for use of a facility that assists the transfer of petroleum products to tanker ships from a processing terminal in South Australia.
- 2010** **Barclays Capital/Confidential Client**
Due diligence, Alinta Energy
Retained to advise on the key industry related risks and issues facing Alinta Energy's gas and electricity assets during the due diligence process associated with its recapitalisation and sale.
- 2009** **Freehills/Santos**
Gas supply agreement price review
Analysis and advice on factors influencing the market price of gas in eastern Australia, to be determined in a potential arbitration concerning the terms of a substantial long term gas supply agreement.
- 2008-09** **Clayton Utz/Origin Energy**
Gas supply agreement arbitration
Expert reports and testimony in an arbitration concerning the market price of gas, which was determined and applied in a substantial long term gas supply agreement.
- 2008-09** **Minter Ellison/Confidential client**
Treatment of past capital contributions
Expert report and evidence given in arbitration proceedings on the extent to which a discount should apply under a long term water supply contract, in recognition of a capital contribution made at the outset of the agreement.
- 2008** **Freehills/Tenix Toll**
Logistics contract arbitration
Advice on the appropriate methodology for adjusting prices under a long term logistics contract in light of changing fuel costs.
- 2008** **BG plc**
Market analysis
Advise on economic aspects of the operation of the east Australian wholesale gas market in the context of the potential development of coal seam gas for use in LNG production and export.
- 2008** **Gilbert + Tobin/Waste Services NSW**
Damages estimation
Damages assessment in the context of a Federal Court finding of misleading and deceptive conduct in relation to the extent of environmental compliance in the provision of waste services.
- 2007** **Meerkin & Apel/SteriCorp**
Damages assessment
Expert report and testimony in the context of an international arbitration on commercial damages arising from alleged non-performance of a medical waste processing plant.

- 2006-07** **Middletons/Confidential Client**
Damages assessment
Retained to provide an expert report on the methodological framework for assessing alleged damages arising from contractual non-performance and associated forecast for demand and supply conditions and prices for natural gas and ethane prices and over a ten year period.
- 2006** **Confidential Client/Australia**
Valuation of digital copyright
Advice in relation to the negotiation for a licence for digital copyright. This included the discussion of the matters that should be considered in determining fees for a digital copyright licence, including the extent to which digital material should be valued differently from print material and whether the charging mechanism for print is appropriate for digital copyright.
- 2006** **Minter Ellison/Australian Hotels Association**
Valuation of copyright material
Expert report in the context of proceedings before the Copyright Tribunal concerning the appropriate valuation of the rights to play recorded music in nightclubs and other late night venues.
- 2005-06** **Minter Ellison and Freehills/Santos**
Gas supply agreement arbitrations
Principal economic expert in two separate arbitrations of the price to apply following review of two substantial gas supply agreements between the South West Queensland gas producers and, respectively, a large industrial customer and major gas retailer.

Institutional and Regulatory Reform

- 2008-11** **Department of Sustainability and Environment**
Management of bulk water supply
Various advice on the concept and merits of establishing market based arrangements to guide both the day-to-day operation of the bulk water supply system in metropolitan Melbourne, as well as the trading of rights to water between the metropolitan water supply system and those throughout the state of Victoria.
- 2008** **Department of Treasury and Finance**
Access regime for water networks
Prepared a report on the principles that should be applied in developing a state-wide third party access regime for water supply networks.
- 2007** **Economic Regulatory Authority**
Options for competitive supply bulk water
Prepared a report on institutional and structural reforms necessary to encourage the development of options for the procurement of alternative water supplies from third parties.
- 2006** **Bulk Entitlement Management Committee**
Development of urban water market
Prepared a report for the four Melbourne water businesses on options for devolution of the management of water entitlements from collective to individual responsibility, including the development of associated arrangements for oversight and co-ordination of the decentralised management and trading of water rights.

2003-05**Goldman Sachs/Airport Authority, Hong Kong
Framework for economic regulation**

Lead a team advising on the options and detailed design of the economic regulatory arrangements needed to support the forthcoming privatisation of Hong Kong Airport.

Sworn Testimony, Transcribed Evidence²

- 2015** **Expert evidence before an arbitral tribunal on behalf of Port Dickson Power Berhad (PDP), in the matter of PDP v Tenaga Nasional Berhad (TNB)**
Expert reports, sworn evidence, Kuala Lumpur, 28 January 2015
- 2014** **Expert evidence before a UNCITRAL arbitral tribunal on behalf of Maynilad Water Corporation Inc (MWCI), in the matter of MWCI v Metropolitan Waterworks and Sewerage System (MWSS)**
Expert reports, sworn evidence, Sydney (by videolink to Manila), 31 August 2014
- Expert evidence before the Australian Competition Tribunal on behalf of the ACCC, in the matter of AGL Energy v ACCC**
Expert reports, sworn evidence, Sydney, 10-11 June 2014
- 2013** **Expert evidence before the Supreme Court of Victoria on behalf of Maddingley Brown Coal in the matter of Maddingley Brown Coal v Environment Protection Agency of Victoria**
Expert reports, sworn evidence, Melbourne, 12 August 2013
- Expert evidence before the Federal Court on behalf of Modtech v GPT Management and Others**
Expert reports, sworn evidence, Melbourne, 27 March 2013
- 2012** **Expert evidence before the Supreme Court of Queensland on behalf of Origin Energy Electricity Ltd and Others v Queensland Competition Authority and Others**
Expert reports, sworn evidence, Brisbane, 3 December 2012
- 2011** **Expert evidence before the Federal Court on behalf of the Australian Turf Club and Australian Racing Board in the matter of Bruce McHugh v ATC and Others**
Expert report, transcribed evidence, Sydney, 12 and 14 October 2011
- Expert evidence in arbitration proceedings before J von Doussa, QC, on behalf of Santos in the matter of Santos and Others v Government of South Australia**
Expert report, transcribed evidence, Adelaide, 13-15 September 2011
- Expert evidence before a panel of arbitrators on behalf of UNELCO in the matter of UNELCO v Government of Vanuatu**
Expert report, transcribed evidence, Melbourne, 23 March and 21 April 2011
- Expert evidence before the Federal Court on behalf of ActewAGL in the matter of ActewAGL v Australian Energy Regulator**
Expert report, sworn evidence, Sydney, 17 March 2011
- Deposition Testimony in Re Payment Care Interchange and Merchant Discount Litigation, in the United States District Court for the Eastern District of New York**
Deposition testimony, District of Columbia, 18 January 2011

² Past ten years only.

- 2010**
- Expert evidence before the Federal Court in behalf of the Australia Competition and Consumer Commission in the matter of ACCC v Cement Australia and others**
Expert report, sworn evidence, Brisbane, 19-21 October 2010
- Expert evidence on behalf of Orion NZ, at the Commerce Commission's Conference on its Input Methodologies Emerging View Paper**
Transcribed evidence, public hearings, Wellington, 24 February 2010
- Deposition Testimony in *Re Payment Card Interchange and Merchant Discount Antitrust Litigation*, in the United States District Court for the Eastern District of New York**
Deposition Testimony, District of Columbia, 18 February 2010
- 2009**
- Expert evidence before the Australian Competition Tribunal on behalf of Fortescue Metals Group Ltd, in the matter of Application for Review of Decision in Relation to Declaration of Services Provided by the Robe, Hamersley, Mt Newman and Goldsworthy Railways**
Expert report, sworn evidence, Melbourne, 12-13 October and 5-6 November 2009
- Expert evidence on behalf of Orion NZ, at the Commerce Commission's Conference on its Input Methodologies Discussion Paper**
Transcribed evidence, public hearings, Wellington, 16 September 2009
- Expert evidence before the Federal Court on behalf of Fortescue Metals Group Ltd, in the matter of ASIC v Fortescue Metals Group and Andrew Forrest**
Expert report, sworn evidence, Perth, 29 April–1 May 2009
- Expert report and evidence in arbitration proceedings before Hon Michael McHugh, AC QC, and Roger Gyles, QC, between Origin Energy and AGL**
Expert report, sworn evidence, Sydney, 19-24 March 2009
- 2008**
- Expert evidence on behalf of Orion NZ, at the Commerce Commission's Conference on its Draft Decision on Authorisation for the Control of Natural Gas Pipeline Services**
Transcribed evidence, public hearings, Wellington, 21 February 2008
- 2007**
- Expert report and evidence in arbitration proceedings before Sir Daryl Dawson between SteriCorp and Stericycle Inc.**
Expert report, sworn evidence, 11 July 2007
- 2006**
- Expert report and evidence in arbitration proceedings before Sir Daryl Dawson and David Jackson, QC, between Santos and others, and AGL**
Expert report, sworn evidence, November 2006
- Expert report and evidence before the Federal Court on behalf of Fortescue Metals Group in the matter of BHP Billiton v National Competition Council and Others**
Expert report, sworn evidence, November 2006
- Expert report and evidence in arbitration proceedings before Sir Daryl Dawson and David Jackson, QC, between Santos and Others, and Xstrata Queensland**
Expert report, sworn evidence, September 2006

Expert report and evidence before the Copyright Tribunal on behalf of the Australian Hotels Association and others in the matter of PPCA v AHA and Others

Expert report, sworn evidence, May 2006

Expert report and evidence in arbitration proceedings before Hon Michael McHugh, AC QC, on the matter of AWB Limited v ABB Grain Limited

Expert report, sworn evidence, 24 May 2006

Expert report and evidence to Victorian Appeal Panel, in the matter of the appeal by United Energy Distribution of the Electricity Price Determination of the Essential Services Commission

Expert report, sworn evidence, 10 February 2006

2005

Expert evidence on behalf of Orion NZ, at the Commerce Commission's Conference on its Notice of Intention to Declare Control of Unison Networks

Transcribed evidence, public hearings, Wellington, 17 November 2005

Expert evidence on behalf of Orion NZ, at the Commerce Commission's Conference on Asset Valuation choice and the electricity industry disclosure regime

Transcribed evidence, public hearings, Wellington, 11 April 2005

2004

Expert report and evidence to the Australian Competition Tribunal, in the matter of Virgin Blue Airlines v Sydney Airport Corporation

Expert reports, sworn evidence, 19-20 October 2004

Expert evidence on behalf of Orion NZ, at the Commerce Commission's Conference on the ODV Handbook for electricity lines businesses

Transcribed evidence, public hearings, Wellington, 26 April 2004

Speeches and Publications³

2015

Electricity Networks Association Regulation Seminar, Brisbane

Participant in Expert Plenary Panel

Speech, Brisbane, 5 August 2015

NZ Commerce Commission Input Methodologies Review, Wellington

'Allocation of Risk' and 'New Technologies'

Panel Discussant, Wellington, 29 July 2015

Competition Matters Conference, Wellington

Disruptive Technologies

Chair, Discussion Panel, Sydney, 24 July 2015

Singapore Aviation Academy, Singapore

Private Financing of Airport Infrastructure Expansions

Speech, Singapore, 5 March 2015

GCR 4th Annual Law Leaders Forum Asia-Pacific

Differences in using economics in EU and Asia Pacific

Speech, Singapore, 5 March 2015

AEMC Public Forum

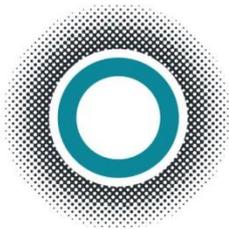
East Coast Gas Market Review

Speech, Sydney, 25 February 2015

³ Past seven years

- 2014**
- Competition and Consumer Workshop, Law Council of Australia**
An Economist's Take on Taking Advantage
Paper and Speech, Brisbane, 14 September 2014
- Energy Networks 2014**
Innovation and Economic Regulation
Speech, Melbourne, 1 May 2014
- The Network Industries Quarterly, *Consumer Advocacy in Australian Regulatory Decision Making – 'Hard Choices Await'*, Vol. 16, No 1, 2014**
Ecole Polytechnique Federale de Lausanne, 31 March 2014
- GCR 3rd Annual Law Leaders Asia Pacific**
Role of Economists in Competition Law Enforcement in Asia-Pacific
Speech, Singapore, 6 March 2014
- 2013**
- University of South Australia – Competition and Consumer Workshop**
Empirical test and collusive behaviour
Speech and participation game, Adelaide, 16 November 2013
- Energy in WA Conference**
Capacity Payments in the WEM – Time to Switch?
Panel Discussion, Perth, 21 August 2013
- ACCC/AER Regulatory Conference**
Designing Customer Engagement
Speech, Brisbane, 25 July 2013
- Victorian Reinsurance Discussion Group**
Australian Mining – When Opportunities and Risk Collide
Speech, Melbourne, 1 March 2013
- NZ Downstream Conference**
Investment and Regulation
Panel Discussion, Auckland, 25 July 2013
- 2012**
- Rising Stars Competition Law Workshop**
Expert Evidence in Competition Cases
Speech, Sydney, 24 November 2012
- KPPU – Workshop on the Economics of Merger Analysis**
Theories and Methods for Measuring the Competitive Effects of Mergers
Speech, Bali, 19-21 November 2012
- University of South Australia – Competition and Consumer Workshop**
Reflections on Part IIIA of the Competition Act
Speech, Adelaide, 12 October 2012
- NZ Downstream Conference**
Lines company consolidation – what are the benefits and risks?
Panel discussion, Auckland, 6-7 March 2012
- 2011**
- Law Council of Australia - Competition Workshop**
Coordinated effects in merger assessments
Speech, Gold Coast, 27 August 2011

- ACCC Regulatory Conference**
Adapting Energy Markets to a Low Carbon Future
Speech, Brisbane, 28 July 2011
- 2010**
- IPART Efficiency and Competition in Infrastructure**
Improving Performance Incentives for GTE's
Speech, Sydney, 7 May 2010
- Law and Economics Association of New Zealand**
Shareholder Class Actions – A Rising Trend in Australia
Speeches, Auckland and Wellington, 15-16 November 2010
- 2009**
- ACCC Regulatory Conference**
Substitutes and Complements for Traditional Regulation
Speech, Gold Coast, 30 July 2009
- Minter Ellison Shareholder Class Action Seminar**
Investor Class Actions – Economic Evidence
Speech, Sydney, 18 March 2009
- Competition Law and Regulation Conference**
Commerce Amendment Act: Impact on Electricity Lines Businesses
Speech, Wellington, 27 February 2009
- 2008**
- Non-Executive Directors**
Shareholder Class Actions in Australia
Speech, Sydney, 28 July 2008
- Mergers & Acquisitions: Strategies 2008**
Competition Law Implications for Mergers & Acquisitions
Speech, Sydney, 27 May 2008
- Institute for Study of Competition and Regulation**
Role of Merits Review under Part 4 and Part 4A of the Commerce Act
Speech, Wellington, 20 February 2008
- 2007**
- Law Council of Australia - Trade Practices Workshop**
Hypothetical breach of s46
Economic expert in mock trial, 20 October 2007
- Assessing the Merits of Early Termination Fees, *Economics of Antitrust: Complex Issues in a Dynamic Economy*, Wu, Lawrence (Ed)**
NERA Economic Consulting 2007
- Assessing the Impact of Competition Policy Reforms on Infrastructure Performance**
ACCC Regulation Conference
Speech, Gold Coast, 27 July 2007



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