

Jemena Gas Networks (NSW) Ltd

2015-20 Access Arrangement Information

Appendix 7.8

Debt raising costs

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**Debt raising transaction costs -
Jemena Gas Networks**

June, 2014

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1. Executive Summary

Jemena Gas Networks (JGN) has engaged Incenta Economic Consulting (Incenta) to undertake a review of the issue of debt raising transaction costs, taking account of the development of recognition of these costs by regulators over a number of years, and the recent PricewaterhouseCoopers (PwC) analysis that was undertaken for the Energy Networks Association (ENA). JGN has requested that we estimate the total debt raising transaction costs that a benchmark electricity network or benchmark gas distribution network would be expected to incur in the course of the upcoming regulatory period. The analysis has been based on JGN's benchmark debt and forecast cash flows.

The major findings of this review are as follows.

1.1 Allowance for debt raising transaction costs relating to the debt component of the RAB

Taking the market research results of the recent PwC study of debt raising transaction costs relating to the RAB debt,¹ it is relatively straightforward to calculate a 10 basis points per annum allowance for JGN based on its opening RAB debt of \$1,827.5 million.²

1.2 Allowance for costs associated with Standard & Poor's liquidity requirement

We note that PwC's use of the term 'indirect costs' to describe the operating costs associated with maintenance of a liquidity reserve is not appropriate. We consider that these costs are direct costs, since they involve an explicit cash outlay by businesses in the form of additional bank fees (which are not included in the bond issuance costs that are recognised as an explicit operating cost), and bank commitment fees. We met with, and were told by Standard & Poor's, that the requirement for a liquidity reserve has been established to ensure that in the event of a temporary closure of debt markets, firms have the ability to repay expiring existing debt. Standard & Poor's considers that almost all regulated energy businesses are likely to require a liquidity reserve, and that this is a direct cost of operations.

While PwC and CEG have recently estimated that the liquidity reserve required to maintain an investment grade rating is respectively between 8.8 per cent and 14 per cent of the outstanding RAB debt, the methodology employed in both of those cases was to observe the undrawn committed bank lines and to assume that this was held for the purpose of meeting liquidity requirements.³ However, this is an indirect method and could be subject to various biases. For example, undrawn bank facilities could be held by a firm that is contemplating new acquisitions, which therefore would not be held to meet liquidity requirements for an existing business.

Our approach has been to estimate the required liquidity premium in the same way that this is done by Standard & Poor's, but applied to the cash flows of the benchmark firm rather than the firm (or issue)

¹ PwC (June, 2013), *Energy Networks Association: Debt financing costs*.

² As at 1 July, 2015, which is 60 per cent of the RAB of \$3,045.8 million.

³ ENA (11 October, 2013), *Response to the Draft Rate of Return Guideline of the Australian Energy Regulator*, p.76.

being rated by Standard & Poor's.⁴ That is, we have taken cash flow forecasts for JGN, and have solved for the quantum of undrawn committed bank lines that would be required to achieve a cash flow sources / uses ratio of 1.1x in each year of the new regulatory period, and achieve sources equal to uses if a 15 per cent reduction in EBITDA is modelled, using the cash flow forecasts that are generated by JGN's Post Tax Revenue Model (PTRM).⁵

Applying this approach to JGN's benchmark cash flow forecasts, we found that over the forecast regulatory period of 2015-16 to 2019-20 the liquidity reserve required to achieve Standard & Poor's ratios needed to maintain an investment grade credit rating lies between 5.9 per cent and 6.9 per cent of benchmark RAB debt. The corresponding benchmark cost of maintaining the required liquidity reserve is estimated at 5.6 to 6.9 basis points (based on the level of benchmark regulatory debt) and a levelised cost of 6.2 basis points per annum relative to JGN's regulatory debt.

1.3 Allowance for costs associated with Standard & Poor's requirement to finance 3 months ahead

Standard & Poor's requires investment grade issuers to re-finance bonds 3 months ahead of expiry. We concur with PwC's report for the ENA, which found that in its consideration of ETSA Utilities' 2010 submission to the Australian Energy Regulator (AER) on the cost of re-financing 3 months ahead, the AER had confused the meaning of the term 'underwriting costs'. The AER held that the calculation of debt raising transaction costs relating to the RAB debt already included a component for 'underwriting costs', which would result in 'double counting'. However, there is no double counting, since the fees that are incorporated into the estimates of the transaction costs (which stem from a method recommended in an Allen Consulting Group (ACG) report from 2004) made it clear that while the label 'underwriting costs' was commonly used for the fees in question, that label was a misnomer.⁶ Rather, those fees were actually paid to investment banks for arranging the transaction (a service), and there was in fact no risk taking (and underwriting) by the bank in question.

We also concur with PwC's approach to estimating the cost of re-financing 3 months ahead. In Table 9 in the main body of this report, we have used JGN's cost of debt assumption of 7.3 per cent, and assumed re-investment of the funds raised through the 10 year bond issue for 3 months in a BBB rated bond (which was 3.78 per cent based on the Bloomberg FVC for the 20 business days to 12 February, 2014), with the difference between these rates over the 3 month period being the cost of meeting the requirement. We have assumed that the funds are re-invested in 3 month bonds with the same credit rating so that the overall risk of the benchmark firm is not changed. This results in a lower cost than would be implied by reinvestment in Commonwealth Government bonds. Given the benchmark debt raising amounts derived in this report, this implies a cost equivalent to between 4.4

⁴ Standard & Poor's undertakes modelling of future sources and uses of cash and requires utilities to achieve a sources/uses ratio of 1.1 times and sources greater than uses if EBITDA is modelled to reduce by 15 per cent. See, Standard & Poor's (2 January, 2014), *Methodology and Assumptions: Liquidity Descriptors For Global Corporate Issuers*, which updates Standard & Poor's earlier (28 September, 2011) report of the same title.

⁵ The AER applies a Post Tax Revenue Model (PTRM) to calculate the regulated revenue based on inputs including benchmark efficient operating costs, the return of capital (regulatory depreciation) and return on capital.

⁶ ACG (December, 2004), *Debt and Equity Raising Transaction Costs – Final Report, Report to The Australian Competition and Consumer Commission*, p.52.

and 5.6 basis points per annum on the regulatory debt, and a levelised cost of 5.1 basis points per annum relative to JGN's regulatory debt.

1.4 Total debt-raising transaction costs

Our analysis indicates that based on the assumptions in this report, including JGN's assumptions about the cost of debt and its PTRM cash flow forecasts, the benchmark, non-margin components of the direct cost of debt (expressed in terms of basis points per annum on regulatory debt) is comprised of levelised amounts of:⁷

- **10 basis points per annum** for the costs of issuing the bonds in an assumed debt portfolio of \$1.8 billion (i.e. RAB debt);
- **6.2 basis points per annum** to establish and maintain bank facilities required to meet Standard & Poor's liquidity requirements condition for maintaining an investment grade credit rating; and
- **5.1 basis points per annum** to compensate for the requirement (again as a condition of maintaining an investment grade credit rating) that Standard & Poor's requires businesses to re-finance their debt 3 months ahead of the re-financing date.

Summing these three components of the total transaction costs over the regulatory period, we have estimated a total levelised cost of **21.2 basis points per annum** on the regulatory debt.

⁷ That is, using a generic discount rate of 10 per cent, we calculated the NPV of these transaction costs over the regulatory period and divided by the NPV of the RAB values over the same period to obtain a levelised cost in basis points per annum. Since the discount rate applied is the same in the numerator and the denominator, the resulting levelised cost is not sensitive to the choice of the discount rate (i.e. virtually the same result is obtained whether 10 per cent, or the WACC is applied). For example, using a discount rate of 8 per cent (instead of 10 per cent) reduces the total cost from 21.229 basis points to 21.223 basis points.

2. Terms of Reference and outline of report

2.1 Terms of Reference

Jemena Gas Networks (JGN) has engaged Incenta Economic Consulting (Incenta) to undertake a fresh review of the issue of debt raising transaction costs, taking account of the development of recognition of these costs by regulators over a number of years, and the recent PwC analysis that was undertaken for the Energy Networks Association (ENA).⁸ JGN has requested that we estimate the total debt raising transaction costs that a benchmark electricity transmission network would be expected to incur in the course of the upcoming regulatory period.⁹ The analysis has been based on JGN's benchmark debt and forecast cash flows.

2.2 Outline of report

This report begins with the premise that all debt raising transaction costs are 'direct', and that it is not correct to refer to some of these costs as 'indirect costs'. While the benchmark gearing approach is to assume that the debt component of the RAB of the benchmark firm is wholly comprised of bonds, there are actually three components of direct debt raising costs that require compensation:

- The cost of bond issuance for the benchmark debt component of the RAB;
- The cost of maintaining a liquidity reserve in order to satisfy Standard & Poor's requirements for an investment grade credit rating, which lies outside of the benchmark debt component of the RAB, but incurs associated specific direct costs of (bank) debt issuance, and bank commitment fees; and
- The cost associated with securing the issuance of bonds 3 months ahead of the expiry of issued bonds, as required by Standard & Poor's.

The requirement to compensate for the incurring of efficient costs of operation, including efficient financing costs is set out in both the National Gas law and the National Gas Rules. As noted in the Terms of reference, section 24 of the National Gas Law stipulates that:

(2) 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.

In addition, Rule 87 of the National Gas Rules, relating to the allowed rate of return states, *inter alia*, that:

⁸ PwC (June, 2013).

⁹ Our Terms of Reference did not include consideration of a new issue premium associated with the issuance of corporate bonds by the benchmark regulated business.

(3) The allowed rate of return objective is that 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 (the allowed rate of return objective).

The remainder of this report follows this structure, and examines each cost component in turn:

- In section 3 we briefly review the development of the concept of a regulatory allowance for debt raising transaction costs associated with the debt component of the RAB, i.e. the arrangement fees and other costs required to obtain finance for this debt component;
- In section 4 we provide estimates of the benchmark transaction costs incurred through the maintenance of undrawn committed bank lines, which act as a buffer to satisfy Standard & Poor's liquidity requirement for an investment grade credit rating.
- In section 5 we consider the costs associated with re-financing debt 3 months ahead of expiry of the existing debt, which is another requirement of Standard & Poor's.
- Section 6 draws together the benchmark debt raising transaction cost components estimated in the previous sections, and derives a levelised total benchmark debt raising transaction cost.

3. Allowance for debt raising transaction costs associated with the debt component of the RAB

3.1 Regulatory treatment of debt raising transaction costs associated with the debt component of the RAB

The Essential Services Commission of Victoria (ESCV) was the first regulator in Australia to recognise the need to provide compensation to businesses for the costs of raising new debt to refinance existing debt and provide funding for capital expenditure.¹⁰ An allowance of 5 basis points was provided based on an indicative figure that had been submitted by an electricity distribution business during the 2001 Electricity Distribution Review. During 2002 and 2003 the Australian Competition and Consumer Commission (ACCC) provided allowances of between 10.5 and 25 basis points, albeit the latter amount was the result of an appeal to the Australian Competition Tribunal (Tribunal).

The 2004 ACG report to the ACCC observed that there are two major components of debt-raising transaction costs:¹¹

- The arrangement/placement fees (arrangement fees) that are paid to investment banks to compensate them for their management of the bond issuance process; and
- Other costs that are associated with the bond issuance, including lawyers' fees and credit rating agency fees.

However, the first component was described as an 'underwriting fee', even though the ACG report was careful to note that this term related to 'best efforts' underwriting, in which a 'bookbuild' is undertaken to determine a market clearing price for the debt issue. In other words, this was not the 'underwriting fee' that is common in equity raisings, where the investment bank obtains a reward for bearing risk in guaranteeing that a specified amount of proceeds will be raised. It would have been better described as an 'arrangement fee'.

ACG found that the standard issue size was \$175 million, and the arrangement fee component of the total debt raising transaction cost was 5.5 basis points. Depending on the size of the regulated business, a debt raising transaction cost in the range of 8 to 10.4 basis points was indicated.

3.2 Subsequent analysis of debt raising transaction costs

Subsequent analysis of the debt raising transaction costs identified by ACG has found that the arrangement fee component of the total cost has been increasing. The PwC report undertaken for Powerlink in 2010 found that the arrangement fee component had risen from 5.5 basis points to 7.2 basis points,¹² and the Australian Energy Regulator (AER) accepted this.¹³ More recently, PwC found

¹⁰ Essential Services Commission (October, 2002), *Final Decision: review of gas access arrangements*.

¹¹ ACG (December, 2004), p.52.

¹² PwC (April, 2011), *Powerlink – Debt and equity raising costs*, Report for Powerlink, p.4.

¹³ AER (November, 2011), *Draft decision, Powerlink Transmission Determination, 2012-13 to 2016-17*, p. 206.

that the arrangement fee component has increased to 8.5 basis points, and that the standard bond issue has increased to \$250 million.¹⁴ This has not had a great impact on the overall estimated cost for a single bond issue, as the impact of ‘other costs’ has reduced. Hence, ACG’s (2004) estimate of 10.4 basis point for a single \$175 million bond issue compares with PwC’s (2013) estimate of 10.8 basis point for a single \$250 million bond issue. However, the relatively higher arrangement fee component found by PwC means that larger firms are now incurring higher debt raising transaction costs, which do not fall much below 9.9 basis points per annum.¹⁵

3.3 Benchmark debt-issuing transaction cost allowance

The benchmark assumption, which is implicit in Australian regulatory decisions, is that 100 per cent of RAB debt portfolio is comprised of bonds. To estimate transaction costs associated with this component we rely on the PwC (2013) analysis, which is based on recent observations of market practice.

PwC found that Australian businesses issuing bonds in the US are incurring an arrangement fee in the order of 8.5 basis points per annum (bppa), which was found to be relatively invariant to size, term at issuance, or issuance size.¹⁶ Based on interviews with legal firms, banks and credit rating agencies that are involved in the bond raising process, and charge fees for their services, PwC compiled the list of bond issuance transaction costs for a benchmark debt issuance program, which is shown in Table 1 below.¹⁷

Table 1: Benchmark ‘other bond issuance transaction costs’ – Domestic (2013)

Cost item	Unit	Estimated value	Source
Legal counsel – Master program	Per 10 years	\$56,250	Legal firms
Legal counsel – issuer’s	Per issue	\$15,625	Legal firms
Credit rating agency – Initial credit rating	Per issue	\$77,500	Rating agencies
Credit rating agency – Annual surveillance	Per annum in total	\$35,500	Rating agencies
Credit rating agency – Up front bond issue	Per issue	5.2bps of issue size	Rating agencies
Registrar – Up front	Per 10 years	\$20,850	Banks
Registrar - Annual	Per annum per issue	\$7,825	Banks
Investment bank’s out-of-pocket expenses	Per issue	\$3,000	Estimated

Source: PwC (2013), p.19.

The components are described as follows:

- *Legal counsel – Master program* – these are the legal costs for the preparation of a Master Program, which becomes the base document for multiple issuances over the next 10 years;
- *Legal counsel – issuer’s* – these are legal fees for the preparation of documents under the Master Program;

¹⁴ (PwC (June, 2013), pp. i-iii.

¹⁵ PwC (June, 2013), p. iv.

¹⁶ PwC, (June, 2013), p.77.

¹⁷ Companies will issue individual bonds as part of a ‘bond program’, with some fees relating to the whole program (over say, 10 years), and others being issue specific.

- *Credit rating agency – Initial credit rating* – a fee to establish the credit rating;
- *Credit rating agency – Annual surveillance* – a rating agency fee for the maintenance of the credit rating each year;
- *Credit rating agency – Up front bond issue* – a fee charged by the rating agency when a new bond is issued;
- *Registrar – Up front* – an initial set-up fee charged by a bond registry organisation;
- *Registrar – Annual* – the annual fee charged by the registry service; and
- *Investment bank’s out-of-pocket expenses* – the fees charged by the agents of a bank for travel, accommodation, venue hire, printing etc.

PwC’s survey of recent debt issuance by infrastructure businesses found that the standard bond issuance size is \$250 million. With a Regulated Asset Base (RAB) of \$3,045.8 million, and benchmark gearing of 60 per cent, JGN’s benchmark debt level is \$1,827.5 million.¹⁸ This implies that the benchmark firm would need to undertake 7 bond issues, each with an approximate issue size of \$250 million.¹⁹

As shown in Table 2 below, by applying PwC’s observations of practice, the estimated benchmark debt-raising transaction cost would be 10.8 basis points for one bond issue of \$250 million, and a cost of **10 basis points per annum (bppa)** for JGN’s estimated 7 benchmark bond issues.

Table 2: JGN – benchmark debt-raising transaction costs (bppa)²⁰

Number of bonds	Value (from Table 1)	1 bond issued	7 bonds issued
Amount raised		\$250 million	\$1,750 million
Arrangement fee*		8.51	8.51
Bond Master Program (per program)*	\$56,250	0.33	0.05
Issuer’s legal counsel*	\$15,625	0.09	0.09
Company credit rating#	\$77,500	0.46	0.07
Annual surveillance fee#	\$35,500	0.14	0.02
Up-front issuance fee*	5.20 bp	0.77	0.77
Registration up-front (per program)*	\$20,850	0.12	0.12
Registration – annual*	\$7,825	0.31	0.31
Agents out-of-pockets*	\$3,000	0.02	0.02
Total (bppa)		10.8	10.0

Source: Based on PwC (2013), p.19. Note: Basis of calculation of costs - * Per annum basis per issue (constant with number of issues), # per company per annum basis (reduces with number of issues).

¹⁸ This is the RAB level assumed as at 1 July, 2015.

¹⁹ We have rounded down to 7 bond issues, as \$1,750 million (rather than up to 8 bond issues for \$2,000 million), which is \$77 million less than the assumed debt level. This results in a slight over-estimate of the transaction cost, while rounding up would result in a larger under-estimate of this cost.

²⁰ Since the costs are expressed in basis points per annum (bppa), each year they will vary in proportion to the benchmark debt that is forecast for the regulated business.

We do not expect these debt-raising transaction costs will be materially affected by JGN's transition from a 'rate on the day' approach to a 10 year trailing average approach. However, a question arises about whether the benchmark debt-raising transaction costs assumed are relevant for a small network service provider such as JGN. Under the trailing average approach JGN will need to either issue irregularly at the benchmark issue size (7 issues of \$250 million each rather than 10 issues), or issue regularly at less than the optimum issue size (i.e. 10 issues of \$182.7 million each). If JGN issues irregularly it will not have the same protection from changes in the regulatory interest rate that is provided by regular issuance of bonds. If JGN issues bonds regularly that are below the benchmark size, we expect that the effect would, if anything, be likely to raise costs (which is why the benchmark size of issuance is \$250 million). Therefore, we consider that for JGN the costs shown in Table 2 may be conservative.

4. Allowance for costs associated with the Standard & Poor's liquidity requirement

4.1 Liquidity requirement costs are 'direct'

The recent PwC (2013) report for the ENA identified two sources of what had been termed 'indirect debt raising transaction costs':

- The cost of maintaining a liquidity reserve, as required by Standard & Poor's, and
- The cost of re-financing three months ahead (as discussed below).

We observe at the outset that the label of these cost items as 'indirect costs' is misleading. Both of these items represent cash costs that regulated entities are required to incur in order to meet and maintain the requirements for an investment grade credit rating (the actual requirements are discussed further below) and are therefore direct costs. Our discussion with Standard & Poor's has confirmed that it also considers these costs to be direct costs, which are fundamentally no different to the other direct costs associated with debt raising that have been recognised as direct cost in the past.²¹

The AER's *Rate of Return guideline* also recognised that costs associated with undrawn debt are a direct transaction costs:²²

For the purposes of estimating debt yield compensation we consider that it is appropriate to consider:

- *Drawn debt rather than total debt (equal to drawn and undrawn debt) as it is the cost of drawn debt that the WACC is compensating. The cost of undrawn debt is a transaction cost which is compensated through the opex building block cash flows.*

However, the AER did not elaborate on what mechanism would be used to compensate for these transaction costs through the opex building block cash flows. That is, how would the benchmark operating cost associated with undrawn debt be determined?

The remainder of this section explains how we have estimated the (direct) cost of maintaining a liquidity reserve (the second of the liquidity requirements noted above) using undrawn debt facilities. Our estimates of the cost of refinancing maturing debt in advance are described in section 5.

4.2 General approach to estimating the cost of maintaining a liquidity reserve

The most cost effective means of creating and maintaining a liquidity reserve is to secure and retain bank debt facilities that are committed (meaning that they can be drawn upon immediately as needed)

²¹ We note that the term indirect costs has been used in the context of equity raising to refer to an economic cost that may be borne by shareholders in an entity (through changes in share prices) when a new equity issue is made. This is an indirect cost because there is no cash cost borne by the entity. As noted in the text, the cost of meeting liquidity requirements and refinancing maturing bonds early are fundamentally different as a direct, cash cost is borne by the regulated entity.

²² AER (December, 2013), p. 144.

but undrawn (that is, not yet utilised, or actually borrowed).²³ The quantum of committed but undrawn bank debt would reflect the requirements of the rating agencies, the specific details of which are discussed further in section 4.3.

In view of this, PwC, and later CEG, estimated the level of the liquidity buffer required to meet the requirements of the rating agencies by observing the levels of committed but undrawn debt on the balance sheets of regulated energy transmission and distribution businesses. As noted in the ENA's recent submission to the AER:²⁴

Undrawn bank debt accounts for a weighted average of 14 per cent of total drawn debt [according to CEG] – which is higher than the 8 per cent estimate figure used by PwC to estimate the costs of liquidity management.

However, we observe that the approach applied by PwC and CEG, which was to infer the requirements of the ratings agencies from the measured/estimated quantum of committed but undrawn bank debt from the sample of firms, is an indirect method for estimating the cost of meeting the rating agencies' requirements. Indeed, we note that there are a number of factors that could lead this method to over- or under-estimate the liquidity requirement for a benchmark firm:

- The observed level of committed but undrawn bank debt may in part reflect other objectives of the business – for example, APA Group is well known for its numerous acquisitions of additional pipelines, and may therefore be expected to pay for committed but undrawn bank lines that would enable it to take immediate advantage of new acquisition opportunities. This would mean that the observed committed but undrawn bank facilities may overstate what a benchmark business would need to meet the requirements of Standard & Poor's.
- The regulated businesses used in the sample may have unregulated activities that may be more risky and require more liquidity buffer than the regulated component. This would also mean that the observed committed but undrawn bank facilities may overstate what a benchmark business would require to meet the requirements of rating agency purposes.
- In contrast, due to parental support, some firms may have a stronger financial position than is assumed for the benchmark firm, which would reduce the size of the bank facility required to maintain a liquidity reserve. This would mean that the observed committed but undrawn bank facilities may understate what a benchmark business would require to meet the requirements of the rating agency.

More generally, we observe that the methodology applied by PwC and CEG derived a single benchmark level of committed but unused bank lines that is invariant to the specific financial circumstances of firms in the sample. In contrast, it would be expected that the size of the facilities required would vary with the strength of the firm's cash flows. For example, a higher capital

²³ In other words, while the company has a right to borrow up to the agreed limit at will. If 'undrawn' these funds are not yet borrowed, and therefore do not attract the full borrowing cost, but a smaller charge (commitment fee) that compensates for the option of borrowing up to the agreed amount.

²⁴ ENA (11 October, 2013), *Response to the Draft Rate of Return Guideline of the Australian Energy Regulator*, p.76. The businesses covered by the CEG estimate of undrawn debt facilities were the Cheung Kong Group (SA Power Networks, CitiPower and Powercor), Envestra, ElectraNet, SP AusNet, DUET Group (MultiNet Gas and United Energy) and APA Group.

expenditure requirement would increase the size of the bank facility needed to meet the liquidity requirement.

In order to overcome these problems, in this report we have applied an alternative approach to estimate the committed but undrawn bank debt that a benchmark business would require to meet the requirements of Standard & Poor's and other rating agencies. In particular, we have applied Standard & Poor's formula for determining liquidity requirements to derive a direct estimate of the liquidity buffer required for a business whose financing arrangements conform to those of the benchmark entity.²⁵ This is referred to below as the 'bottom up' estimate of this buffer. 'Bottom up' modelling of forecast cash flows also allows us to specify the particular cash circumstances (e.g. varying levels of capital expenditure) for any regulated business.

The Standard & Poor's formula for determining liquidity requirements is described in section 4.3, and our method of applying this to the characteristics of the benchmark business and the results derived are described in section 4.4.

4.3 How Standard & Poor's derives the liquidity requirement

In its 2014 report titled, *Methodology and Assumptions: Liquidity Descriptors for Global Corporate Issuers*, Standard & Poor's describes how it assigns liquidity ratings to corporate issuers, and states that a minimum rating of 'adequate' is required in order to support an investment grade credit rating.²⁶ In order to establish the liquidity rating of a business, Standard & Poor's applies a forward looking estimate of the ratio of 'sources' of cash flow (designated as 'A') to the 'uses' of that cash flow (designated as 'B'), including debt re-financing. Specifically, an 'adequate' level of liquidity is indicated if:

- A/B is at least 1.2x for firms generally, but must be at least 1.1x for utilities;²⁷ and
- If the firm's EBITDA was assumed to decline by 15 per cent compared with the base case forecast, A-B would stay positive.

These ratios are referred to in the discussion below as 'Standard & Poor's liquidity requirements' or as 'the liquidity requirements'.

We examined Standard & Poor's 2011 report relating to its liquidity requirements, and then had a follow up discussion with staff from its Melbourne office in order to clarify our understanding of the methodology that it applies to assess the liquidity requirement of regulated energy businesses. It was the view of Standard & Poor's staff that in most circumstances, a stand-alone regulated energy network business would not have a sufficient buffer in its cash flows to satisfy the minimum liquidity requirements, and would have to supplement its 'sources' in order to satisfy its liquidity requirements.

Standard & Poor's assesses the cash flow forecasts for the business for the period 6 months ahead, and estimates the base case sources and uses of funds over that timeframe. To the extent that the

²⁵ We also spoke with Moody's staff, who told us that Moody's undertakes similar modelling but does not publish a specific guideline for businesses like Standard & Poor's.

²⁶ Standard & Poor's (2 January, 2014), *Methodology and Assumptions: Liquidity Descriptors For Global Corporate Issuers*, which updates Standard & Poor's earlier (28 September, 2011) report of the same title.

²⁷ The requirement that for utilities the sources/uses ratio is 1.1x was confirmed by email from Standard & Poor's to Incenta on 25 March 2014.

liquidity requirements are not met from the cash flows, then the business would be required to supplement the ‘sources’ of cash until the liquidity requirements are met. In addition, if the actual level of sources falls short of the level needed to meet the liquidity requirement at any time in the future then the firm’s investment grade credit rating would be placed under review. Hence, in order to maintain its investment grade credit rating, if it is falling short of the required liquidity levels, a firm would need to secure additional ‘sources’ until the liquidity requirements were met.

The additional ‘sources’ could be provided by either holding a cash reserve or through establishing and maintaining committed but undrawn bank financing facilities, as both of these are included in the definition of ‘sources’. We observe, however, that the listed Australian regulated utilities typically hold very little in the way of cash reserves, but do hold material undrawn but committed bank facilities (this latter fact is clear from the work of PwC and CEG referred to earlier). Accordingly, we infer from this observed behaviour that the efficient means for a regulated business to supplement its ‘sources’ in order to meet the liquidity requirements is through the holding of committed but undrawn bank facilities. Accordingly, we assume in the discussion below that any supplementation to the ‘sources’ would be through having in place committed but undrawn bank facilities, and also factor this assumption into the cost estimates that we derive and present below.

The primary concern of Standard & Poor’s is a scenario in which capital markets are temporarily closed, so that re-financing of debt must be undertaken based on existing cash flow sources, taking account of other uses of cash. As noted by Standard & Poor’s, since 2008 there have been three occasions that did have, or could have had, the potential to close down capital markets for a period of time:

- The global financial crisis of 2008-09;
- The European sovereign debt crisis of 2011-12; and
- The US Government debt ceiling crisis (2013).

In its analysis, Standard & Poor’s defines the sources and uses of funds as follows:

- *Sources of funds* - The major source of cash flow of a business is its Funds Flow from Operations (FFO), which may be supplemented by working capital inflows (if positive), the proceeds of asset sales, an expected cash injection from a Government shareholder or parent company, or undrawn committed bank lines. During our meeting, Standard & Poor’s stated that as a general rule it would not assume that a cash injection from a Government or major private shareholder would be forthcoming. Hence, in the case of a benchmark regulated business, which is owned by a diverse group of shareholders, Standard & Poor’s would not assume any such cash injection. Standard & Poor’s would also expect that no proceeds are available from new debt issues or dividend reinvestment plans, since what is being modelled is a situation in which capital markets have shut down.
- *Uses of funds* – A major use of funds that is modelled is the forecast expected capital expenditure. Standard & Poor’s told us that it takes the view that the capital expenditure that is expected to be undertaken is actually undertaken. Other significant cash uses are debt repayments, and dividend payments. The financial health of the business pivots around the need to repay debt when it falls

due. The position of Standard & Poor's is that it would be difficult for the business to cut its dividend significantly in order to find the cash to repay a maturing debt.^{28,29}

4.4 Bottom-up estimate of the costs of establishing and maintaining a liquidity reserve

4.4.1 Our application of the bottom-up methodology

As noted above, in contrast to PwC and CEG, our approach is to apply the bottom-up methodology that applies the formula that Standard & Poor's uses to determine the minimum liquidity requirement. In order to assess the benchmark level of committed undrawn bank lines for JGN, we propose that a forward cash flow analysis be undertaken, in the same way that Standard & Poor's undertakes its analysis. The core inputs into the proposed forward cash flow analysis should be the benchmark outputs of JGN's PTRM model. Specific aspects of our approach are as follows:

- *Sources of funds* – From the perspective of the PTRM model, the base case Funds Flow from Operations (FFO) for each year per 6 monthly period can be established by reference to the benchmark revenues, operating costs, cash taxes paid, and interest paid, all based on the benchmark gearing, weighted average cost of capital (WACC) and regulated asset base (RAB) assumptions.
- *Uses of funds* – Similarly, forecasted capital expenditure can be derived using JGN's PTRM. Turning to dividend payments, we observe that the AER's intention is to estimate dividends by reference to an assumed payout ratio of 70 per cent.³⁰

The last remaining assumption required is the level of debt financing (including refinancing) that is assumed to take place in the forecast period. While the level of new debt financing required in any regulatory year is reasonably straightforward – this is just the level of capital expenditure plus the net change in the RAB due to depreciation and inflation indexation³¹ – the level of refinancing of existing debt requires assumptions about the timing of historical debt issuances. The higher the assumed quantum of debt financing, the lower the ratio of sources to uses of funds, and the higher the quantum of committed undrawn bank lines (i.e. the higher the costs associated with Standard & Poor's liquidity requirement). The assumption we have adopted is that the quantum of debt to be refinanced in regulatory year *t* is equal to the average provided by two proxies:

²⁸ We agree with this approach, as academic research has shown that when a regulated utility cuts its dividend, there is a disproportionately large negative share price reaction relative to industrial firms that do so (owing to fact that utilities tend to attract clienteles of shareholders who expect stable income flows).

²⁹ The Standard & Poor's document on liquidity requirements also includes peak negative working capital in the list of cash flow uses, which reflects a concern to take account of the seasonality of cash flow. As we are calculating annual average liquidity reserves, seasonality is less of a concern (i.e., we will understate the required reserve when revenue is seasonally low and overstate it when revenue is seasonally high, but these effects will cancel out).

³⁰ AER (December, 2013), pp.158-159.

³¹ This net change will be positive if the indexation component exceeds the depreciation allowance, and will be negative if the indexation component is less than the depreciation allowance (it would be expected to be negative provided that inflation rates remain modest).

- the sum of the new debt raising in year $t-10$ (that is, the capital expenditure and net change in the RAB in that year) and 10 per cent of the opening RAB for that year, and
- 10 per cent of the closing RAB for year $t-10$.

Our rationale for this assumption is set out in the following Box.

Box 1: The debt re-financing assumption³²

As noted in the text a key assumption when applying the bottom up approach is the quantum of debt that will be financed in a given 6 month term during the coming regulatory period. We assume that the business always carries the debt equivalent to the benchmark debt component of the RAB, except for the 6 month period being modelled (during which it is assumed that debt markets are closed, and therefore no further debt raising is possible). We further assume that all debt is nominal fixed rate debt with bullet repayment (i.e., all principal is repaid when the debt matures) and has a term of 10 years.

If the regulated business had always financed in this manner, then the level of debt that would need to be raised in a given regulatory year (denoted year t) is equal to 60 per cent of:

$$Capex_t + Net\Delta_t + Capex_{t-10} + Net\Delta_{t-10} + Capex_{t-20} + Net\Delta_{t-20} + Capex_{t-30} + Net\Delta_{t-30} + \dots$$

where $Net\Delta$ denotes the net effect of depreciation and revaluation for inflation. It is also noted that the opening and closing RAB for this entity in year $t-10$ can be expressed as:

$$Opening\ RAB_{t-10} = \sum_i^{t-11} Capex_i + Net\Delta_i$$

$$Closing\ RAB_{t-10} = \sum_i^{t-10} Capex_i + Net\Delta_i$$

We observe that:

$$\frac{Capex_{t-20} + Net\Delta_{t-20} + Capex_{t-30} + Net\Delta_{t-30} + Capex_{t-40} + Net\Delta_{t-40} + \dots}{\sum_i^{t-11} Capex_i + Net\Delta_i} \approx \frac{1}{10}$$

$$\frac{Capex_{t-10} + Net\Delta_{t-10} + Capex_{t-20} + Net\Delta_{t-20} + Capex_{t-30} + Net\Delta_{t-30} + \dots}{\sum_i^{t-10} Capex_i + Net\Delta_i} \approx \frac{1}{10}$$

as the expression in the numerator in both cases contains every tenth term of the expression in the denominator. The difference between the two expressions depends upon whether the variables being summed in the numerator and denominator conclude with the previous year (the first expression) or the current year (the second expression), and so inflation would be expected to cause the first expression to be (slightly) lower than $1/10^{th}$ and the second expression to be (slightly) higher than $1/10^{th}$. Applying these expressions means that the annual debt refinancing for year t can be approximated in two ways, namely as 60 per cent of:

$$Capex_t + Net\Delta_t + Capex_{t-10} + Net\Delta_{t-10} + \frac{1}{10} \times Opening\ RAB_{t-10}, \text{ or}$$

$$Capex_t + Net\Delta_t + \frac{1}{10} \times Closing\ RAB_{t-10}$$

with the first expression expected to yield a slight overestimate, whereas the second expression would be expected to yield a slight under-estimate.

We undertook a simulation of an entity consistent with the assumptions set out above (allowing the quantum of capital expenditure and rates of inflation to vary) and found that the actual refinancing task was within the bounds of the formulae provided above and approximately at the midpoint. Accordingly, we have used the midpoint of the two formulae set out above to derive the annual debt financing task.

The calculations set out above relate to the annual financing task; we have estimated the financing task for each six month period as half of the annual value.

³²

We note that the relationships between RAB, capex, depreciation, and revaluation for inflation set out in Box 1 are consistent with the approach applied in the AER's PTRM.

In order to estimate the cost associated with maintenance of a liquidity reserve, it is necessary to calculate three values:

- First, the quantum of the liquidity reserve (i.e. commitments of bank debt) that is implied by the analysis. That is, the quantum of committed but unused bank debt that is required to be able to be drawn upon in the event of a liquidity crisis;
- Secondly, the commitment fee that is charged by banks to hold the bank debt that is on call in the event of a liquidity crisis (e.g. collapse of the bond market); and
- Thirdly, the upfront fee charged by banks and associated costs to establish the liquidity reserve bank debt facility (i.e. the ‘establishment fee’ and other transaction costs).

In the following sections we estimate these three components in turn.

The quantum of the required liquidity reserve

As discussed above, in order to estimate the benchmark quantum of bank debt that is needed by a benchmark firm in JGN’s circumstances to satisfy the liquidity reserve required by Standard & Poor’s, we have tested whether the forecasts of JGN’s cash flows calculated according to the method described above meet the liquidity requirements. If the liquidity requirements are not met, we have calculated the additional ‘sources’ that would be needed to meet those requirements. Our results are set out in Table 3 below. As shown in Table 3, we estimate that the quantum of committed but undrawn bank lines needed to meet the liquidity requirements ranges from \$108.4 million to \$142.2 million over the next regulatory period, and between 5.6 per cent and 6.9 per cent of benchmark debt. As shown in the table, the first limb of Standard & Poor’s liquidity requirements is the binding requirement in all years (although it is noted that the requirements of the first and second limbs are similar in all years).

Most of the values in Table 3 have been taken from JGN’s PTRM and halved to provide 6 monthly values. However, retiring debt repayments have been calculated by reference to the average of the upper and lower bounds defined in Box 1 above, i.e. half of the average of:³³

- *High debt refinancing estimate* - 10 per cent of historical debt outstanding at the start of year t-10, plus 60 per cent of the change in the RAB during year t-10; and
- *Low debt refinancing estimate* - 10 per cent of historical debt outstanding at the start of year t-10.

We assume that both the revenue (smoothed), and the operating costs include the value of debt raising costs, however these cancel out at the EBITDA line. As a result, there is no circularity from using revenue and operating cost forecasts that are inclusive of debt raising costs.

³³ Note that in Table 3 below the values that are dependent on the retirement of debt assumption (i.e. interest cost, tax, profit, debt and dividend payments) are the averages of two models that are based on the high and low debt refinancing estimates.

Table 3: JGN – bank lines required to satisfy S&P’s liquidity requirement (sources/uses test) forecasting 6 months ahead (\$million)

PTRM model outputs:	2015-16	2016-17	2017-18	2018-19	2019-20
Revenue (Smoothed)	293.6	293.4	292.7	292.8	294.1
Operating costs	80.4	82.4	85.3	90.1	92.2
EBITDA	213.3	211.0	207.4	202.6	201.8
(A) Sources:					
EBITDA	213.3	211.0	207.4	202.6	201.8
Less, Cash taxes	25.3	21.9	18.1	14.4	12.9
Less, Interest paid	61.7	64.9	68.5	71.9	75.4
Funds From Operations	126.2	124.2	120.8	116.3	113.5
Plus, Proceeds of asset sales	0.1	0.1	0.1	0.2	0.1
Total Sources (not incl. committed but unused bank lines):	126.3	124.3	120.9	116.5	113.6
Total Sources (not incl. committed but unused bank lines) EBITDA falls 15%:	103.9	206.9	219.3	217.4	197.6
(B) Uses:					
Expected capital spending	122.0	123.9	134.1	124.9	113.6
Plus, Debt repayments	68.3	76.4	75.0	78.7	72.5
Plus, Dividend payments	23.0	25.3	28.4	31.6	29.2
Total Uses:	213.3	225.6	237.5	235.1	215.3
Undrawn committed bank lines for A/B = 1.1x*	108.4	123.9	140.4	142.2	123.2
Undrawn committed bank lines as % of debt	5.9%	6.4%	6.9%	6.7%	5.6%
Undrawn committed bank lines for A-B = 0 when EBITDA falls 15%**	90.5	104.8	120.1	122.2	105.2
Undrawn committed bank lines as % of regulatory debt	5.0%	5.4%	5.9%	5.7%	4.8%

Source: JGN data and Incenta analysis. Notes: * Amount of undrawn committed bank lines required to provide a forecasted sources (including undrawn committed bank lines)/uses ratio of 1.1 times. ** Amount of undrawn committed bank lines required for forecasted sources (including undrawn committed bank lines) to at least equal uses if there is a 15 per cent reduction in EBITDA.

The commitment fee

The term ‘committed but unused’ bank debt refers to a line of credit from banks, which allows the firm to borrow a specified amount at short notice and without any further approvals. Such a banking facility is secured by the payment of a ‘commitment fee’ to the bank(s). As stated in the PwC (2013) report, the current market practice with respect to commitment fees is for banks to charge at a rate of 50 per cent of the margin over the swap rate that the bank would charge for lending the funds.

While the core benchmark debt is observed (and typically therefore assumed) to be financed through long term corporate bonds, the debt that is used to provide a liquidity buffer must be bank debt. This reflects the fact that bank debt has the feature of being available at any time upon the payment of a commitment fee. In Table 4 below, we calculate the cost of the commitment fee to be 85 basis points, which is estimated as half of the spread between the Bloomberg BBB yield and the 3 year swap rate.

Table 4: JGN – Calculation of commitment fee (20 days to 12 February, 2014)

	Fee per annum
Bloomberg 3 year BBB yield	4.85%
AUD 3 year swap rate	3.15%
Bloomberg 3 year implied margin (proxy for bank debt margin)	1.70%
Commitment fee (50 per cent of margin)	0.85%

Source: Bloomberg and Incenta analysis

The commitment fees that would be required during each year by a firm with JGN’s benchmark characteristics are shown in Table 5 below. That is, the bank facility required each year to support committed but unused bank lines in order to satisfy Standard & Poor’s liquidity requirements (as calculated in Table 3 above) convert to a commitment fee (in dollars based on the 0.85 per cent per annum calculated in Table 4), which in turn convert to a basis points per annum fee (based on the outstanding debt component of the RAB). Undertaking these calculations we found that the commitment fee ranges from \$0.9 million to \$1.2 million per annum, or 4.7 to 5.9 basis points, and 5.2 basis points on a levelised basis.

Table 5: JGN – benchmark bank facility commitment fees (basis points per annum)

	2015-16	2016-17	2017-18	2018-19	2019-20
Debt (60% of RAB) (\$m)	1,827.5	1,929.0	2,025.8	2,126.5	2,209.5
Bank facility required (\$m)	108.4	123.9	140.4	142.2	123.2
Commitment fee (\$m)	0.9	0.9	1.2	1.2	1.0
Commitment fee (bppa on regulatory debt)	5.0	4.7	5.9	5.7	4.7
Levelised cost (bppa)	5.2				

Source: PwC (2013) and Incenta analysis

Establishment fee and other transaction costs associated with establishing the bank debt facility

The third input to calculate the cost associated with the maintenance of a liquidity reserve is the upfront cost of establishing the bank debt facility. We have adopted the benchmark values that were estimated by PwC, which came to an annualised cost of \$176,354 for 2015-16, or approximately 0.97 basis points.³⁴ The individual cost components and assumptions underlying the derivation of these figures are shown in Table 6 below.

³⁴ PwC (June, 2013), p.iv.

Table 6: JGN– establishment fee and other transaction costs associated with establishing a committed but unused bank debt facility for a debt portfolio of \$1,828 million (2015-16)

	Basis	Cost	Annual	Bppa	Source:
Establishment fee	Up-front	\$184,294.55	\$74,108	0.41	PwC (2013): 0.17% x quantum of bank debt (\$108) million, annualised with 10% discount rate
Other bank transaction costs:					
-legal counsel – borrower	Up-front	\$86,667	\$34,850	0.19	PwC (2013): annualised with 10% discount rate
-legal counsel – bank	Up-front	\$90,000	\$36,190	0.20	PwC (2013): annualised with 10% discount rate
-Syndication fee	Per annum	\$30,000	\$30,000	0.16	PwC (2013): annual syndication fee
-Bank’s out-of-pockets	Up-front	\$3,000	\$1,206	0.01	PwC (2013): annualised with 10% discount rate
Total Annual Equivalent			\$176,354	0.97	Basis points per annum

Source: PwC benchmark values and Incenta analysis

In Table 7 we show how the establishment fee and other transaction costs vary with the bank facility required during each year of the regulatory period. The maximum annualised cost is \$199,447 in 2018-19 (coinciding with the highest liquidity requirement of \$142.2 million in that year), implying a 0.94 basis points per annum cost based on regulatory debt. On a levelised basis, using a generic 10 per cent discount rate, we estimated an establishment fee and other costs component of 0.94 basis points per annum.

Table 7: JGN – Establishment fee and other transaction costs (basis points per annum)

	2015-16	2016-17	2017-18	2018-19	2019-20
Establishment fee (annual equivalent)	80,880	95,890	103,924	106,217	86,996
Other bank transaction costs	95,475	91,033	94,255	93,230	99,456
Total annual equivalent costs (\$)	176,354	186,923	198,179	199,447	186,452
Total annual equivalent cost (bppa)	0.97	0.97	0.98	0.94	0.84
Levelised cost (bppa) on regulatory debt	0.94				

Source: PwC (2013) and Incenta analysis

4.4.2 Benchmark cost of establishing and maintaining a liquidity reserve

Table 8 sets out our estimate of the benchmark cost to JGN of establishing and maintaining the liquidity reserve that would be needed to meet Standard & Poor’s liquidity requirements. As noted above, both the National Gas Law (section 24) and the National Gas Rules (Rule 87) stipulate that there should be compensation for all benchmark efficient costs that are necessary to provide the regulated business with an opportunity to earn a rate of return that is commensurate with the risks of the business. The total cost of establishing and maintaining a liquidity reserve is the sum of two costs:

- A commitment fee, which we calculated to be 85 basis points (see Table 4 above), multiplied by the size of the undrawn committed bank facility required (as calculated in Table 5 above); and

- An annual equivalent of the establishment fee (to establish the bank facility) and other bank transaction costs (see Tables 6 and 7 above).

We found this cost to be between \$1.10 million and \$1.41 million, which converts to a levelised cost of **6.2 basis points per annum** on the regulatory debt.

Table 8: JGN – Total establishment fee and other transaction costs associated with establishing a committed but unused bank debt facility

	2015-16	2016-17	2017-18	2018-19	2019-20
Commitment fee (annual equivalent)	0.92	0.91	1.19	1.21	1.05
Establishment fee & other costs	0.18	0.19	0.20	0.20	0.19
Total annual equivalent costs (\$)	1.10	1.10	1.39	1.41	1.23
Total annual equivalent cost (bppa)	6.0	5.7	6.9	6.6	5.6
Levelised cost (bppa) on regulatory debt	6.2				

Source: PwC (2013) and Incenta analysis

5. Costs associated with re-financing 3 months ahead

5.1 No ‘double-count’ associated with 3 month ahead financing

In 2010, ETSA Utilities provided a report commissioned from PwC to the AER that discussed Standard & Poor’s requirements with respect to the refinancing of maturing debt. It noted that the minimum period over which the refinancing would need to be completed prior to the maturity is 3 months. We note that this is a minimum period, and in some cases up to 6 months ahead re-financing might be required.³⁵

PwC also discussed three alternative approaches to ensure funding could be secured three months ahead of a re-financing, and provided benchmark cost estimates for each method. These methods were:³⁶

- *Completion Method* – executing the bond raising three months ahead of the re-finance date, and investing the proceeds of the bond issue in short term government securities;
- *Commitment Method* – where contracts are signed by the parties committing to the re-financing three months ahead of the actual funds transfer, which has a cost associated with it; and
- *Underwriting Method* – where the service provider engages an underwriter to underwrite the issuance of the bonds three months ahead.

PwC estimated the costs of each of these approaches, and determined that the lowest cost was obtained by adoption of the Completion Method. We consulted corporate treasurers in the current market and were informed that while the other two approaches can be implemented, they are rarely undertaken as they are more expensive than the Completion Method.³⁷

The AER in that matter rejected ETSA Utilities’ proposal. The AER was advised by Associate Professor John Handley on this matter, who considered that this would represent a ‘double-counting’ of costs that had already been provided by the AER elsewhere. Specifically, Associate Professor Handley observed that it was ‘not clear why there should be allowance for both the costs of the Completion Method and gross underwriting fees’.³⁸ That is, Associate Professor Handley considered it likely that ‘underwriting fees’ had already been incorporated in the 9.1 basis point allowance that the AER had already provided to ETSA Utilities for ‘debt raising costs’. This was because, according to Associate Professor Handley, the ACG (2004) report that had informed the quantum of the 9.1 basis point allowance, had already incorporated ‘gross underwriting fees’ within that amount. Based on this advice from Associate Professor Handley, the AER considered that the costs associated with

³⁵ Standard & Poor’s (22 April, 2008), *Refinancing And Liquidity Risks Remain, But Australia’s Rated Corporates Are Set To Clear The Logjam*.

³⁶ PwC (February, 2010), *ETSA Utilities – Distribution Network Service Provider refinancing costs, Final Report*, p.5.

³⁷ We interviewed two treasurers undertaking bond re-financings in the market; one within the benchmark industry, and one in an unrelated capital intensive industry that is subject to competitive forces.

³⁸ John Handley (13 April, 2010), *A Note on the Completion Method, Report prepared for the Australian Energy Regulator*, p.9.

the Completion Method for early re-financing were already incorporated into the 9.1 basis point provision for ‘debt raising costs’, and therefore disallowed this as an efficient cost.

However, the more recent PwC (2013) report undertaken for the ENA showed that Associate Professor Handley’s objection to underwriting fees, and hence the AER’s dismissal of the costs associated with implementation of the Completion Method, was founded on a misunderstanding of the term ‘underwriting fees’ as it was being applied by the ACG (2004) report.³⁹ The ACG report had applied the term ‘underwriting fees’ to describe ‘arrangement fees’, since this was the terminology that had been applied by Bloomberg, which was the source of the data for this cost item.⁴⁰ However, the label ‘underwriting fees’ referred to in the ACG (2004) report actually refers to the fee that is paid to investment banks for the service of arranging the offer. Investment banks do not ordinarily underwrite corporate bond transactions (much less doing so 3 months prior to the issuance transaction taking place), rather the standard practice is for the yield on bonds at issue to be varied until all of the bonds are placed (which is referred to as a ‘book build’ process).⁴¹ Thus the fees that are referred to as underwriting costs actually have nothing to do with the ordinary concept of underwriting that was referred to by PwC (February, 2010) in its report on approaches that may be applied to satisfy Standard & Poor’s requirement for the securing of funding three months ahead of a re-finance.

Our conclusion is that there is no ‘double-count’ in relation to the costs borne by a benchmark business to satisfy Standard & Poor’s requirement for re-financing three months ahead. Hence, we conclude, based on the findings of the PwC (February, 2010) report, that the Completion Method is likely to be the least cost method of achieving 3 month ahead re-financing in accordance with the requirements of Standard & Poor’s. As noted above, this is considered to be the least cost method.

5.2 Estimated cost of 3 month ahead financing

As noted above, we consider that the methodology applied by PwC to estimate the cost of re-financing bonds 3 months ahead of their maturity is fundamentally sound. PwC (2013) argued that:⁴²

While the entity may actually invest in BBSW or Commonwealth Government bonds, and that will create a cash shortfall, on the other hand the entity gains from adding a lower risk asset to its portfolio. This offsetting economic effect can be neutralised by assuming that the business receives the 3 month BBB+ yield.

PwC (2013) found that the annual net cost of re-financing one-tenth of this portfolio three months ahead was 4.7 basis points, which was the net outcome of:⁴³

- A three month interest cost borne on the newly issued bond, of 16.6 basis points; less
- The three month interest that could be earned on BBB rated debt, which was 11.9 basis points.

³⁹ ACG (December, 2004), p. 38.

⁴⁰ Bloomberg, in turn, sourced its information on ‘debt raising costs’ from Information Memorandums for US bond raisings, including US bond raisings by Australian companies, that were publicly available.

⁴¹ ACG (December, 2004), p.38.

⁴² PwC (June 2013), p. 11.

⁴³ PwC (June, 2013), p. 25.

In Table 9 below we have used JGN’s cost of debt assumption of 7.3 per cent, and assumed re-investment for 3 months in a BBB rated bond at 3.8 per cent (based on the Bloomberg FVC). This results in an early re-financing cost of 12 basis points per annum.

Table 9: Bond re-financing cost summary for \$250 million bond (20 days to 12 February, 2014)

Calculation element	Upfront cash cost for \$250m (\$m)	Cost for \$1,828 debt portfolio (bppa)
3 month interest cost on new bond	4.56	
3 month BBB credit rated interest income	(2.36)	
Total cost if invested in BBB credit risk and no redemption/buy back	2.20	12.1

Source: Bloomberg, and Incenta analysis applying PwC (2013) methodology to JGN’s cost of debt assumption

In Table 10 we show that the establishment fee and other costs are proportional to the size of the maturing component of the debt portfolio, ranging from \$107.2 million to \$124.3 million, which has been estimated based on principles outlined in Box 1 and section 4.4.1 above. Our estimates of these costs range from \$0.95 million to \$1.10 million, which convert to a range of 4.4 to 5.6 basis points per annum, or a levelised 5.1 basis points per annum on regulatory debt over the period. These costs are all incurred in the year of re-financing.

Table 10: JGN – Total cost of 3 month ahead re-financing

	2015-16	2016-17	2017-18	2018-19	2019-20
Maturing component of debt portfolio (\$m)	107.2	122.4	118.0	124.3	110.7
Establishment fee & other costs (\$m)	0.95	1.08	1.04	1.10	0.98
Total annual equivalent cost (bppa)	5.2	5.6	5.1	5.2	4.4
Levelised cost (bppa) on regulatory debt	5.1				

Source: PwC (2013) and Incenta analysis

6. Total debt-raising transaction costs

In this section we bring together the three sources of debt-raising transaction costs, and combine them to calculate the levelised cost (in basis points per annum) relative to benchmark forecast debt values taken from JGN's PTRM. The total levelised debt raising transaction cost of **21.2 basis points per annum** has been derived based on the net present value (NPV) of the benchmark total debt transaction costs relative to the NPV of outstanding benchmark debt over the regulatory period using a generic 10 per cent discount rate.⁴⁴ In Table 11 below we show the estimated debt raising transaction costs in terms of basis points per annum (bppa), based on the regulatory debt in JGN's PTRM model, and the equivalent total dollar value of debt raising transaction costs, which range from \$4 million to \$4.8 million per annum.⁴⁵

Table 11: JGN – total debt raising transaction costs in JGN PTRM

	2015- 2016	2016- 2017	2017- 2018	2018- 2019	2019- 2020
Opening RAB (\$m)	3045.8	3215.0	3376.4	3544.1	3682.5
Capex at start (\$m)	116.7	119.0	129.0	119.9	108.8
RAB + capex at start (\$m)	3,162.5	3,334.0	3,505.4	3,664.0	3,791.4
Leverage	60%	60%	60%	60%	60%
Regulatory debt (RAB + capex at start)	1,897.5	2,000.4	2,103.2	2,198.4	2,274.8
Debt raising transaction costs (bppa)	10	10	10	10	10
Liquidity - commitment fee (bppa)	6.2	6.2	6.2	6.2	6.2
3 month ahead financing costs (bppa)	5.1	5.1	5.1	5.1	5.1
Total debt raising transaction costs (bppa)	21.2	21.2	21.2	21.2	21.2
Debt raising transaction costs (\$m)	1.9	2.0	2.1	2.2	2.3
Liquidity - commitment fee (\$m)	1.2	1.2	1.3	1.4	1.4
3 month ahead financing costs (\$m)	1.0	1.0	1.1	1.1	1.2
Total debt raising transaction costs (\$m)	4.0	4.2	4.5	4.7	4.8

Source: JGN data and Incenta PTRM based on Incenta analysis

⁴⁴ That is, using a generic discount rate of 10 per cent, we calculated the NPV of these transaction costs over the regulatory period and divided by the NPV of the RAB values over the same period to obtain a levelised cost in basis points per annum. Since the discount rate applied is the same in the numerator and the denominator, the resulting levelised cost is not sensitive to the choice of the discount rate (i.e. virtually the same result is obtained whether 10 per cent, or the WACC is applied). For example, using a discount rate of 8 per cent (instead of 10 per cent) reduces the total cost from 21.229 basis points to 21.223 basis points.

⁴⁵ Table 11 shows the forecast debt raising costs using JGN's own PTRM, which assumes that 50 per cent of net capex is added to the RAB at the start of the year and 50 per cent at the end. Consistent with this model, it is reasonable to apply the levelised debt raising transaction cost of 21.2 basis points that we estimate to the opening RAB plus the capex added to the RAB at the start of the year to forecast debt raising costs as JGN has done.

Statement of authorship and qualifications

This report has been prepared by Mr. Jeff Balchin and Dr. Michael Lawriwsky. We have made all the enquiries that we believe are desirable and appropriate, and no matters of significance that we regard as relevant have, to our knowledge, been withheld. Copies of the curriculum vitae of each author are attached below.

Mr. Balchin and Dr. Lawriwsky have been provided with a copy of the Federal Court of Australia's 'Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia'. This report has been prepared in accordance with those Guidelines, which are attached below together with the Terms of Reference.

CVs

Jeff Balchin

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Jeff is the Managing Director of Incenta Economic Consulting. Jeff has 20 years of experience in relation to economic regulation issues across the electricity, gas, ports, airports and water sectors in Australia and New Zealand. He has advised governments, regulators and major corporations on issues including the development of regulatory frameworks, regulatory price reviews and issues around the introduction and measurement of competition (including franchise bidding). Jeff has undertaken a number of expert witness assignments. In addition, Jeff has led a number of analytical assignments for firms to understand the responsiveness of consumers to changes to prices and related factors (like promotional activities) and to use this information to inform pricing strategy, and has assisted with the application of economic principles in transfer pricing matters. His particular specialities have been on the application of finance principles to economic regulation, the design of incentive compatible regulation and efficient tariff structures, the drafting and economic interpretation of regulatory instruments and the application of economic principles to pricing in unregulated markets.

Past positions

Jeff previously was a Principal at PwC in its economics and policy team for almost 4 years, prior to that a director and partner at the Allen Consulting Group for over 13 years, and prior that he held a number of policy positions in the Commonwealth Government. In this latter role, he was on the secretariat of the Gas Reform Task Force (1995-1996), where he played a lead role in the development of the National Gas Code.

Relevant experience

A. Economic regulation of network / monopoly activities

- Assistance to parties during price reviews/negotiations
- Design of incentives for operating expenditure efficiency (Client: ElectraNet, 2012-13) – provided expert advice on the detailed application of the incentive arrangements for operating expenditure, including the link between the incentive scheme and the forecasting method.
- Regulatory depreciation (Client: APA, 2012-13) – provided expert reports on the economic principles relevant to the depreciation method that is applied to set gas transmission charges.
- Regulatory cost of debt (Clients: Powerlink, ElectraNet and Victorian gas distributors 2011-2012) – provided a series of reports addressing how the benchmark cost of debt should be established pursuant to the National Electricity Rules and on the appropriate benchmark allowance for debt and equity raising costs.
- Strategic advice, Victorian electricity distribution review and NSW gas distribution review (Client: Jemena Electricity Networks, 2009-2011) – retained as strategic adviser during the review and also provided advice on a range of technical regulatory economic issues, including on regulatory finance matters, service incentives, party contracts, allocation of costs between regulated and unregulated activities and forecasting of expenditure.

- Regulatory cost of debt (Client: Powercor Australia Limited, 2009-2010) – provided a series of reports addressing how the benchmark cost of debt should be established pursuant to the National Electricity Rules.
- Service incentive scheme (Client: Powercor Australia Limited, 2010) – assisted Powercor to quantify the financial effect that would have flowed if the former service performance incentive scheme had continued. Also prepared an expert report pointing to a material inconsistency in how the AER intended to close out the old scheme and the parameters for the new service performance incentive scheme, which was accepted by the AER.
- Input methodologies for NZ regulated businesses (Clients: Powerco NZ and Christchurch International Airport, 2009-2012) – advised in relation to the Commerce Commission’s development of input methodologies, focussing asset valuation, the regulatory cost of capital, the use of productivity trends in regulation and the design of incentive-compatible regulation. Also assisted in briefing counsel in subsequent reviews.
- Equity Betas for Regulated Electricity Transmission Activities (Client: Grid Australia, APIA, ENA, 2008) – Prepared a report presenting empirical evidence on the equity betas for regulated Australian electricity transmission and distribution businesses for the AER’s five yearly review of WACC parameters for these industries. The report demonstrated the implications of a number of different estimation techniques and the reliability of the resulting estimates. Also prepared a joint paper with the law firm, Gilbert+Tobin, providing an economic and legal interpretation of the relevant (unique) statutory guidance for the review.
- Economic Principles for the Setting of Airside Charges (Client: Christchurch International Airport Limited, 2008-2013) – Provided advice on a range of economic issues relating to its resetting of charges for airside services, including the valuation of assets and treatment of revaluations, certain inputs to the cost of capital (beta and the debt margin) and the efficiency of prices over time and the implications for the depreciation of assets and measured accounting profit.
- Treatment of Inflation and Depreciation when Setting Landing Charges (Client: Virgin Blue, 2007 2008) – Provided advice on Adelaide Airport’s proposed approach for setting landing charges for Adelaide Airport, where a key issue was how it proposed to deal with inflation and the implications for the path of prices over time. The advice also addressed the different formulae that are available for deriving an annual revenue requirement and the requirements for the different formulae to be applied consistently.
- Application of the Grid Investment Test to the Auckland 400kV Upgrade (Client: Electricity Commission of New Zealand, 2006) - As part of a team, undertook a review of the Commission’s process for reviewing Transpower’s proposed Auckland 400kV upgrade project and undertook a peer review of the Commission’s application of the Grid Investment Test.
- Appropriate Treatment of Taxation when Measuring Regulatory Profit (Client: Powerco New Zealand, 2005 2006) - Prepared a series of statements on how taxation should be treated when measuring realised and projected regulatory profit.
- Application of Directlink for Regulated Status (Client: Directlink, 2003-2004) – Prepared advice on the economic efficiency of the conversion of an unregulated (entrepreneurial) interconnector to a regulated interconnector and how the asset should be valued for pricing purposes.
- Principles for the ‘Stranding’ of Assets by Regulators (Client: the Independent Pricing and Regulatory Tribunal, NSW, 2005) - Prepared a report discussing the relevant economic principles for a regulator in deciding whether to ‘strand’ assets for regulatory purposes (that is, to deny any further return on assets that are partially or unutilised).

- Principles for Determining Regulatory Depreciation Allowances (Client: the Independent Pricing and Regulatory Tribunal, NSW, 2003) - Prepared a report discussing the relevant economic and other principles for determining depreciation for the purpose of price regulation, and its application to electricity distribution. An important issue addressed was the distinction between accounting and regulatory (economic) objectives for depreciation.
- Methodology for Updating the Regulatory Value of Electricity Transmission Assets (Client: the Australian Competition and Consumer Commission, 2003) - Prepared a report assessing the relative merits of two options for updating the regulatory value of electricity transmission assets at a price review - which are to reset the value at the estimated 'depreciated optimised replacement cost' value, or to take the previous regulatory value and deduct depreciation and add the capital expenditure undertaken during the intervening period (the 'rolling-forward' method). This paper was commissioned as part of the ACCC's review of its Draft Statement of Regulatory Principles for electricity transmission regulation.
- Application of Murraylink for Regulated Status (Client: Murraylink Transmission Company, 2003) - Prepared advice on the economic efficiency of the conversion of an unregulated (entrepreneurial) interconnector to a regulated interconnector and how the asset should be valued for pricing purposes.
- Proxy Beta for Regulated Gas Transmission Activities (Client: the Australian Competition and Consumer Commission, 2002) - Prepared a report presenting the available empirical evidence on the 'beta' (which is a measure of risk) of regulated gas transmission activities. This evidence included beta estimates for listed firms in Australia, as well as those from the United States, Canada and the United Kingdom. The report also included a discussion of empirical issues associated with estimating betas, and issues to be considered when using such estimates as an input into setting regulated charges.
- Treatment of Working Capital when setting Regulated Charges (Client: the Australian Competition and Consumer Commission, 2002) - Prepared a report assessing whether it would be appropriate to include an explicit (additional) allowance in the benchmark revenue requirement in respect of working capital when setting regulated charges.
- Pricing Principles for the South West Pipeline (Client: Esso Australia, 2001) - As part of a team, prepared a report describing the pricing principles that should apply to the South West Pipeline (this gas transmission pipeline was a new asset, linking the existing system to a new storage facility and additional gas producers).
- Likely Regulatory Outcome for the Price for Using a Port (Client: MIM, 2000) - Provided advice on the outcome that could be expected were the dispute over the price for the use of a major port to be resolved by an economic regulator. The main issue of contention was the valuation of the port assets (for regulatory purposes) given that the installed infrastructure was excess to requirements, and the mine had a short remaining life.
- Relevance of 'Asymmetric Events' in the Setting of Regulated Charges (Client: TransGrid, 1999) - In conjunction with William M Mercer, prepared a report (which was submitted to the Australian Competition and Consumer Commission) discussing the relevance of downside (asymmetric) events when setting regulated charges, and quantifying the expected cost of those events.

Major roles for regulators

- Victorian Gas Distribution Price Review (Client: the Essential Services Commission, Vic, 2006 2008) - Provided advice to the Essential Service Commission in relation to its review of gas distribution access arrangements on the treatment of outsourcing arrangements, finance issues, incentive design and other economic issues.
- Envestra Gas Distribution Price Review (Client: the Essential Services Commission, SA, 2006) - Provided advice on several finance related issues (including ‘return on assets’ issues and the financial effect of Envestra’s invoicing policy), and the treatment of major outsourcing contracts when setting regulated charges.
- DBCT price review (Client: QCA, Qld, 2004-2006) – advice on a number of finance related issues, including the calculation of IDC for a DORC valuation, cost of debt and equity beta.
- Victorian Electricity Distribution Price Review (Client: the Essential Services Commission, Vic, 2003 2005) - Provided advice to the Essential Service Commission on a range is economic issues related to current review of electricity distribution charges, including issues related to finance, forecasting of expenditure and the design of incentive arrangements for productive efficiency and service delivery. Was a member of the Steering Committee advising on strategic regulatory issues.
- Victorian Water Price Review (Client: the Essential Services Commission, Vic, 2003 2005) - Provided advice to the Essential Services Commission on the issues associated with extending economic regulation to the various elements of the Victorian water sector. Was a member of the Steering Committee advising on strategic regulatory issues, and also provided advice on specific issues, most notably the determination of the initial regulatory values for the water businesses and the role of developer charges.
- ETSA Electricity Distribution Price Review (Client: the Essential Services Commission, SA, 2002 2005) - Provided advice on the ‘return on assets’ issues associated with the review of ETSA’s regulated distribution charges, including the preparation of consultation papers. The issues covered include the valuation of assets for regulatory purposes and cost of capital issues. Also engaged as a quality assurance adviser on other consultation papers produced as part of the price review.
- Victorian Gas Distribution Price Review (Client: the Essential Services Commission, Vic, 2001 2002) - Economic adviser to the Essential Services Commission during its assessment of the price caps and other terms and conditions of access for the three Victorian gas distributors. Was responsible for all issues associated with capital financing (including analysis of the cost of capital and assessment of risk generally, and asset valuation), and supervised the financial modelling and derivation of regulated charges. Also advised on a number of other issues, including the design of incentive arrangements, the form of regulation for extensions to unreticulated townships, and the principles for determining charges for new customers connecting to the system.
- ETSA Electricity Distribution Price Review (Client: the South Australian Independent Industry Regulator, 2000 2001) - As part of a team, prepared a series of reports proposing a framework for the review. The particular focus was on the design of incentives to encourage cost reduction and service improvement, and how such incentives can assist the regulator to meet its statutory obligations. Currently retained to provide commentary on the consultation papers being produced by the regulator, including strategic or detailed advice as appropriate.
- Dampier to Bunbury Natural Gas Pipeline Access Arrangement Review (Client: the Independent Gas Pipelines Access Regulator, WA, 2000 2002) - Provided economic advice to the Office of the Independent Regulator during its continuing assessment of the regulated charges and other terms and conditions of access for the gas pipeline, including a review of all parts of the draft decision, with particular focus on the sections addressing the cost of capital (and assessment of risk

- generally), asset valuation and financial modelling. Represented the Office on these matters at a public forum, and provided strategic advice to the Independent Regulator on the draft decision.
- Goldfield Gas Pipeline Access Arrangement Review (Client: the Independent Gas Pipelines Access Regulator, WA, 2000 2004) - Provided economic advice to the Office of the Independent Regulator during its continuing assessment of the regulated charges and other terms and conditions of access for the gas pipeline, including a review of all parts of the draft decision, with particular focus on the sections addressing the cost of capital (and assessment of risk generally), asset valuation and financial modelling. Represented the Office on these matters at a public forum, and provided strategic advice to the Independent Regulator on the draft decision.
 - Victorian Electricity Distribution Price Review (Client: the Office of the Regulator General, Vic, 1999 2000) - Economic adviser to the Office of the Regulator General during its review of the price caps for the five Victorian electricity distributors. Had responsibility for all issues associated with capital financing, including analysis of the cost of capital (and assessment of risk generally) and asset valuation, and supervised the financial modelling and derivation of regulated charges. Also advised on a range of other issues, including the design of incentive regulation for cost reduction and service improvement, and the principles for determining charges for new customers connecting to the system.
 - Victorian Ports Corporation and Channels Authority Price Review (Client: the Office of the Regulator General, Vic, 2000) - Advised on the finance related issues (cost of capital and the assessment of risk generally, and asset valuation), financial modelling (and the derivation of regulated charges), and on the form of control set over prices. Principal author of the sections of the draft and final decision documents addressing the finance related and price control issues.
 - AlintaGas Gas Distribution Access Arrangement Review (Client: the Independent Gas Pipelines Access Regulator, WA, 1999 2000) - Provided economic advice to the Office of the Independent Regulator during its assessment of the regulated charges and other terms and conditions of access for the gas pipeline. This advice included providing a report assessing the cost of capital associated with the regulated activities, overall review of all parts of the draft and final decisions, with particular focus on the sections addressing the cost of capital (and assessment of risk generally), asset valuation and financial modelling. Also provided strategic advice to the Independent Regulator on the draft and final decisions.
 - Parmelia Gas Pipeline Access Arrangement Review (Client: the Independent Gas Pipelines Access Regulator, WA, 1999 2000) - Provided economic advice to the Office of the Independent Regulator during its assessment of the regulated charges and other terms and conditions of access for the gas pipeline, including a review of all parts of the draft and final decisions, with particular focus on the sections addressing the cost of capital (and assessment of risk generally), asset valuation and financial modelling. Also provided strategic advice to the Independent Regulator on the draft and final decisions.
 - Victorian Gas Distribution Price Review (Client: the Office of the Regulator General, Vic, 1998) - Economic adviser to the Office of the Regulator General during its assessment of the price caps and other terms and conditions of access for the three Victorian gas distributors. Major issues addressed included the valuation of assets for regulatory purposes, cost of capital financing and financial modelling. Principal author of the draft and final decision documents.

Development/Review of Regulatory Frameworks

- Review of the Australian energy economic regulation (Client: Energy Networks Association, 2010-2012) – assisting the owners of energy infrastructure to engage in the current wide-ranging review of the regime for economic regulation of energy infrastructure. Advice has focussed in

particular on the setting of the regulatory WACC and on the regime of financial incentives for capital expenditure efficiency, and included strategic and analytical advice, preparation of expert reports and assistance with ENA submissions.

- Review of the Australian electricity transmission framework (Client: Grid Australia, 2010-2013) – assisting the owners of electricity transmission assets to participate in the wide-ranging review of the framework for electricity transmission in the national electricity market, covering such matters as planning arrangements, the form of regulation for non-core services and generator capacity rights and charging. Has included analytical advice on policy choices, facilitation of industry positions and articulation of positions in submissions.
- Implications of greenhouse policy for the electricity and gas regulatory frameworks (Client: the Australian Energy Market Commission, 2008-2009) – Provided advice to the AEMC in its review of whether changes to the electricity and gas regulatory frameworks is warranted in light of the proposed introduction of a carbon permit trading scheme and an expanded renewables obligation. Issues addressed include the framework for electricity connections, the efficiency of the management of congestion and locational signals (including transmission pricing) for generators and the appropriate specification of a cost benefit test for transmission upgrades in light of the two policy initiatives.
- Economic incentives under the energy network regulatory regimes for demand side participation (Client: Australian Energy market Commission, 2006) – Provided advice to the AEMC on the incentives provided by the network regulatory regime for demand side participation, including the effect of the form of price control (price cap vs. revenue cap), the cost-efficiency arrangements, the treatment of losses and the regime for setting reliability standards.
- Implications of greenhouse policy for the electricity and gas regulatory frameworks (Client: the Australian Energy Market Commission, 2008 ongoing) - Providing ongoing advice to the AEMC in its review of whether changes to the electricity and gas regulatory frameworks is warranted in light of the proposed introduction of a carbon permit trading scheme and an expanded renewables obligation. Issues addressed include the framework for electricity connections, the efficiency of the management of congestion and locational signals for generators and the appropriate specification of a cost benefit test for transmission upgrades in light of the two policy initiatives.
- Application of a ‘total factor productivity’ form of regulation (Client: the Victorian Department of Primary Industries, 2008) - Assisted the Department to develop a proposed amendment to the regulatory regime for electricity regulation to permit (but not mandate) a total factor productivity approach to setting price caps – that is, to reset prices to cost at the start of the new regulatory period and to use total factor productivity as an input to set the rate of change in prices over the period.
- Expert Panel on Energy Access Pricing (Client: Ministerial Council on Energy, 2005 2006) - Assisted the Expert Panel in its review of the appropriate scope for commonality of access pricing regulation across the electricity and gas, transmission and distribution sectors. The report recommended best practice approaches to the appropriate forms of regulation, the principles to guide the development of detailed regulatory rules and regulatory assessments, the procedures for the conduct of regulatory reviews and information gathering powers.
- Productivity Commission Review of Airport Pricing (Client: Virgin Blue, 2006) - Prepared two reports for Virgin Blue for submission to the Commission’s review, addressing the economic interpretation of the review principles, asset valuation, required rates of return for airports and the efficiency effects of airport charges and presented the findings to a public forum.

- AEMC Review of the Rules for Setting Transmission Prices (Client: Transmission Network Owners, 2005 2006) - Advised a coalition comprising all of the major electricity transmission network owners during the new Australian Energy Market Commission's review of the rules under which transmission prices are determined. Prepared advice on a number of issues and assisted the owners to draft their submissions to the AEMC's various papers.
- Advice on Energy Policy Reform Issues (Client: Victorian Department of Infrastructure/Primary Industries, 2003 ongoing) - advice to the Department regarding on issues relating to the transition to national energy market arrangements, cross ownership rules for the energy sector, the reform of the cost benefit test for electricity transmission investments and the scope for light handed regulation in gas transmission.
- Productivity Commission Review of the National Gas Code (Client: BHPBilliton, 2003 2004) - Produced two submissions to the review, with the important issues including the appropriate form of regulation for the monopoly gas transmission assets (including the role of incentive regulation), the requirement for ring fencing arrangements, and the presentation of evidence on the impact of regulation on the industry since the introduction of the Code.
- Development of the National Third Party Access Code for Natural Gas Pipeline Systems Code (Client: commenced while a Commonwealth Public Servant, after 1996 the Commonwealth Government, 1994-1997) - Was involved in the development of the new legal framework for the economic regulation of gas transmission and distribution systems, with advice spanning the overall form of regulation to apply to the infrastructure and the appropriate pricing principles (including the valuation of assets for regulatory purposes and the use of incentive regulation), ring fencing arrangements between monopoly and potentially contestable activities, and whether upstream infrastructure should be included within the regime.

Licencing / Franchise Bidding

- Competitive Tender for Gas Distribution and Retail in Tasmania (Client: the Office of the Tasmanian Energy Regulator, 2001 2002) - Economic adviser to the Office during its oversight of the use of a competitive tender process to select a gas distributor/retailer for Tasmania, and simultaneously to set the regulated charges for an initial period.
- Issuing of a Licence for Powercor Australia to Distribute Electricity in the Docklands (Client: the Office of the Regulator General, Vic, 1999) - Economic adviser to the Office during its assessment of whether a second distribution licence should be awarded for electricity distribution in the Docklands area (a distribution licence for the area was already held by CitiPower, and at that time, no area in the state had multiple licensees). The main issue concerned the scope for using 'competition for the market' to discipline the price and service offerings for an activity that would be a monopoly once the assets were installed.

Assessments of the need for regulation

- South East network (Client: Kimberley Clarke, 2011) – advised whether the gas pipeline from which it is supplied would pass the threshold for regulation.
- Need for regulation of gas transmission pipelines (Client: SA Government) – advised as to whether the Moomba to Adelaide pipeline was likely to pass the threshold required for regulation.

B. Pricing in non-infrastructure markets

Assessment of competition in energy retail markets

- Assessment of retail competition in Victoria and South Australia (Client: Australian Energy Market Commission) – assisted the Commission to quantify and interpret information on margins

for retailers and draw inferences for the level of competition. Also reviewed the Commission's assessment of the other indicators of the level of competition.

Default/transitional regulated prices for retail functions

- ACT transitional tariff review (Client: ICRC, ACT, 2010) – advised the regulator on an appropriate method to derive a benchmark wholesale electricity purchase cost for an electricity retailer, including the relationship between the wholesale cost and hedging strategy.
- South Australian default gas retail price review (Client: the Essential Services Commission, SA, (2007-2008) - derived estimates of the benchmark operating costs for a gas retailer and the margin that should be allowed. This latter exercise included a bottom-up estimate of the financing costs incurred by a gas retail business.
- South Australian default electricity retail price review (Client: the Essential Services Commission, SA, 2007) - estimated the wholesale electricity purchase cost for the default electricity retail supplier in South Australia. The project involved the development of a model for deriving an optimal portfolio of hedging contracts for a prudent and efficient retailer, and the estimate of the expected cost incurred with that portfolio.
- South Australian default gas retail price review (Client: the Essential Services Commission, SA, 2005) - As part of a team, advised the regulator on the cost of purchasing gas transmission services for a prudent and efficient SA gas retailer, where the transmission options included the use of the Moomba Adelaide Pipeline and SEAGas Pipeline, connecting a number of gas production sources.

Market Design

- Options for the Development of the Australian Gas Wholesale Market (Client: the Ministerial Committee on Energy, 2005) - As part of a team, assessed the relative merits of various options for enhancing the operation of the Australian gas wholesale markets, including by further dissemination of information (through the creation of bulletin boards) and the management of retailer imbalances and creation of price transparency (by creating short term trading markets for gas).
- Review of the Victorian Gas Market (Client: the Australian Gas Users Group, 2000 2001) - As part of a team, reviewed the merits (or otherwise) of the Victorian gas market. The main issues of contention included the costs associated with operating a centralised market compared to the potential benefits, and the potential long term cost associated with having a non-commercial system operator.
- Development of the Market and System Operation Rules for the Victorian Gas Market (Client: Gas and Fuel Corporation, 1960) - Assisted with the design of the 'market rules' for the Victorian gas market. The objective of the market rules was to create a spot market for trading in gas during a particular day, and to use that market to facilitate the efficient operation of the system.

Transfer pricing

- Application of a netback calculation for infrastructure under the Minerals Resource Rent Tax (Client: BHPB, 2011-13) – advised on how the arms-length price for the use of downstream infrastructure should be determined, including the valuation of assets, weighted average cost of capital and on the implications for the price of incentive compatible contracts.

Pricing strategy

- Pricing for telephone directory services (Sensis, 2012) – as part of a team, advised on how margins could be maximised for the telephone directory business in the context of falling print advertising and a very competitive digital market, informed by the application of econometric techniques.
- Effectiveness of promotional strategies (Target, 2011-12) – as part of a team, applied econometric techniques to assess the effectiveness of Target’s promotional strategies, with tools developed for management to improve profitability.
- Optimal pricing (Client: Coles, 2011-12) – applied econometric techniques to assist Coles to set relativities of prices within “like” products and developed a method to test the effectiveness of promotional strategies.

C. Regulatory due diligence and other finance work

- Sale of the Sydney Desalination Plant (Client: a consortium of investors, 2011-12) – Prepared a regulatory due diligence report for potential acquirer of the asset, including a review of the financial modelling of future pricing decisions.
- Sale of the Abbot Point Coal Terminal port (Client: a consortium of investors / debt providers, 2010-11) – Prepared a regulatory due diligence report for potential acquirer of the asset, including a review of the financial modelling of future pricing decisions.
- Private Port Development (Client: Major Australian Bank, 2008) - Prepared a report on the relative merits of different governance and financing arrangements for a proposed major port development that would serve multiple port users.
- Sale of Allgas gas distribution network (Client: confidential, 2006) – Prepared a regulatory due diligence report for potential acquirer of the asset.
- Review of Capital Structure (Client: major Victorian water entity, 2003) - Prepared a report (for the Board) advising on the optimal capital structure for a particular Victorian water entity, taking account of the likely impact of cost based regulation.

D. Expert Witness Roles

- Abbot Point Coal Terminal Pricing Arbitration (Client: Adani, 2013) – Prepared a number of expert reports for the arbitration on economic issues arising from the application of the cost-based formula in the pricing agreement, including the economic meaning of key terms, the valuation of assets (and specifically the role and calculation of interest during construction), the quantification of transaction costs of raising finance and the calculation of the required rate of return (most notably, the benchmark cost of debt finance).
- New Zealand Input Methodologies (Clients: Powerco and Christchurch International Airport Limited, 2009-2012) – Prepared expert report for both clients on a range of economic issues, including the valuation of assets, weighted average cost of capital, cost allocation, the regulatory treatment of taxation and interpretation of the new purpose statement in the Commerce Act. Appeared as an expert before the Commerce Commission in the key conferences held during the review. Also assisted the clients in their subsequent merit reviews of the Commission’s decision.
- Victorian gas market dispute resolution panel (Client: VENCORP, 2008) – Prepared a report and was cross examined in relation to the operation of the Victorian gas market in the presence of supply outages.
- Consultation on Major Airport Capital Expenditure Judicial Review (Client: Christchurch International Airport, 2008) - Prepared an affidavit for a judicial review on whether the airport

consulted appropriately on its proposed terminal development. Addressed the rationale, from the point of view of economics, of separating the decision of ‘what to build’ from the question of ‘how to price’ in relation to new infrastructure.

- New Zealand Commerce Commission Draft Decision on Gas Distribution Charges (Client: Powerco, 2007 08) - Prepared an expert statement about the valuation of assets for regulatory purposes, with a focus on the treatment of revaluation gains, and a memorandum about the treatment of taxation for regulatory purposes and appeared before the Commerce Commission.
- Sydney Airport Domestic Landing Change Arbitration (Client: Virgin Blue, 2007) - Prepared two expert reports on the economic issues associated with the structure of landing charges (note: the evidence was filed, but the parties reached agreement before the case was heard).
- New Zealand Commerce Commission Gas Price Control Decision – Judicial Review to the High Court (Client: Powerco, 2006) - Provided four affidavits on the regulatory economic issues associated with the calculation of the allowance for taxation for a regulatory purpose, addressing in particular the need for consistency in assumptions across different regulatory calculations.
- Victorian Electricity Distribution Price Review – Appeal to the ESC Appeal Panel: Service Incentive Risk (Client: the Essential Services Commission, Vic, 2005 2006) - Prepared expert evidence on the workings of the ESC’s service incentive scheme and the question of whether the scheme was likely to deliver a windfall gain or loss to the distributors (note: the evidence was filed, but the appellant withdrew this ground of appeal prior to the case being heard).
- Victorian Electricity Distribution Price Review – Appeal to the ESC Appeal Panel: Price Rebalancing (Client: the Essential Services Commission, Vic, 2005 2006) - Prepared expert evidence on the workings of the ESC’s tariff basket form of price control, with a particular focus on the ability of the electricity distributors to rebalance prices and the financial effect of the introduction of ‘time of use’ prices in this context (note: the evidence was filed, but the appellant withdrew this ground of appeal prior to the case being heard).
- New Zealand Commerce Commission Review of Information Provision and Asset Valuation (Client: Powerco New Zealand, 2005) - Appeared before the Commerce Commission for Powerco New Zealand on several matters related to the appropriate measurement of profit for regulatory purposes related to its electricity distribution business, most notably the treatment of taxation in the context of an incentive regulation regime.
- Duke Gas Pipeline (Qld) Access Arrangement Review – Appeal to the Australian Competition Tribunal (Client: the Australia Competition and Consumer Commission, 2002) - Prepared expert evidence on the question of whether concerns of economic efficiency are relevant to the non price terms and conditions of access (note: the evidence was not filed as the appellant withdrew its evidence prior to the case being heard).
- Victorian Electricity Distribution Price Review – Appeal to the ORG Appeal Panel: Rural Risk (Client: the Office of the Regulator General, Vic, 2000) - Provided expert evidence (written and oral) to the ORG Appeal Panel on the question of whether the distribution of electricity in the predominantly rural areas carried greater risk than the distribution of electricity in the predominantly urban areas.
- Victorian Electricity Distribution Price Review – Appeal to the ORG Appeal Panel: Inflation Risk (Client: the Office of the Regulator General, Vic, 2000) - Provided expert evidence (written and oral) to the ORG Appeal Panel on the implications of inflation risk for the cost of capital associated with the distribution activities.

Qualifications and memberships

- Bachelor Economics (First Class Honours) University of Adelaide
- CEDA National Prize for Economic Development

Dr. Michael Lawriwsky

Executive Director

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Michael is an Executive Director at Incenta. Previously he was a director at PricewaterhouseCoopers (Australia), a director and partner in the Allen Consulting Group, and a director – corporate finance in ANZ Investment Bank. He has had a career spanning academia, investment banking and economic policy advice. He has had involvement in regulation and market reform in wide a range of businesses spanning energy, transport, water, gaming and wagering. He has advised on over \$15 billion of bids in the Australian energy and transport sectors.

Regulatory and Policy roles:

- International Air Services Commission - Between 1997 and 2007 Michael was a part-time Commissioner of the International Air Services Commission. The IASC was established in 1992 as an independent body regulating new entrant airlines and allocating capacity to Australian international airlines with an objective of strengthening competition.
- Review of Business Programs (Mortimer Report) - In November 1996 Dr. Lawriwsky was appointed to the Review of Business Programs under the leadership of Mr. David Mortimer (Mortimer Report). This was a major review of Government support programs for business with a 15 person secretarial staff. The process included public forums, stakeholder interviews with key government and business groups, and analysis of numerous submissions. The report led to the formation of Invest Australia.

Relevant experience by sector

Regulated gas networks:

- Energy Networks Association – assessment of the appropriate term for the risk free rate when estimating the cost of equity.
- Jemena Gas Networks – advice on the appropriate methodology to estimate the cost of debt in relation for gas transmission assets. This is part of the WACC proposal for a gas network revenue determination.
- Essential Services Commission (Victoria) – adviser to the ESC on cost of capital issues associated with the 2007-2008 Gas Price Review.
- QCA – adviser on cost of capital issues (including beta) in relation to Queensland gas distribution assets.
- QCA – adviser on the prepayment of network charges by Envestra.
- Allgas – Adviser on regulatory modelling and regulatory outlook for ANZ Infrastructure Services in its bid for Allgas.
- Envestra – adviser to ESCOSA and Queensland Competition Authority on cost of capital and working capital (prepayment) issues relating to Envestra’s 2006 access arrangements in SouthAustralia and Queensland respectively.

- ACCC – advised the ACCC on differentials between BBB and BBB+ for a gas utility in connection with an appeal lodged by the East Australia Pipeline Limited. ACCC – prepared a report on review of studies comparing international regulatory determinations, which was included as Appendix G of ACCC’s submission to Productivity Commission Review of the National Gas Code.
- BHP Billiton – advised BHP Billiton on its submission in response to the Draft Report of the Productivity Commission Review of the National Gas Code.
- Gas and Fuel (Gascor) – adviser to the company in relation to the potential purchase of the Wagga Wagga Gas Company from the City of Wagga Wagga.
- Gas and Fuel (Gascor) – mandated to critique Gascor’s weighted average cost of capital calculation used in regulatory tariff setting.
- The USA Gas Utility market – authored this ANZ Securities monograph examining the regulatory structure and market reforms introduced into the US gas industry and implications for Australia.
- Gas and Fuel Corporation – co-authored this ANZ Securities monograph

Regulated electricity networks:

- Energy Networks Association – assessment of the appropriate benchmark term of debt.
- Energy Networks Association – debt financing costs.
- Powerlink – adviser to Powerlink on regulatory cost of capital including beta, debt risk premium and on equity and debt raising transaction costs.
- Aurora Energy – advice to Aurora Energy by writing their debt risk premium submission to the Australian Energy Regulator
- CitiPower and Powercor - advice on the appropriate methodology to estimate the cost of debt in relation for electricity distribution assets, as part of the WACC proposal for an electricity network revenue determination.
- Independent Market Operator WA – advised the Western Australia’s wholesale electricity market operator, the Independent Market operator, by advising on the methodology to be used to calculate to estimate Allowance For Funds Used During Construction, and the WACC to be applied in the determination of the maximum reserve price for generation capacity.
- Energy Networks Association, APIA and Grid Australia – adviser on the AER review of WACC parameters for electricity transmission and distribution network service providers.
- Retail credit support arrangements – advised the Essential Services Commission of Victoria on new arrangements for credit support by electricity retailers.
- ETSA Utilities – adviser to the Essential services Commission of South Australia on cost of capital issues.
- Energex and Energon – advised the Queensland Competition Authority on cost of capital issues relating to the 2005 access arrangements of these companies.
- Electricity Commission of Papua New Guinea (PNG Power) – lead financial/strategic adviser to the PNG Government on the corporatisation/privatisation of PNG Power, managing a team of investment bankers, lawyers, accountants and regulatory consultants.

- Electricity Trust of South Australia (ETSA) – lead financial adviser to Edison Mission Energy in their bid for this \$3.5 billion electricity distribution and retailing company, particularly in relation to regulation, valuation, financial modelling and capital structure.
- Pacific Gas and Electric Company – lead financial adviser in bids for four electricity distribution/retailing companies totalling \$5.5 billion (United Energy, Powercor, Citipower, Eastern Energy).

Electro Power Limited (NZ) – adviser to the company’s board in its merger negotiations with the contiguous Central Power Limited, including valuation and capital structure issues.

Energy:

- Snowy Hydro – Michael led a team undertaking a comprehensive valuation analysis of Snowy Hydro, including a cost of capital update.
- Snowy Hydro – Adviser to the Snowy Hydro on cost of capital (on-going annual review). □
- Southern Electric International (US) – advised on cost of capital with respect to Australian electricity generation assets.
- Energy Developments Limited – float valuation and pricing for this independent power project underwritten by ANZ Securities.
- Loy Yang A – coordinated a sell-down of \$30 million of equity in Horizon Energy Investments to institutional investors.
- Southern Hydro Limited – established a consortium of bidders for this privatisation (Pacific Hydro, Hyder Investments and Hastings Funds Management) and directed financial due diligence/valuation. Including capital structure determination.
- Electro Power Limited (NZ) – analysis of the rate of return on investment which would be required by investors in the Gateway Electronic Monitoring System (“GEMS”) – a “smart meter” technology.

Road and Rail:

- QCA – Adviser on equity beta and cost of debt for the Aurizon Network price review.
- Federal Government Department – Strategic and governance review of Australian Railtrack Corporation (ARTC).
- QCA – Adviser on the cost of capital issues relating to the Northern Missing Link railway.
- QCA – Adviser on cost of capital issues in relation to the Queensland Rail below rail network – coal price review.
- Victorian Department of Transport – adviser on new techniques for attracting private sector capital to the roads sector
- Victorian Auditor General’s Office – Adviser analysing the terms of the cost of capital for the financing of the Tulla-Calder freeway extension.
- Stagecoach plc – adviser to Stagecoach on cost of capital issues relating to bidding for rail infrastructure assets in Victoria.

- Adelaide-Darwin railway – adviser on regulatory issues to the ANZ Investment Bank project finance team in relation to this financing.

Ports:

- Infrastructure investor – advice on cost of capital issues in the course of an arbitration involving a significant unregulated transport infrastructure asset.
- Abbot Point Coal Terminal – regulatory adviser to the consortium comprising CKI and Deutsche Bank (RREEF), which bid for this asset (lead adviser, Macquarie Bank).
- Port of Brisbane – regulatory adviser to the Q Ports Holdings consortium partners, Industry Funds Management, Global Infrastructure Partners, QIC Global Infrastructure and Tawreed Investments, which won this bid and was awarded ‘Best Privatisation Deal’ and ‘Asian Infrastructure of the Year’ awards (lead advisor, Macquarie Bank). PwC received an award from Infrastructure Partnerships Australia for the role it played in this transaction.
- BHP Billiton – advise on Pilbara ports from a real options perspective
- Port of Melbourne Corporation – review of regulatory cost of capital for price monitoring by the Essential Services Commission.
- Wiggins Island Coal Terminal - adviser to the ANZ Bank and the User Group proposing a self-funded expansion of coal loading capacity at the Port of Gladstone.
- Port of Waratah – adviser to Newcastle Coal Infrastructure Group (NCIG) in relation to the Prime Minister’s Taskforce on Infrastructure.
- Dalrymple Bay Coal Terminal – Adviser to the Queensland Competition Authority on the WACC parameters (including beta) for DBCT.
- Port of Brisbane Corporation – strategic adviser to the port, including a review of strategic options and a valuation of the port’s operations.
- Ports of Portland and Geelong – advice on cost of capital to the ANZ Investment Bank team bidding for the assets on behalf of the Strang/Hastings consortium.
- Port of Napier (NZ) – reviewer of the valuation of the port by the ANZ Investment Bank Auckland office.

Aviation and tourism:

- Tourism Victoria – Adviser on commercial issues surrounding the proposed Werribee Theme Park.
- Travel Compensation Fund – Michael led a team which reviewed the TCF’s revenue model and proposed a new risk-based revenue model.
- Department of Transport and Regional Services – adviser to DoTRS in connection with financial issues associated with the proposed Air New Zealand/Ansett takeover in connection with the FIRB review.
- Qantas Airlines – float valuation and pricing when ANZ Securities was a joint Lead Manager of the initial float process.
- Australian Airlines – prepared a valuation and analysis for the purchase of the airline for a private consortium prior to the merger with Qantas.

- Indian Airlines – on an advisory panel of an ANZ team (based in London and Mumbai) mandated to sell a 26% stake in the Indian Government-owned domestic/international airline. □ Compass Airlines – advised on the preparation of an Information Memorandum for an initial private equity raising to fund Compass Airlines (prior to the float by JB Were).

Airports:

- New Zealand Airports Association – analysis of airport betas for negotiations with airlines and the Commerce Commission.
- Virgin airlines – advice on cost of capital issues for negotiations with airports on landing charges.
- Federal Airports Corporation – directed a seven-month regulatory modelling, valuation and capital structure analysis of all 22 airports as part of the Capital Structure Review commissioned by the Department of Transport/Department of Treasury.
- Brisbane International Airport – lead financial adviser to the Port of Brisbane Corporation in the course of the successful Schiphol/CBA/POBC bid in 1997.
- Christchurch International Airport – adviser to the airport with respect to its negotiations with the NZ Commerce Commission on the cost of capital and implications for landing charges.

Water:

- Gladstone Area Water Board – adviser to the Queensland Competition Authority on the assessment of costs of capital parameters for the 2005 GAWB price review.
- Melbourne Water – adviser to Melbourne Water on its financial strategy, including capital structure, dividend policy and financial benchmarks.
- SA Water – adviser on its capital structure review and review of dividend policy.
- SA Water – adviser on commercialisation, and dividend policy in negotiations with the SA Treasury.
- Auckland City Council (NZ) – advice on the corporatisation of water and waste water assets.
- Gippsland Water – adviser on pricing policy with respect to future capital funding requirements. □ South Gippsland Water – prepared a benchmarking analysis of corporate performance relative to peers.
- United Water – advised the company on the potential for listing on the stock exchange pursuant to requirements under the United Water Management Contract.

General regulatory assignments:

- QCA – Advice on a cost of debt estimation methodology for businesses regulated by the Queensland Competition Authority.
- QCA – adviser on the level of regulated WACCs.
- Debt and equity transaction costs – Advised the ACCC on debt and equity transaction costs that could be applied in regulatory determinations.
- International evidence on regulatory rates of return – Adviser to the ACCC on rates of return provided internationally by regulators.

- Exceptional circumstances – advised the Queensland Competition Authority on appropriate regulatory responses to exceptional circumstances.
- Monte Carlo analysis – adviser to a regulatory agency assessing the efficacy of Monte Carlo analysis as a methodology to be employed in cost of capital studies for regulatory purposes.

Construction and industrial:

- Adroyal – prepared a takeover analysis of a potential target.
- Astec – prepared an independent valuation of the asphalt and quarrying operations to identify a carrying value in the books of the Standard Rods Group.
- GWA International – preparations for the refloating of 60% of the Anderson family’s interest.
- Expert’s Report on Futuris Corporation – prepared an Expert’s Report to the stakeholders of Air International Group Limited, an automotive air conditioner manufacturer, on the takeover offer by Keratin Holdings Pty Ltd (a wholly owned subsidiary of Futuris Corporation).
- Australian Tax Office – valuation of executive options over a listed company’s shares.

Media and Telecommunications:

- Telstra – analysis of the risk impacts of the NBN-Telstra deal, and its implications for the regulatory cost of capital for the fixed copper loop network.
- John Fairfax Group - undertook a valuation of the company that was used by the Banking Syndicate in its decision to take control under debt covenants.
- Austereo – reviewer of valuations of the Austereo radio licences for the Board of Directors.
- Australian Tax Office – valuation of shares in a UK media company for the ATO.

Resources:

- Review of hostile takeover – acted as adviser and expert witness to a party potentially seeking damages in a large hostile takeover bid of a major resources company, involving analysis of bid documents and valuation/modelling analysis.
- Ashton Mining – adviser to Ashton Mining Limited on the implementation of its 1999-2000 5% share buy-back and prepared a report on capital management options for the Board of Directors. □
MIM Holdings – participated in a comprehensive strategy report recommending divestment of non-core assets, debt reduction and restructure of shareholdings.
- Comindico – advised AGL with respect to the acquisition of a \$40 million equity interest in Comindico, overview of financial modelling and coordination of production of due diligence report.

Health:

- Victorian Auditor General’s Office – Performance audit of the \$1 billion Royal Melbourne Children’s Hospital.
- Department of Health (Victoria) – Analysis of the proposed user cost of capital approach to funding hospitals

Other:

- Infrastructure Partnerships Australia - Public Private Partnerships – Michael led a team that produced a report assessing the relative timing and construction cost efficiency of PPPs vs traditional procurement methods.
- Property Council of Australia – assessment of the scope and capacity of the Victorian Government to fund public infrastructure through increase public debt.
- Financial software developer – advised a financial software developer on merger and IPO options.
- Queensland Cane Growers’ Association – advised the Association on the formula for the division of revenues between growers and millers and developed a new formula for negotiations with the millers.
- Godfrey Pembroke Financial Services – valuation of Godfrey Pembroke Financial Services Pty Ltd for FAI insurances Limited.
- Venture Stores – advised the ANZ Bank on a capital restructure including valuation, and the establishment of equity swaps in connection with negotiations between creditors and debt holders.
- Colonial Mutual Property Trust – advice on the fair terms for a merger of three listed and two unlisted property trusts.

Expert Opinions:

- Ferrier Hodgson – Expert opinion on the conduct of an investment bank advising on a multi-billion dollar merger transaction, which destroyed substantial shareholder value and resulted in a default of banking covenants.
- Essential Services Commission of Victoria – Relative bias in the yields of indexed Commonwealth Government Securities when used as a proxy for the CAPM risk free rate.
- Australian Taxation Office, Commerciality of AAPT’s financial arrangements
- Australian Taxation Office, Statement on the financial arrangements of Futuris Corporation Limited

Qualifications and memberships

- Ph.D. B.Ec. (Hons) (University of Adelaide)
- Trustee and Chair of the Finance Committee, Shrine of Remembrance

Terms of Reference – Debt Raising Costs

1 Background

Jemena Gas Networks (**JGN**) is the major gas distribution service provider in New South Wales (**NSW**). JGN owns more than 25,000 kilometres of natural gas distribution system, delivering approximately 100 petajoules of natural gas to over one million homes, businesses and large industrial consumers across NSW.

JGN is currently preparing its revised Access Arrangement proposal (**Project**) with supporting information for the consideration of the Australian Energy Regulator (**AER**). The revised access arrangement will cover the period 1 July 2015 to 30 June 2020 (July to June financial years).

As with all of its economic regulatory functions and powers, when assessing JGN's revised Access Arrangement under the National Gas Rules and the National Gas Law, the AER is required to do so in a manner that will or is likely to contribute to the achievement of the National Gas Objective, which 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.”

The AER must also take into account the revenue and pricing principles in section 24 of the National Gas Law, when exercising a discretion in relation to those parts of JGN's revised Access Arrangement relating to reference tariffs. The revenue and pricing principles include the following:

“(2) 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.

(3) 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...

[...]

(5) A reference tariff should allow for a return commensurate with the regulatory and commercial risks involved in providing the reference service to which that tariff relates.

(6) Regard should be had to the economic costs and risks of the potential for under and over investment by a service provider in a pipeline with which the service provider provides pipeline services.”

Some of the key rules that are relevant to an access arrangement and its assessment are set out below.

Rule 74 of the National Gas Rules, relating generally to forecasts and estimates, states:

- (1) Information in the nature of a forecast or estimate must be supported by a statement of the basis of the forecast or estimate.
- (2) A forecast or estimate:
 - (a) must be arrived at on a reasonable basis; and
 - (b) must represent the best forecast or estimate possible in the circumstances.

Rule 91(1) of the National Gas Rules:

Operating 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 delivering pipeline services.

Rule 87 of the National Gas Rules, relating to the allowed rate of return, states:

- (1) Subject to rule 82(3), the return on the projected capital base for each regulatory year of the access arrangement period is to be calculated by applying a rate of return that is determined in accordance with this rule 87 (the allowed rate of return).
- (2) The allowed rate of return is to be determined such that it achieves the allowed rate of return objective.
- (3) The allowed rate of return objective is that 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 (the allowed rate of return objective).
- (4) Subject to subrule (2), the allowed rate of return for a regulatory year is to be:
 - (a) a weighted average of the return on equity for the access arrangement period in which that regulatory year occurs (as estimated under subrule (6)) and the return on debt for that regulatory year (as estimated under subrule (8)); and
 - (b) determined on a nominal vanilla basis that is consistent with the estimate of the value of imputation credits referred to in rule 87A.
- (5) In determining the allowed rate of return, regard must be had to:
 - (a) relevant estimation methods, financial models, market data and other evidence;
 - (b) the desirability of using an approach that leads to the consistent application of any estimates of financial parameters that are relevant to the estimates of, and that are common to, the return on equity and the return on debt; and

- (c) any interrelationships between estimates of financial parameters that are relevant to the estimates of the return on equity and the return on debt.

[Subrules (6)–(7) omitted].

Return on debt

- (8) The return on debt for a regulatory year is to be estimated such that it contributes to the achievement of the allowed rate of return objective.
- (9) The return on debt may be estimated using a methodology which results in either:
 - (a) the return on debt for each regulatory year in the access arrangement period being the same; or
 - (b) the return on debt (and consequently the allowed rate of return) being, or potentially being, different for different regulatory years in the access arrangement period.
- (10) Subject to subrule (8), the methodology adopted to estimate the return on debt may, without limitation, be designed to result in the return on debt reflecting:
 - (a) the return that would be required by debt investors in a benchmark efficient entity if it raised debt at the time or shortly before the time when the AER's decision on the access arrangement for that access arrangement period is made;
 - (b) the average return that would have been required by debt investors in a benchmark efficient entity if it raised debt over an historical period prior to the commencement of a regulatory year in the access arrangement period; or
 - (c) some combination of the returns referred to in subrules (a) and (b).
- (11) In estimating the return on debt under subrule (8), regard must be had to the following factors:
 - (a) the desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity referred to in the allowed rate of return objective;
 - (b) the interrelationship between the return on equity and the return on debt;
 - (c) the incentives that the return on debt may provide in relation to capital expenditure over the access arrangement period, including as to the timing of any capital expenditure; and
 - (d) any impacts (including in relation to the costs of servicing debt across access arrangement periods) on a benchmark efficient entity referred to in the allowed rate of return objective that could arise as a result of changing the methodology that is used to estimate the return on debt from one access arrangement period to the next.
- (12) If the return on debt is to be estimated using a methodology of the type referred to in subrule (9)(b) then a resulting change to the service provider's total revenue must be effected through the automatic application of a formula that is specified in the decision on the access arrangement for that access arrangement period..

[Subrules (13)–(19) omitted].

Accordingly, the independent opinion of Incenta, as a suitably qualified independent expert (**Expert**), is sought on debt raisings costs, in a way that that complies with the requirements of the National Gas Law and Rules, including as highlighted above.

2 Scope of Work

The Expert will provide an opinion report that:

1. describes the processes that a benchmark efficient entity, with the benchmark characteristics identified in the AER's rate of return guideline, typically goes through in undertaking a debt issue;
2. identifies and describes the nature of the costs that a benchmark efficient entity may incur as a consequence of the processes identified in 1;
3. recommends an allowance for debt raising costs that is:
 - (a) such that would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering JGN's pipeline services; and
 - (b) commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to JGN in respect of the provision of reference services.

In preparing the report, the Expert will:

- A. consider the theoretical and empirical support for each source of debt raising costs;
- B. consider any comments raised by the AER and other regulators on debt raising costs;
- C. use robust methods and data;
- D. use the sample averaging period of the 20 business days to 12 February 2014 (inclusive) to estimate any prevailing parameter estimates needed to populate the DGM; and
- E. assume that the cost of debt transition set out in the AER's rate of return guideline applies.

3 Information to be Considered

The Expert is also expected to consider the following additional information:

- such information that, in Expert's opinion, should be taken into account to address the questions outlined above;
- relevant literature on the rate of return and debt raising costs;

- the AER's rate of return guideline, including explanatory statements and supporting expert material;
- material submitted to the AER as part of its consultation on the rate of return guideline; and
- previous decisions of the AER, other relevant regulators and the Australian Competition Tribunal on the rate of return and debt raising costs, and any supporting expert material.

4 Deliverables

At the completion of its review the Expert will provide an independent expert report which:

- is of a professional standard capable of being submitted to the AER;
- is prepared in accordance with the Federal Court Practice Note on Expert Witnesses in Proceedings in the Federal Court of Australia (CM 7) set out in Attachment 1, and includes an acknowledgement that the Expert has read the guidelines⁴⁶;
- contains a section summarising the Expert's experience and qualifications, and attaches the Expert's curriculum vitae (preferably in a schedule or annexure);
- identifies any person and their qualifications, who assists the Expert in preparing the report or in carrying out any research or test for the purposes of the report;
- summarises JGN's instructions and attaches these term of reference;
- includes an executive summary which highlights key aspects of the Expert's work and conclusions; and
- (without limiting the points above) carefully sets out the facts that the Expert has assumed in putting together his or her report, as well as identifying any other assumptions made, and the basis for those assumptions.

The Expert's report will include the findings for each of the items defined in the scope of works (Section 2).

5 Timetable

The Expert will deliver the final report to Jemena Regulation by **19 May 2014**.

⁴⁶ Available at: <http://www.federalcourt.gov.au/law-and-practice/practice-documents/practice-notes/cm7>.

6 Terms of Engagement

The terms on which the Expert will be engaged to provide the requested advice shall be:

- as provided in accordance with the Jemena Regulatory Consultancy Services Panel arrangements applicable to the Expert.

Annexure A

FEDERAL COURT OF AUSTRALIA

Practice Note CM 7

EXPERT WITNESSES IN PROCEEDINGS IN THE FEDERAL COURT OF AUSTRALIA

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 evidence⁴⁷, 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 Court⁴⁸

- 1.1 An expert witness has an overriding duty to assist the Court on matters relevant to the expert's area of expertise.

⁴⁷ 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].

⁴⁸ The “*Ikarian Reefer*” (1993) 20 FSR 563 at 565-566.

- 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.
- 2. The Form of the Expert's Report⁴⁹**
- 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) above⁵⁰; 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 Court⁵¹.
- 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.

⁴⁹ Rule 23.13.

⁵⁰ See also *Dasreef Pty Limited v Nawaf Hawchar* [2011] HCA 21.

⁵¹ The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565

- 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 reports⁵².

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

⁵² The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565-566. See also Ormrod "*Scientific Evidence in Court*" [1968] Crim LR 240