

Energy Networks Association: Debt financing costs

*Energy Networks
Association*

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1 *Executive Summary*

Background and scope

The Energy Networks Association (ENA) engaged PricewaterhouseCoopers to estimate the total debt financing costs for a benchmark efficient network service provider (NSP), where debt financing is defined to include the raising of new debt, and the refinancing of existing maturing debt. The ENA requested us to provide details of the following costs:

- *Direct transaction costs* associated with a debt financing including but not limited to, costs such as upfront establishment fees paid to financiers and/or to arranging parties, legal fees, road-show costs, the credit rating fee applied directly to the financing transaction, trustee fees, registrar fees; and
- *Indirect transaction costs* associated with a debt financing including but not limited to, early financing costs, early redemption costs, and commitment fees associated with the maintenance of liquidity reserves.

Compensation for benchmark debt raising costs

Under Australia's regulatory framework, compensation is required for the efficient costs that are incurred in undertaking the financing of the business. The benchmark assumption is that the regulated business is fully financed by corporate bonds with a term to maturity at issuance of 10 years.¹ This assumption greatly simplifies the analysis of the cost of debt, and of debt raising transaction costs, with the implicit assumption that the cost (including transaction costs) of different forms of debt actually used are not materially different. The results presented in this report assume a benchmark term of debt (bonds) at issuance of 10 years, and that one-tenth of the bonds are re-financed each year.

During the past decade a benchmark of 12.5 bppa (bppa), representing direct costs of debt raising, was developed and applied by a number of Australian regulators. However, since 2004 the Australian Energy Regulator (AER) has applied a methodology that is based on empirical observations of direct debt raising costs, and this has resulted in the adopted values in the range of 8 to 10 bppa depending on the size of the regulated business. Following the GFC and resulting changes in international finance, it is worth re-visiting this methodology to assess whether it is still appropriate.

In order to apply the methodology used by the AER, it is necessary to identify the benchmark size of bond issue, since some costs are issue specific (and so depend upon the total number of bond issues required to refinance the required quantity of debt). When estimating direct debt raising transaction costs for Powerlink in 2011 (based on 5 years of data to 2010), we found that the median size of domestic bond issue was \$250 million. Updating the analysis for more recent data spanning the years 2008-13, we found that the median bond issuance size has stayed at \$250 million.

Indirect costs associated with financing are costs that would be incurred by the benchmark efficient entity, and being consistent with the required rate of return objective in the NER and Rule 87 of the National Gas Rules, requires compensation.² These costs are prudent

¹ There isn't a strict term to maturity specified in the new NER's DNSP economic regulation provisions, however the new NER's transitional arrangements in Section 6.5.2 of Chapter 11 specifies that for business who are regulated under the transitional arrangements, and therefore not new arrangements, will use a term to maturity of 10 years.

² See, for example: AEMC (15 November, 2012), *Final Position Rules: Amendments to the National Gas Rules*, [5] Rule 87; and National Electricity Rules, Section 55, *Economic Regulation of Transmission Services*, 6A.6.2.

financial risk management practices as well as requirements, to the extent that it avoids undesirable credit rating action, imposed by the credit rating agencies.

- *Maintain a liquidity reserve* – Specifically, credit rating agencies require corporate borrowers to hold a certain quantity of liquid reserves (i.e. spare funding capacity) in excess of their known funding requirements. The liquidity reserves normally take the form of committed but unused funding facilities from banks, for which there are upfront establishment costs and on-going fees.
- *Re-finance ahead of the re-financing date* – Credit rating agencies require a corporate borrower to manage its refinancing risk prudently to mitigate refinancing risk and avoid any negative ratings action. Standard & Poor's specifically requires borrowers to have any upcoming refinancing requirements finalised at least 3 months ahead of the refinancing date.³ For a bond refinancing, this means that for three months businesses will pay a spread between the interest cost of the new bonds (i.e. the bonds that will refinance the maturing bonds in three months' time) and the cash rate earned on the proceeds from the new bonds.

Direct financing transaction costs

We identified a standard debt issuance size and benchmark term to maturity, to estimate a range of transaction costs based on the required size of the debt component of the regulated asset base. Table 1 summarises our findings in relation to the associated debt raising transaction costs.

The estimates in Table 1 are based on the standard bond issue size, and assumed term to maturity at issuance. The two major categories of direct costs are:

- The base arrangement fee that is paid to the organisation responsible for the bond issue to prepare and market the issue; and
- Other direct debt raising transaction costs (such as legal costs, rating and agency fees).

These costs are expressed in terms of an equivalent bppa.⁴

The most material direct transaction cost is the fee that is paid to an organisation to arrange the bond issue (that is, marketing the bond issue and securing the interest of bond investors). Since there is no transparent publicly available data source for bonds issued in Australia, like the AER, we relied on bond arrangement fee data for Australian firms issuing bonds in the US over the period 2008 to 2013.⁵ We used a 5 year window as this is the approach that has been applied by the AER in the past. It is a period that is long enough to get a meaningful sample of observations, and to inform about current costs in the market, but not so long as to be out of date. The global financial crisis has had an impact during this period, particularly 2008-2009, but we have undertaken sensitivity tests that have indicated a similar level of arrangement fees pre- and post-2009.

Using the Bloomberg data service, we initially identified 1,673 Australian corporate bond issues in the US during that period, but eliminated bonds that were not corporate issuers, not investment grade, or did not provide arrangement fee data. This left a sample of 33 bonds.

³ Standard & Poor's, (22 April, 2008), *Refinancing And Liquidity Risks Remain, But Australia's Rated Corporates Are Set To Clear The Debt Logjam*.

⁴ We have used a notional discount rate of 10 per cent to arrive at a bppa estimate

⁵ Specifically, the period covered was from April 2008 to April 2013.

As well as arrangement fees, bond issuers also bear a range of other fees or costs. We estimated these other fees by interviewing:

- Legal firms – for estimates of issuer and debt arranger legal counsel fees;
- Rating agencies – for estimates of initial credit rating fees, annual surveillance fees and up-front bond issue fees; and
- Banks – for annual registrar fees.

As in our previous report for Powerlink, we found that after the elimination of outliers, there was no relationship between the annualised arrangement fee and issuance size, the term to maturity, or credit rating. This implies that the arrangement fee rises approximately directly in proportion to term of issuance.⁶

We estimated debt raising costs based on assuming 1 and 10 notional debt issues (the latter implying a debt level of \$2,500 million). Applying the methodology, the debt raising transaction cost estimate for a benchmark firm depends on the value of notional benchmark debt that is being raised, as this determines the number of bond issues required.

Direct transaction costs break down into the following categories:

- *Category 1:* Fees incurred for each issue that are proportionate to the size of the transaction – the same irrespective of the size of the NSP in bppa terms (e.g. the arrangement fee).
- *Category 2:* Fees incurred for each issue that are independent of the size of the issue – increase as issue size is assumed to increase.
 - If all NSPs have the same size issues these fees will be the same (in bppa terms) across NSPs.
 - If smaller NSPs are constrained (by re-financing risk) to make smaller debt issues, these costs may be higher for smaller NSPs.
- *Category 3:* Costs independent of the value/number of debt issues and are common across NSPs – these costs (on a bppa basis) will be higher for the smaller NSP (e.g. the cost of a Master Bond Program).

In comparison with our previous (2011) report for Powerlink, we found the corporate bond raising transaction cost to be higher, at 10.8 basis points (1 bond) to 9.9 basis points (10 bonds), which was mainly due to a higher estimated arrangement fee. Our 2011 report estimated a transaction cost of 9.7 bppa for a single issue, with 7.2 basis points of this being the arrangement fee.⁷ In the present study we found a 10.8 bppa bond issuance cost for a single issue, of which 8.5 bppa was due to the arrangement fee. Hence, most of the 1.1 bppa increase is due to the increase in the estimate of the arrangement fees.

⁶ PwC, (April, 2011), *Powerlink debt and equity raising costs*, pp.16 and 17.

⁷ PwC, (April, 2011), p.4

Table 1 Direct costs: standard benchmark debt raising transaction costs

	1 issue	10 issues
Amount raised	\$250m	\$2,500m
Arrangement fee (bppa)	8.5	8.5
Other costs (bppa)	2.2	1.4
Total cost (bppa)	10.8	9.9

Source: PwC analysis based on Bloomberg, Loan Connector and interviews with banks, credit rating agencies and legal firms.

Indirect financing transaction costs

We have estimated total indirect transaction costs of 13.3 bppa, based on an assumed benchmark debt portfolio of \$2,500 million with one of the ten \$250 million bonds being refinanced each year). As noted above, the indirect costs associated with debt raising can be divided into three components. The cost associated with holding a certain quantity of liquidity reserves was found to result in the business incurring 7.6 basis points of cost for commitment fees on committed unused bank debt facilities assuming a debt portfolio of \$2,500 million (based on a benchmark of unused bank debt facilities of 8.8 per cent of the debt portfolio). The transaction costs associated with the liquidity reserves represent the costs associated with putting the committed, but unused bank debt facilities in place, and amounts to 1.0 basis point per annum.

Table 2 Indirect costs: debt raising transaction costs associated with maintaining a liquidity reserve, assuming a debt portfolio of \$2,500 million

	Cost (A\$)	Annual Equivalent (A\$) ⁸	Bppa (bppa)
Commitment Fee	1,892,000	1,892,000	7.6
Establishment fee	374,000	150,391	0.6
Other debt issuance transaction Costs			
- Legal counsel – borrower	86,667	34,850	0.1
- Legal counsel – bank	90,000	36,190	0.1
- Agency Fee	30,000	30,000	0.1
- Bank's out of pocket expenses	3,000	1,206	0.0
Total Annual Equivalent		2,144,638	8.6

Source: PwC analysis based on Bloomberg, and interviews with banks, credit rating agencies and legal firms.

The third component of indirect costs is the cost of issuing new bonds three months ahead of the bonds that are being re-financed. We have estimated this cost at 4.7 bppa (detailed in Table 3).

⁸ We have used a notional discount rate of 10 per cent to arrive at a bppa estimate

Table 3 Indirect costs: 3 month early re-financing bond cost, assuming a debt portfolio of \$2,500 million

	Cost for \$250m (A\$m)	Annual cost of \$2,500m debt (bppa)
3 month interest cost on new bond	4.14	16.6
BBB interest income	(2.97)	(11.9)
Total cost if invested in BBB credit risk and no redemption / buy back	1.17	4.7

Source: PwC analysis based on Bloomberg, and interviews with banks, credit rating agencies and legal firms.

Total financing transaction costs

Table 4 summarises our estimate of the total debt raising costs from assuming a 60 per cent gearing, a BBB+ credit rating, and a 10 year average term at issuance.⁹ For 10 issues in a bond program amounting to \$2,500 million, the total debt raising cost is estimated at 23.2 bppa. Of the total cost, 10.8 bppa are contributed by direct debt raising costs, with 13.3 basis points being contributed by indirect costs. The impact of non-standard issuance sizes is also shown, with a smaller (\$200 million issue) implying a 11.1 bps direct cost, and a larger issue (\$300 million) implying a 10.5 bps direct cost compared with a standard issue size cost of 10.8 bps.

The representation of costs shown in Table 4 below requires a new bond issue each year over 10 years, and therefore requires 10 issues. This implies that 60 per cent of the regulated asset base (RAB) of the business needs to be \$2,500 million, so that a bond of \$250 million is issued each year during the regulatory period. For smaller NSPs:

- The fixed costs will be higher on a bppa basis because it is spread over a smaller debt value (this affects the fixed per NSP direct costs, and the “other costs” element of indirect costs), and
- The firm may need to issue debt in tranches that are smaller than the standard issue size of \$250m to maintain a prudent spread of refinancing obligations – this will raise the per issue costs when expressed on a bppa basis.

In Table 5 we show the effect of pro-rating for a business with a RAB of \$2,500 million, which implies a benchmark debt value of \$1,200 million, and 10 annual bond issues of \$120 million each over 10 years. Pro-rating the amount raised per bond issue down to \$120 million (from the benchmark level of \$250 million) would raise the direct cost per issue to 12.4 bppa. Based on a program of issuing 10 bonds of \$120 million each over 10 years, the direct cost of issuance is estimated at 10.6 bppa, and the total cost of issuance (including direct and indirect costs) is estimated to be 24.3 bppa.

Table 4 – Summary of total debt raising costs in bppa (2013)

	1 smaller issue	1 standard issue	1 larger issue	10 standard issues
Amount raised	\$200 m	\$250 m	\$300 m	\$2,500 m
Arrangement fee	8.51	8.51	8.51	8.51
Other costs				

⁹ If the benchmark firm were to be rated BBB, instead of BBB+, we would not expect the direct costs to change, as it would still be investment grade. However, the interest rate component (4.7 basis points) and the commitment fee (7.6 basis points), would be expected to increase owing to a higher cost of BBB debt, and a steeper rise in the BBB debt cost with term.

	1 smaller issue	1 standard issue	1 larger issue	10 standard issues
Credit rating agency – Initial credit rating	0.57	0.46	0.38	0.05
Credit rating agency – Annual surveillance	0.18	0.14	0.12	0.01
Legal counsel – Master program	0.42	0.33	0.28	0.03
Legal counsel – Issuer's	0.12	0.09	0.08	0.09
Credit rating agency – Up front bond issue	0.77	0.77	0.77	0.77
Registrar – Up front	0.15	0.12	0.10	0.12
Registrar – Annual	0.39	0.31	0.26	0.31
Agent's out of pocket expenses	0.02	0.02	0.01	0.02
Direct cost	11.1	10.8	10.5	9.9
Indirect costs				13.3
Total debt raising cost (bppa)				23.2

Source: PwC analysis based on data from Bloomberg and interviews with legal firms, banks and credit rating agencies.

Table 5 – Example: Total debt raising costs for benchmark debt of \$1,200 million

	1 issue	10 issues
Amount raised	\$120 m	\$1,200 m
Direct cost (bppa)	12.4	10.6
Indirect costs (bppa)		13.7
- Commitment fee		7.6
- Establishment fee		0.6
- Other debt issuance transaction costs		0.9
- 3 month early re-finance bond cost		4.7
Total debt raising cost (bppa)		24.3

Source: PwC analysis based on data from Bloomberg and interviews with legal firms, banks and credit rating agencies.

The AER currently does not provide a specific allowance for indirect financing costs in its PTRM template. The current PTRM template only allows for 'debt raising costs', which is likely to be interpreted as direct debt financing costs. If the debt raising cost allowance is not adjust upward to include indirect financing costs, then an additional input is required so that indirect financing costs are included in the MAR estimate.

In table 6 we have provided an analysis of total debt raising costs under various assumed debt portfolio sizes.

Table 6 – Summary of total debt raising costs in bppa (2013)

Debt portfolio size	\$500 m	\$1,000 m	\$1,500 m	\$2,000 m
Direct cost	12.5	10.9	10.4	10.1
Arrangement fee	8.5	8.5	8.5	8.5

Debt portfolio size	\$500 m	\$1,000 m	\$1,500 m	\$2,000 m
Other costs				
- Credit rating agency – Initial credit rating	0.2	0.1	0.1	0.1
- Credit rating agency – Annual surveillance	0.1	0.0	0.0	0.0
- Legal counsel – Master program	0.2	0.1	0.1	0.0
- Legal counsel – Issuer's	0.5	0.2	0.2	0.1
- Credit rating agency – Up front bond issue	0.8	0.8	0.8	0.8
- Registrar – Up front	0.6	0.3	0.2	0.2
- Registrar – Annual	1.6	0.8	0.5	0.4
- Agent's out of pocket expenses	0.1	0.0	0.0	0.0
Indirect costs	14.9	13.9	13.5	13.4
- Commitment fee	7.6	7.6	7.6	7.6
- Establishment fee	0.6	0.6	0.6	0.6
- Other debt issuance transaction costs	2.0	1.0	0.7	0.5
- 3 month early re-finance bond cost	4.7	4.7	4.7	4.7
Total debt raising cost (bppa and rounded to nearest basis point)	27	25	24	24

Source: PwC analysis based on data from Bloomberg and interviews with legal firms, banks and credit rating agencies.

The AER's previous consideration of indirect financing costs

In 2010 the AER considered the issue of indirect financing costs in its South Australia distribution determination. The AER did not allow ETSA utilities (now SA Power Networks) to recover those costs because it considered there would be a double counting of the existing allowance provided through its direct debt raising cost allowance.¹⁰ The potential for a double-count had been raised in the report of the AER's adviser, Associate Professor John Handley, who considered that the bulk of the direct debt raising costs provided by the AER was for 'gross underwriting fees', and that it was 'not clear why there should be allowance for both the costs of the Completion Method and gross underwriting fees'.¹¹ However, this is based on a misunderstanding of the meaning of the term 'gross underwriting fees,' which originated from the 2004 report of the Allen Consulting Group (ACG).

In ACG's report, which set out a methodology to estimate direct transaction costs, the 'underwriting fee' component of direct debt raising costs was explained as not relating to 'risk taking', but rather to 'book building' and marketing a bond issue.¹² The AER considered that ACG explicitly allowed for an underwriting fee component based on its interpretation of

¹⁰ AER (May, 2010), *South Australia distribution determination 2010-11 to 2014-15*, p.384

¹¹ John Handley (13 April, 2010), *A Note on the Completion Method*, Report prepared for the Australian Energy Regulator, p.9.

¹² ACG (December, 2004), *Debt and equity raising transaction costs*, Report to the Australian Competition and Consumer Commission, p. 38.

ACG's description of the component of debt raising cost termed 'gross underwriting fees' and to allow a further underwriting element would involve a double-count.¹³

However, a careful reading of the ACG report shows that the term 'gross underwriting' was not meant to represent the traditional 'risk taking' view of underwriting, but instead referred to the 'book building' process and preparation and marketing of the issue by the debt arranger. The reason that the ACG paper used the term 'gross underwriting fee' is simply that this was (and continues to be) the terminology used by the Bloomberg service to represent those bond book building and marketing costs charged by investment banks.

Hence, on a correct interpretation of the term 'Gross underwriting fees', it becomes apparent that the AER erroneously concluded that the direct debt raising cost allowance estimated using ACG's methodology compensates for refinancing plan costs. The indirect costs associated with early refinancing and the direct costs of debt financing are separate costs that do not overlap.¹⁴

¹³ AER (May 2010), p.383.

¹⁴ The author of the ACG (2004) report is also the author of this report, therefore there is no presumption being made on this issue.

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2 *Scope of report*

2.1 *Scope*

The Energy Networks Association (ENA) engaged PricewaterhouseCoopers to quantify the total debt financing costs for a benchmark efficient network service provider (NSP), where debt financing is defined to include the raising of new debt and the refinancing of existing maturing debt. The ENA requested us to estimate the following costs:

- *Direct transaction costs* associated with a debt financing including but not limited to, costs such as upfront establishment fees paid to financiers and/or to arranging parties, legal fees, road-show costs, the credit rating fee applied directly to the financing transaction, trustee fees, registrar fees; and
- *Indirect transaction costs* associated with a debt financing including but not limited to, early financing costs, early redemption costs, and commitment fees associated with the maintenance liquidity reserves.

We were requested to provide the estimates of direct and indirect transaction costs assuming the financing is undertaken by an efficient NSP maintaining gearing (debt to RAB) at 60 per cent, and a credit rating of BBB+ (the current AER benchmark).

2.1.1 *Indirect Transaction Costs*

The ENA noted that indirect transaction costs may be defined as costs that an NSP incurs to maintain a BBB+ credit rating that therefore support an efficient interest cost and efficient direct costs incurred by an NSP in relation to its financing.

In considering the indirect transaction costs incurred by a NSP, the ENA requested us to consider the policies of the rating agencies, in particular the liquidity risk management and refinancing risk management policies. NSPs are required to adhere to such policies to maintain the BBB+ rating that supports all their debt financing activity. For example, in more recent years, Standard & Poor's has adopted a liquidity risk score that requires a certain level of available financing to be held by a NSP. The cost of this financial support, liquidity support, is an indirect cost to the NSP.

NSPs also have risk policies that enable them to maintain a BBB+ credit rating by ensuring committed financing is available well in advance of any maturing debt. The ENA requested us to capture such costs within the pool of indirect transaction costs.

2.1.2 *Annualised Costs*

Once we have determined all direct and indirect financing transaction costs, the ENA requested us to estimate an annualised total debt financing cost for an efficient NSP, assuming that the NSP raises 10 year financing and that 1/10th of the financing is refinanced each year - i.e. a rolling 10 year approach to financing the NSP debt. We were also requested to indicate whether there are any further considerations that ought to be taken into account when determining the benchmark efficient debt financing cost; for example the size of the network service provider.

Note that the precise terms of reference can be found in Appendix A.

2.2 *Outline of report*

The remainder of this report is structured as follows:

- In Chapter 3, we describe the analytical framework, which establishes the regulatory benchmark financing framework, and discusses some of the key characteristics of benchmark financing behaviour for which assumptions are required to estimate direct debt raising costs (i.e. the standard bond issuance size), and indirect debt raising costs (e.g. the benchmark unused committed funding facilities of NSPs).

Scope of report

- Chapter 4 provides estimates of the two key components of direct debt raising costs, namely the arrangement fees, which are estimated based on Bloomberg data for Australian bond issues in the US, and the 'other' costs, which we have estimated based on interviews with market participants including credit rating agencies, law firms and banks.
- Chapter 5 provides estimates of the two major sources of indirect costs incurred by NSPs, which are the costs associated with maintaining a liquidity reserve (i.e. unused committed funding facilities), and the Standard & Poor's-imposed requirement to have finalised arrangements for re-financing in place at least three month prior to the maturity of the maturing debt.
- In Chapter 6 we sum the estimated direct and indirect costs for an NSP to provide an estimate of the total debt financing costs, and show how this estimate varies with the assumed size of businesses and the assumed size of each debt issue.

3 *Analytical framework*

3.1 *Introduction*

In this chapter, we set out the analytical framework as the basis for the analysis in later chapters. We discuss the nature of the regulatory framework, which establishes target benchmarks, and issues relating to the estimation of direct and indirect transaction costs associated with debt raising.

We begin by discussing the characteristics of the benchmark entity that should be applied in estimating a debt risk premium, debt raising transaction costs, and the benchmark term of debt. Next, we outline the analytical framework that we will apply to analyse direct and indirect debt raising transaction costs.

3.2 *Benchmark financing framework*

A central feature of the standard approach to economic regulation in Australia is that the estimate of the regulatory WACC and related matters is based upon benchmarks. By benchmarks we mean that a notional value is used for a relevant input, with this value attempting to mimic the decisions that would be made, or the costs that would be incurred, by a prudent and efficient entity in the circumstances of the regulated businesses, rather than reflecting the regulated business's actual decisions or costs.

For the purpose of this report, we have been asked to assume that the notional regulated entity has gearing of 60 per cent (debt-to-assets), and financed in an efficient manner, reflecting standard industry practice. We have been further requested to assume that the benchmark credit rating is BBB+, the term of debt at issuance is 10 years, and that 1/10th of the debt is re-financed each year.

3.3 *Direct debt raising transaction costs*

Our objective is to estimate the transaction cost in basis points per annum (bppa) terms for a particular NSP. For convenience, and to simplify the task for the regulator, we assume that all debt is issued through Australian corporate bonds. We also make the auxiliary assumption that the cost of all sources of debt (inclusive of transaction costs) for the same term move approximately together.

There are three different categories of direct transaction costs, which break down into:

- *Category 1:* Fees incurred for each issue that are proportionate to the size of the transaction (foreshadow the results in chapter 4). On a bppa basis, these will be the same irrespective of the size of the NSP.
- *Category 2:* Fees incurred for each issue that are independent of the size of the issue. These fees will be larger as issue size is assumed to increase. If all NSPs issue debt in issues that are of the same size, then these fees will be the same (in bppa terms) across NSPs. However, if smaller NSPs are constrained (as a result of managing prudently their future refinancing obligations) to issue debt in smaller issues, then these costs may be higher for smaller NSPs.
- *Category 3:* Costs that are independent of the value of number of debt issues and common across NSPs – these costs (on a bppa basis) will be higher for the smaller NSP.

Hence, we first establish these costs for a large NSP and then show how size affects this. It follows that the assumed size of each debt issue (that is, where prudent refinancing does not

constrain this) is a matter over which a further benchmark assumption is required, and so this is discussed next.

3.3.1 *The benchmark size of debt issuance*

The standard issuance size is the average amount of debt issued per debt tranche for a benchmark NSP. Debt is usually issued as a portfolio of tranches, of which a single tranche may comprise a package of multiple tranches separated by characteristics such as maturity and risk. For example, a business may issue a \$2 billion debt portfolio, separated by 10 \$200 million issues of corporate bonds. We consider that the observed behaviour of Australian regulated networks is most relevant for ascertaining this. Hence, the Bloomberg service was accessed to compile a list of Australian infrastructure businesses, which produced a list of 12 businesses.¹⁵ This list was filtered to remove non-network infrastructure businesses (to produce a more comparable sample), producing a final list of 6 network infrastructure businesses:

- APA Group;
- DUET;
- Jemena;
- Envestra;
- Spark Infrastructure; and
- SP Ausnet.

For the comparator group we downloaded from Bloomberg a list of Australian bond securities that were on issue between April 2008 and April 2013. A five year period was used as this is the approach that has previously been applied by the AER. Five years is long enough to produce a meaningful sample for averaging, and short enough As shown in Table 3.1, based on 19 network infrastructure business bonds issued between 2008 and 2013, we found a median issuance size of \$250 million, which is the same as the \$250 million issuance size we found in the 2011 study that we undertook for Powerlink.¹⁶

Table 3.1 – Bonds issued by Australian network infrastructure businesses

Bond issuance date range	2004 – 2010	2008 – 2013
Number of bonds	17	21
Total debt	\$4,655m	\$5,275m
Average issue size	\$274m	\$251m
Median issue size	250m	\$250m
Fixed coupon bonds (% of value)	47.1%	71.4%

Source: PwC's analysis, Bloomberg.

¹⁵ These businesses were APA Group, DUET, Envestra, Jemena, Spark Infrastructure, SP Ausnet, Adelaide Airport, Australia Infrastructure Fund, Hastings Diversified Utilities Fund, Macquarie Atlas Roads, Sydney Airport, Transurban

¹⁶ PwC, (April, 2010) *Powerlink debt and equity raising costs*.

3.4 Indirect debt raising transaction costs

Under the new rules (clauses 6.5.2 and 6A.6.2 of the National Electricity Rules and Rule 87 of the National Gas Rules), the first factor that regard must be paid to when estimating the return on debt is ‘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.’ Indirect transaction costs are the borne directly by businesses (rather than paid in fees to third parties, as is the case for direct costs), which arise as a result of the requirements of credit rating agencies to the extent that it avoids undesirable credit rating action. These costs must therefore be recovered under the new National Electricity Rules.

As the benchmark business is assumed to have an investment grade credit rating (e.g. BBB+), it must fulfil the liquidity conditions imposed on it by the credit rating agencies in order to maintain that credit rating. Hence, the additional financing costs that are incurred by the benchmark firm to maintain liquidity mandated by the credit rating agencies are consistent with its benchmark credit rating and benchmark gearing levels.

There are two sources of indirect financing costs that require compensation:

1) *Requirement to maintain a liquidity reserve*

The credit rating agencies (such as Standard & Poor’s and Moody’s) require regulated network infrastructure businesses to hold liquidity reserves in excess of their known funding requirements. In order to maintain an investment grade credit rating (i.e. BBB- or above), a corporate is required to maintain liquidity reserves.¹⁷ These are usually in the form of unused bank facilities. There is a cost associated with unused bank facilities (normally representing 50 per cent of the bank debt margin, as well as transaction costs to raise the debt).

2) *Requirement to re-finance bonds three months ahead of the re-financing date*

Standard & Poor’s requires corporate borrowers to address refinancing amounts three months ahead of the re-financing date in order to provide greater certainty that the re-financing can be achieved. For an NSP, this means that for three months each year, the businesses will need to incur a spread between the interest cost of the bonds and the cash rate earned on the proceeds on the re-financed component of the total debt on issue (i.e. one tenth of the debt on issue, assuming that one tenth of the 10 year term debt is re-financed each year).

We now consider each of these in turn.

3.4.1 Requirement to maintain corporate liquidity

As indicated above, businesses require liquidity for reasons best summarised by Standard & Poor’s (‘S&P’) in its publication titled, 2008 *Corporate Ratings Criteria: Analytical Methodology*. Requirements for liquidity include, but are not limited to:

- Funding unforeseen events;
- To assist with refinancing, scheduled debt repayments and repayment of their financial obligations; and
- Payment of other significant financial obligations (such as, lease obligations, contingent obligations, employee payments/entitlements and tax payments).

¹⁷ Then quantitative requirements by S&P is consistent throughout investment grade rating bands.

As stated by S&P, the best source of liquidity is surplus cash, together with near cash held on the balance sheet. This includes, cash and cash equivalents; unused committed bank debt; short and long term bank debt, debt capital market issuances; and equity. The most cost efficient manner in which rated corporate entities maintain their minimum liquidity reserves is in the form of unused committed bank facilities.

The rating agencies’ approach to measuring liquidity

Standard & Poor’s

Rating agencies have increasingly focussed on liquidity management when assessing the overall credit rating of a business. The S&P report titled, *Methodology and Assumptions: Liquidity Descriptors for Global Corporate Issuers*, dated 28 September 2011, provides a prescriptive outline on how S&P assigns liquidity ratings for corporate issuers. Analysis of liquidity is undertaken on both a qualitative and quantitative basis.

The *qualitative* analysis addresses such factors as “the ability to absorb high-impact, low-probability events, the nature of bank relationships, the level of standing in credit markets, and the degree of prudence of the company’s financial risk management”. Liquidity requirements will vary depending on the business activity and the industry in which the corporate is involved.

For its *quantitative* analysis, S&P undertakes ratio analysis, whilst sensitising forecast earnings to ensure that a business has sufficient liquidity to withstand unforeseen downward shocks. The two ratios that S&P focuses on when undertaking this analysis are:

1. A/B: Liquidity sources (A) divided by uses (B); and
2. A-B: Liquidity sources (A) minus uses (B).

Liquidity descriptors

Once S&P has determined the liquidity rating of a business, it will assign one of the following liquidity descriptors:

Table 3.2 – S&P Liquidity Descriptors

Descriptor	Summary
Exceptional	Companies with exceptional liquidity should be able to withstand <i>severe</i> adverse market conditions over the next two years while still having sufficient liquidity to meet their obligations.
Strong	Companies with strong liquidity should be able to withstand <i>substantially</i> adverse market circumstances over the next 24 months while still having sufficient liquidity to meet their obligations.
Adequate	Companies with adequate liquidity should be able to withstand <i>adverse</i> market circumstances over the 12 months while maintaining sufficient liquidity to meet their obligations.
Less than Adequate	A company with less than adequate has an issuer credit rating no higher than ‘BB+’.
Weak	Weak liquidity represents an overarching credit risk. In all cases, such an assessment will translate into an issuer credit rating of ‘B-’ or lower.

Source: S&P: *Methodology and Assumptions: Liquidity Descriptors for Global Corporate Issuers* 28 September 2011.

S&P states that:¹⁸

¹⁸ Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers Standard & Poor’s, 28 September 2011

“For a company to receive a rating of ‘BBB-’ or higher, its liquidity must be scored adequate or stronger.”

We note that all of the below Australian regulated utilities have a liquidity descriptor of “adequate” (see Table 3.4 below).

In addition to other requirements to achieve an “Adequate” liquidity descriptor companies should meet the following criteria:

- A/B of 1.2x or more. In particular, any upcoming maturities should be manageable.
- Positive A-B, even if forecasted EBITDA declines by 15%.

S&P¹⁹ states that if the A/B and A-B do not meet the requisite levels, using a six-month time horizon, but a company meets all other characteristics outlined by S&P, it may still receive a liquidity score of “Adequate”.

Moody’s publication, titled: Moody’s Approach to Assessing the Adequacy of “Liquidity Risk Insurance” (January 2000) describes Moody’s approach to assessing the adequacy of a corporate issuer’s alternative liquidity provisions.

Like S&P, Moody’s analysis is both qualitative and quantitative. Moody’s analysis involves a critical evaluation of the business’ sources and uses of cash. This is tested under a range of reasonable stress scenarios to assess the ability for the corporate to meet both its operating needs and debt obligations.

Unused committed bank debt

Maintaining a quantum of committed funding limits in excess of actual utilisation is a common practice by large corporates, including regulated utilities, for adhering to their liquidity policies and managing their liquidity risk.

To quantify the amount of liquidity of an efficient NSP, we have looked at the level of committed unused funding limits of a number of non-Government owned, regulated utilities in Australia. We have adopted the same benchmark regulated utilities under section 3.3.1. However as DUET and Spark Infrastructure are investment vehicles, we have reviewed their assets, rather than the fund as a whole. The sample we have used is listed in Table 3.3.

Table 3.3 – Non-Government owned regulated utilities

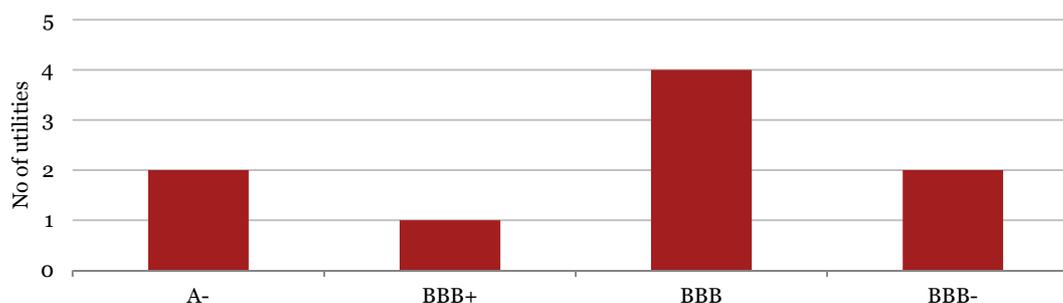
Utility	Description
Citipower & Powercor	Electricity distribution businesses. Citipower services the Melbourne CBD and inner suburbs; whilst Powercor services the central and western areas of Victoria. Citipower & Powercor are owned by Spark Infrastructure and Cheung Kong Infrastructure Holdings (CKI).
Jemena	Electricity and gas distribution in Victoria and New South Wales.
SA Power Networks	Electricity distribution business, South Australia. SA Power Networks is owned by Spark Infrastructure and CKI.
SP Ausnet	Electricity distribution and transmission; gas distribution in Australia.
APA Group	Owns, operates and manages gas network assets in Australia.
DBNGP	Owns and operates the Dampier to Bunbury gas transmission pipeline. DUET is a significant owner of DBNGP.
Envestra	Owns, operates and manages transmission pipelines and gas distribution networks in Australia, serving consumers in South Australia, Victoria, Queensland, New South Wales and the Northern Territory.
Multinet	Gas distribution in the state of Victoria. Multinet is owned by DUET.

¹⁹ Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers
Standard & Poor’s, 28 September 2011

Utility	Description
UED	Distributes electricity to customers in east and south east Melbourne and the Mornington Peninsula in Victoria. UED is owned by Jemena and DUET.

The credit distribution of the regulated utilities in our analysis is summarised in Figure 3.1 below. We note that all publically rated, regulated utilities in Australia, rated by S&P have been assigned an “adequate” liquidity descriptor.

Figure 3.1 – Credit distribution of regulated utilities used in our analysis²⁰



Source: S&P 24 May 2013

To estimate the amount of unused committed funding limit, we have extracted from the last two financial years of these regulated utilities, the following:

1. Total outstanding debt
2. Amount of committed unutilised funding limits (i.e. the liquidity reserve)

The measure of liquidity we have calculated as **2** as a percentage of **1**. Table 3.4 summarises the results of our analysis.

Table 3.4 – Australian regulated utilities, unused committed bank debt

	S&P Rating	S&P Liquidity descriptor	Unused committed bank debt	Total Debt	% of Total Debt Unused	Financial Years Analysed
Citipower & Powercor ²¹	A-/Stable ²²	Adequate	\$199 m	\$3,458 m	5.8%	2010 & 2011
SA Power Networks	A-/Stable	Adequate	\$78 m	\$2,903 m	2.7%	2010 & 2011
SP Ausnet ²³	BBB+/Stable ²⁴	Adequate	\$350 m	\$4,456 m	7.3%	2011 & 2012
APA Group	BBB/Stable	Adequate	\$505 m	\$2,898 m	17.4%	2011 & 2012
DBNGP	BBB/Stable	Adequate	\$60 m	\$2,659 m	2.3%	2011 & 2012

²⁰ Citipower & Powercor have been analysed on a consolidated basis. We have therefore represented Citipower & Powercor as a consolidated entity in this chart.

²¹ Audited financial statements report at the CHEDA Holdings Pty Ltd level, of which Citipower and Powercor comprise a significant part.

²² Citipower and Powercor receive a 1 notch uplift in their credit rating due to the parental support from Cheung Kong Infrastructure Holdings and Power Assets Holdings Ltd. The standalone credit profile for Citipower and Powercor is BBB+.

²³ Financial data relates only to SP Australia Networks (Distribution).

²⁴ SP AusNet was previously rated A-/Stable. The recent change in ownership announcement on 17 May 2013, involving State China Grid purchasing a portion of Singapore Power’s interests has led to a downgrade.

	S&P Rating	S&P Liquidity descriptor	Unused committed bank debt	Total Debt	% of Total Debt Unused	Financial Years Analysed
Envestra	BBB/Stable ²⁵	Adequate	\$196 m	\$2,238 m	8.8%	2011 & 2012
Jemena	BBB/Stable ²⁶	Adequate	\$529 m	\$3,264 m	14.0%	2011 & 2012
Multinet	BBB-/Stable	Adequate	\$142 m	\$1,233 m	11.5%	2011 & 2012
UED	BBB-/Stable	Adequate	\$328 m	\$2,014 m	16.3%	2011 & 2012
Median					8.8%	

Source: Audited company accounts and Standard & Poor's (information based on 2 year averages)

We note that the percentage of unused debt for DBNGP and SA Power Networks is low compared to the sample. Explanations for these low percentages, incorporating comments by Standard & Poor's are:

- DBNGP – DBNGP recently undertook a large expansion/capital works program. As a result, the assets are in good condition and the capex required to maintain these assets is relatively low. DBNGP is able to fund the majority of its future capex through operating cashflow instead of relying on undrawn funding lines. As reported at financial year end, over the past 4 years the liquidity reserve for DBNGP has ranged between 1.6% - 11.7%.
- SA Power Networks –SA Power Networks' has a relatively low Debt/RAB ratio and high FFO/Debt and FFO interest cover ratios. This allows SA Power Networks better fund fluctuations and capex through its operating cashflows. Also, the high credit rating of SA Power Networks provides it greater access to funding, in particular, through the capital markets. As reported at financial year end, over the past 4 years the liquidity reserve for SA Power Networks has ranged between 1.4% - 11.2%.

The median percentage of unused committed facilities (i.e. liquidity reserve) to total outstanding debt for the selected Australian regulated utilities is 8.8%.

3.4.2 Requirement to re-finance bonds three months ahead

It is common practice for large corporate borrowers with multi-million dollar debt programs to actively manage their refinancing requirements. This is most commonly undertaken by completing the refinancing process early and ensuring that the refinanced debt is "locked in" sufficiently in advance of the maturing debt. The credit rating agencies carefully monitor a rated borrower's refinancing strategy with S&P providing explicit guidelines on what it requires from a corporate borrower to avoid undesirable credit rating action.

S&P's document, "Refinancing And Liquidity Risks Remain, But Australia's Rated Corporates Are Set To Clear The Debt Logjam", dated April 22 2008, outlined various aspects of debt refinancing and liquidity risk management and included the following requirement of S&P for Australian rated companies:

"For the Australian investment-grade corporates, we expect to see a measured and logical approach to meet upcoming debt maturities. We would want to see that the company has a

²⁵ On 23 May 2013, S&P raised Envestra Ltd's credit rating from BBB-/Positive to BBB/Stable based on stronger financial performance.

²⁶ Jemena was previously rated A-/Stable. The recent change in ownership announcement on 17 May 2013, involving State China Grid purchasing a portion of Singapore Power's interests has led to a downgrade.

credible strategy for repaying or refinancing debt maturing up to 18 months ahead. As maturities move into the forward 12-month time horizon, we will start placing more weight within the short-term rating analysis on the materiality of upcoming maturities and the company’s refinancing strategy and execution ability. To avoid negative rating consequences, the ideal progression would be:

- 12-to-18 months ahead of maturity, the company would have a detailed and credible refinancing plan (including a contingency plan);
- No less than six months ahead of the maturity, the company would have documentation substantially in place for the replacement debt issue/s; and
- No less than three months ahead of maturity, the refinancing would be essentially completed, committed, or underwritten.”

As such, we have assumed that for an NSP with a debt portfolio comprising 10 year bond issuances, the NSP would need to issue a new bond 3 months in advance of the maturing bonds in order to satisfy the S&P requirement.

Table 3.5 below outlines the costs associated with satisfying Standard & Poor’s refinancing requirement for an efficient NSP for a borrower refinancing maturing bonds through the issue of new bonds.

Table 3.5 –Costs associated with addressing refinancing risk

Description	Cost considerations
<ul style="list-style-type: none"> • New bonds fully documented and funded at T_0 • Proceeds of new bond issue are deposited • At the end of 3 months, the cash on deposit is used to repay the maturing bonds 	<ul style="list-style-type: none"> • New bonds are assumed to be issued at T_0 and proceeds are deposited for 3 months at a predetermined interest rate (thus generating interest income) • Cash costs = interest rate on new bonds issued, less interest income on deposit over 3 months

Under the above scenario, it is assumed that the borrower addresses its refinancing risk by undertaking the new bond issue 3 months ahead of the existing bonds’ scheduled maturity date. As issuers of bonds do not customarily have early redemption / repayment rights under the bonds, the issuer would be required to place the proceeds of the new bond issue on deposit until the old bonds mature. At maturity of the old bonds, the cash from the new bond issue is applied to repay the maturing bonds.

The additional cash cost incurred by the borrower refinancing under this scenario is the difference between:

- The cost of debt under the new bond issue over 3 months, and
- The income generated on the cash investment / deposited for 3 months

Over the 3 month period, the proceeds from the new bond issue may be invested by the borrower as follows:

- *Bank risk:* Represented by either placing the funds on deposit with a bank or purchasing bank accepted bills of exchange. Either form of investment is regarded as bank risk and likely to be offered at substantially the same interest rate. A reasonable

interest rate assumption is regarded to be the Bank Bill Swap reference rate (BBSW)²⁷. We note however, that DNSPs are not able to achieve the high retail deposit rates that are sometimes advertised by the banks. This form of investment is regarded low risk²⁸ and common market practice. The temporary investment of bond proceeds in the form of bank deposit or purchase of bank accepted bills until the old bonds mature is likely to have neutral credit rating impact on the borrower; or

- **Government risk:** Purchase of 3-month Commonwealth Government Securities. This is a lower credit risk strategy to investing in equivalent term to maturity bank-risk deposit / bank bills. The interest income generated under this option will be lower than the bank options due to the lower credit risk profile of the investment. The temporary investment of bond proceeds in the form of Commonwealth Government Securities is likely to have neutral credit rating impact on the borrower.
- **BBB+ credit risk:** A third approach, which we favour, is to adopt an assumption of BBB+ credit risk, as it would under-compensate the benchmark utility to assume that only a BBSW rate is received. 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. That is, the benchmark entity would maintain its benchmark risk profile through investing in a 3 month BBB+ security

In Table 3.6, we have considered how the different refinancing costs impact under each of the investment options. As noted above, we consider that the true economic impact can best be estimated by the difference between the 10 year BBB+ debt and 3 month BBB+ debt. This loss is not otherwise provided for – it cannot be reflected in the benchmark interest rate as that is taken from secondary yields on corporate bonds rather than the observed interest costs of regulated businesses.

Table 3.6 – Bond re-financing assumptions

Assumptions	Value ²⁹
New bond issue	
10 year Government rate	3.51%
Bloomberg 10 yr extrapolated BBB+ DRP	3.11%
Deposit	
3-month BBSW	3.01%
3-month Commonwealth Government Securities	2.91%
3-month BBB interest income	4.75%
Other	

²⁷ BBSW is the Australian Financial Markets Association's bank-bill reference rate, published daily on AAP Reuters page BBSW and on Telerate page 2676. BBSW is calculated as the average mid rate for Australian Dollar bills of exchange, accepted by an approved bank, having a tenor with a designated maturity, that appears on an approved information vendors service.

²⁸ We note that under normal market conditions bank risk is regarded as low. However, during the Global Financial Crisis, there was a high level of uncertainty over the credit quality of banks, resulting in many banks experiencing difficulties in raising funds from the wholesale market. To restore confidence in the banking market, many Governments offered guarantees (for a fee) over bank deposits as well as guarantees for bonds issued by banks.

²⁹ Values based on 20 business day average to 15 March 2013.

Assumptions	Value ²⁹
Volume (assumption)	\$250 m

In addition, if 10 year debt is always issued, but the next issue occurs after 9.75 years, then debt is being refinanced during overlapping periods. This means that any direct transaction costs would need to be recovered over 9.75 years rather than 10 years. Although this has a small impact of 0.03 bppa at the standard issuance size, it has been incorporated in our analysis.

3.4.3 AER's previous consideration of indirect costs

In 2010 the AER considered the issue of indirect debt raising costs in its South Australia distribution determination. The AER did not allow ETSA utilities to recover those costs because it considered there would be a double counting of the existing allowance provided through its direct debt raising cost allowance.³⁰ The potential for a double-count had been raised in the report of the AER's adviser, Associate Professor John Handley, who considered that the bulk of the direct debt raising costs provided by the AER was for 'gross underwriting fees', and that it was 'not clear why there should be allowance for both the costs of the Completion Method and gross underwriting fees'.³¹ However, this is based on a misunderstanding of the meaning of the term 'gross underwriting fees,' which originated from the 2004 report of the Allen Consulting Group (ACG).

In ACG's report, which set out a methodology to estimate direct transaction costs, the 'underwriting fee' component of direct debt raising costs was explained as follows:³²

Traditionally, as in stockbroking, the underwriting fee represented a reward for risk taking. If the issue were not sold, the underwriter would take it up and guarantee proceeds to the issuer. With "best efforts" underwriting, a "bookbuild" is undertaken to determine the market-clearing price. The services provided by the lead manager/arranger in terms of a bookbuild are as follows:

- Prepares an Information Memorandum (IM) for investors;
- Prepares the sales pitch for investors;
- Prepares presentation materials;
- Undertakes the road show, delivering the presentation to investors;
- Facilitates the investors' due diligence process; and
- Communicates the clearing price for each tenor.

The underwriting fee will have some fixed cost elements, such as the writing of an IM. However, there will also be variable cost elements that rise with the difficulty of the deal. Larger transactions will require greater effort as there will more parties involved in terms of selling agents and investors.

The AER argued that ACG's estimate of direct debt financing costs already incorporated the requested indirect debt refinancing plan costs for two reasons:

³⁰ AER (May, 2010), *South Australia distribution determination 2010-11 to 2014-15*, p.384

³¹ John Handley (13 April, 2010), *A Note on the Completion Method*, Report prepared for the Australian Energy Regulator, p.9.

³² ACG (December, 2004), *Debt and equity raising transaction costs*, Report to the Australian Competition and Consumer Commission, p. 38.

- First, refinancing risk was a known and relevant risk when ACG undertook its study, and therefore the AER considered it was reasonable to conclude that ACG took into account the need for a refinancing plan in its debt raising costs estimate.³³
- Secondly, the AER considered that ACG explicitly allowed for an underwriting fee component based on its interpretation of ACG's description of the component of debt raising cost termed 'gross underwriting fees'.³⁴

As is apparent from the above quotation from the ACG report, the term 'gross underwriting' was not meant to represent the traditional 'risk taking' view of underwriting, but instead referred to the 'book building' process and preparation and marketing of the issue by the investment bank. The reason that the ACG paper used the term 'gross underwriting fee' is simply that this was (and continues to be) the terminology used by the Bloomberg service to represent those book building and marketing costs. The term 'gross underwriting fees', was previously clarified in our 2011 report for Powerlink, as being a term to describe a fee for the placement of debt securities with buyers (since this is the term used by Bloomberg).³⁵

Hence, on a correct interpretation of the term 'Gross underwriting fees', it becomes apparent that the AER erroneously concluded that the direct debt raising cost allowance estimated using ACG's methodology compensates for refinancing plan costs. The indirect costs associated with early refinancing and the direct costs of debt financing are separate costs that do not overlap.³⁶

³³ AER (May 2010), p.383.

³⁴ AER (May 2010), p.383.

³⁵ PwC (April, 2011), *Debt and equity raising costs*, pp.10 to p.11

³⁶ The author of the ACG (2004) report is also the author of this report, therefore there is no presumption being made on this issue.

4 *Direct debt raising transaction costs*

4.1 *Introduction*

In this chapter we:

- Use Bloomberg data to estimate the transaction costs paid by Australian in the US market; and
- Assess Australian legal, selling, road show, and company and issue-specific credit rating costs, registrar costs and paying fees associated with bond issues.

4.2 *Estimating debt raising transaction costs*

Debt raising transaction costs can be separated into two components:

- Arrangement/placement fees (arrangement fees) – these are the fees charged by investment banks for managing the capital raising; and
- Other costs – these costs include credit rating fees and legal fees (i.e. all fees apart from arrangement fees).

We estimated each cost component separately and then combined them to derive an estimate of the overall cost of raising debt.

4.2.1 *Arrangement/placement fees*

Our approach was to access publicly available information on debt raising transaction costs published by Bloomberg. We used the Bloomberg service to identify the relevant sample of domestic bonds issued by our comparator firms between 2008 and 2013, and then obtained from Bloomberg the debt arrangement fee that was charged by the organisations who were responsible.³⁷

Transaction costs for Australian corporate bonds issued in Australia are never revealed. To overcome the information deficiency, we have adopted the same approach that has been applied in earlier studies (including the ACG study relied upon by the AER): i.e., we assume that the arrangement fees to issue bonds in Australia are the same as the fees charged to issue bonds in the US. For a proportion of these Australian bonds issued in the US, the details of arrangement fees paid are reported in the prospectuses, which are provided by the Bloomberg service. Whilst this is not ideal, since these arrangement fees are for Australian issues in the US market, this is the only known source of objective, verifiable data for this direct cost component.

We identified a list of relevant corporate bonds issued by Australian businesses between 2008 and 2013. Using Bloomberg's 'SRCH' function, we identified 1,673 corporate bonds, and from that initial list, we eliminated bonds that were:

- Issued by financial institutions because they operate in a specific market separate to the corporate bond market;

³⁷ Arrangement fees were revealed for only a minority of bond issues.

- Not investment grade;
- Not identified by a credit rating from Standard & Poor's;
- Convertible bonds, because they have equity-like characteristics, and therefore have an issuance cost structure that closely resembles equity issuance; and
- Not making issuance cost data publicly available.

Application of the elimination criteria listed above left us with a sample of 33 bonds. Further filtering of the data to only infrastructure or network businesses would have left a sample of only 3 (two Telstra Corporation bonds and a Melbourne Airport bond). As we were seeking a reliable and robust estimate of bond arrangement fees, we included all 33 bonds to increase the sample size.

The final step was to record each bond's arrangement fee and translate it into a bppa (BPPA) value. Bond arrangement fees are generally expressed as an up-front number of basis points. To convert this to an equivalent annual BPPA value, we calculated the annual stream of fees required to equate the NPV of that stream to the value of the up-front fee, using a notional discount rate of 10 per cent.

Specific arrangement fee issues analysed

Previous studies have been unable to find a relationship between debt arrangement fees for Australian bonds issued in the US, and either term at issuance or issuance size. Our 2011 study for Powerlink concluded that:³⁸

there was "...no discernible relationship between the annualised cost and term at issuance."
and that:³⁹

For the group excluding these four bonds, there was no discernible relationship between the annualised issue cost and size of issue.

4.2.2 Estimation of the arrangement fee

We found that for Australian businesses issuing in the US the publicly available arrangement fees:

- Averaged at 8.5 bppa; and
- Were unrelated to issuance size, term at issuance or credit rating.

Australian bonds issued in the US market

For the period 2008 to 2013 we found that the arrangement fee for Australian companies issuing corporate bonds in the US is 8.5 bppa. For the full sample of 33 bonds, we estimated an average arrangement fee of 19.1 bppa. However, this included several outliers ranging between 23.7 and 55.3 bppa.⁴⁰ Removing these outliers, we estimated an average arrangement fee of 8.5 bppa, which are 1.3 bppa higher than the finding in our earlier study covering the period to 2010.

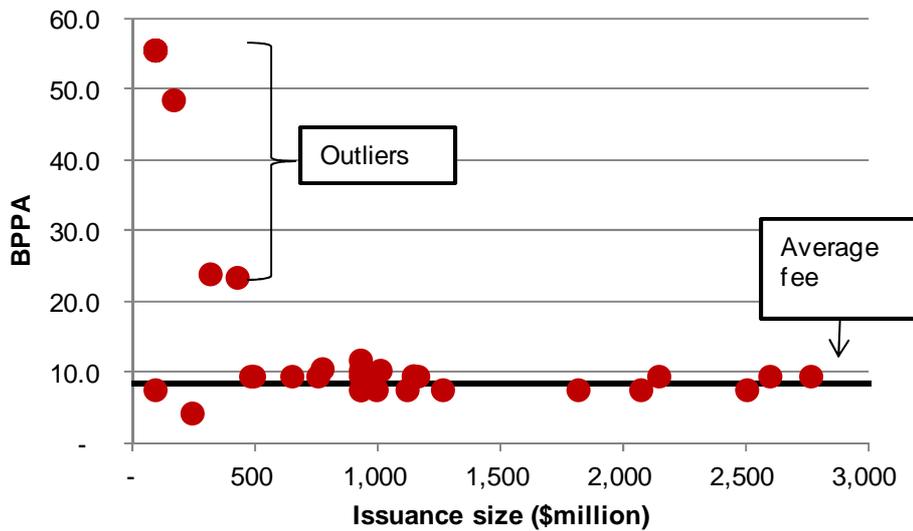
³⁸ PwC, *Powerlink debt and equity raising costs*, April 2011, p17 and p16.

³⁹ PwC, *Powerlink debt and equity raising costs*, April 2011, p16

⁴⁰ Outliers could be the result of the combination of the same arrangement fee as those for standard bonds, charged over a smaller issuance size and term to maturity.

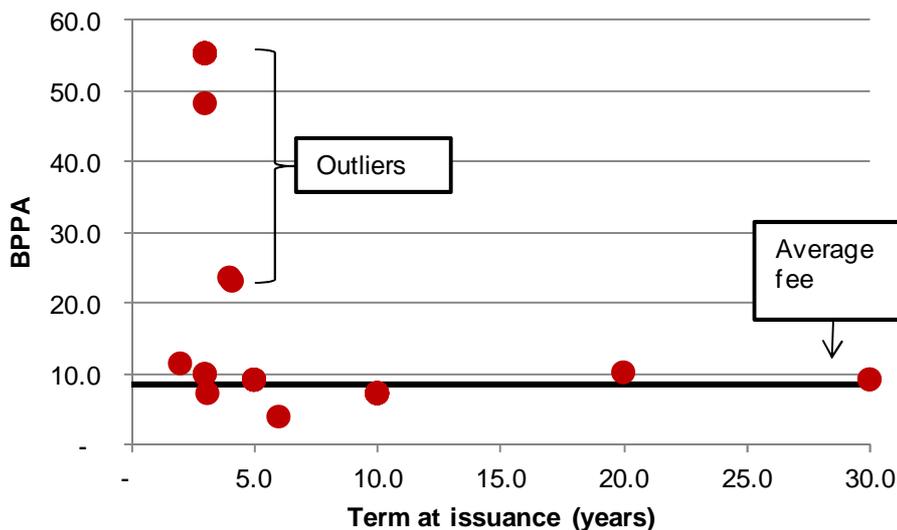
We also found no discernible relationship between arrangement fees and issuance size, term at issuance and credit rating. To investigate whether a relationship could be found, we plotted arrangement fees against issuance size, term at issuance and credit rating, as shown in Figure 4.1, Figure 4.2 and Figure 4.3 respectively. In all three figures, removal of the outliers identified within the brackets resulted in an average arrangement fee that remained relatively constant with respect to term at issuance, issuance size and credit rating increases.

Figure 4.1 – Arrangement fee of bonds on issue between 2008 and 2013 by issuance size in \$million



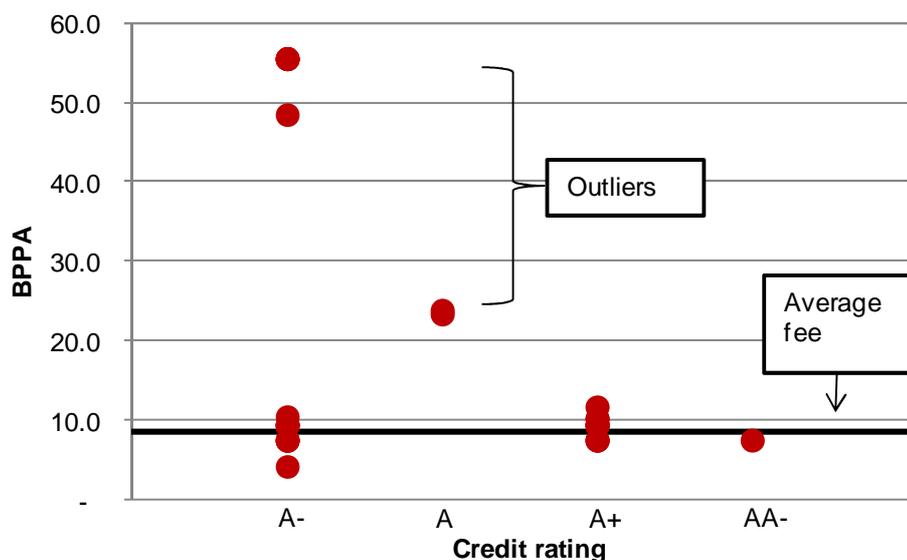
Source: PwC's analysis, Bloomberg

Figure 4.2 – Arrangement fee of bonds on issue between 2008 and 2013 by term at issuance in years



Source: PwC's analysis, Bloomberg

Figure 4.3 – Arrangement fee of bonds on issue between 2008 and 2013 by credit rating



Source: PwC’s analysis, Bloomberg

4.2.3 ‘Other’ debt raising transaction costs

As noted above, ‘other’ debt raising transaction costs refer to fees for the services of credit rating agencies, legal advisors and other agencies, which contribute to the total cost of issuing debt. There are two categories of ‘other’ bond raising transaction fees:

- ‘Overarching’ fees that apply to a business as a whole when it issues debt; and
- Costs specific to individual issues of debt when issued.

There are different fees associated with issuing secured bonds. A secured bond is one when the issuer has pledged assets as collateral, and there are additional legal costs associated with these bonds. A benchmark business is likely to issue a mix of secured and unsecured bonds, and as a consequence we have averaged the costs of secured and unsecured bonds.

Our approach was to contact a number of representatives of credit rating agencies, legal firms and investment banks and request information about the standard fees that are currently charged for each identified ‘other’ cost item, and then average the responses.⁴¹

Overarching fees

‘Overarching’ fees apply to the business whenever a bond is issued, and include:

- *Credit rating fees*—Fees charged by a credit rating agency, which can be further separated into:
 - *Initial credit rating* – the fee to establish a credit rating for the bond; and
 - *Annual surveillance fee* – the fee taken by the rating agency to maintain the credit rating of the firm each year.

⁴¹ The market participants contacted included two credit rating agencies, three law firms and two investment banks.

Table 4.1 – Other debt raising transaction costs – Overarching (2013)

	Unit	Estimated value	Source
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

Source: Interviews with credit rating agencies.

The credit rating fees mentioned above, as well as the ‘other’ bond raising transaction fees listed below are consistent with our 2010 study and ACG’s 2004 study:⁴²

- *Master program fees* – Legal costs incurred for preparing a bond Master Program, which is used as the base document under which multiple issuances of bonds are undertaken over a period of time (usually 10 years).
- *Legal fees for the issuer*–Fees charged by legal firms for preparing documentation for the issue of bonds under the Master Program.
- *Up-front credit rating bond issue fee*–Fee charged by the credit rating agency when a new bond is issued.
- *Registrar costs*–Fees charged by bond registry organisations engaged in registering investors in a bond, including:
 - Initial set up costs compensating for establishing a registry service for a bond; and
 - An annual service fee.
- *Agent’s out-of-pocket expenses* –Out-of-pocket expenses charged by the agents of a bank undertaking the bond issue, including travel and accommodation, venue hire, printing etc.

Table 4.2 summarises our findings for each category of cost.

Table 4.2 – Other debt raising transaction costs (2013)

	Unit	Estimated value	Source
Legal counsel – Master program	Per ten years	\$56,250	Legal firms
Legal counsel – Issuer’s	Per issue	\$15,625	Legal firms
Credit rating agency – Up front bond issue	Per issue	5.2 bps of issue size	Rating agencies
Registrar – Up front	Per ten 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: Interviews with legal firms, banks and credit rating agencies.

⁴² The Allen Consulting Group, (December, 2004), *Debt and Equity Raising Transaction Costs*.

4.3 Estimate of total debt raising transaction costs

In Table 4.3 below we derive an estimate the total debt raising transaction costs for Australian bond issues based on the standard issue size (\$250 million) and benchmark term to maturity (10 years). The estimate of the total debt raising transaction cost combines the base arrangement fee with ‘other’ costs in terms of an equivalent bppa.⁴³

Our previous report for Powerlink found that the transaction cost for a single issue was 9.7 bppa, of which 7.2 bppa were for the arrangement fee.⁴⁴ In the current study we estimated a single (10) bond issuance cost of 10.8 (9.9) bppa for a network business, with 8.5 bppa being attributable to the arrangement fee. In other words the majority of the 1.1 bppa increase in transaction costs was due to an increase in the observed arrangement fee based on the latest information. While a major component of the cost (arrangement fee) is constant irrespective of firm size (i.e. 8.5 bppa), there are other cost that reduce with size owing to the presence of a fixed element (Master bond program and annual credit rating surveillance fee) from 2.2 bppa to 1.4 bppa.

Table 4.3 – Summary of debt raising transaction costs for Australian corporate bonds with a 10 year term to maturity (2013)

	1 issue	10 issues
Amount raised	\$250m	\$2,500m
Arrangement fee (bppa)	8.5	8.5
Other costs (bppa)	2.2	1.4
Total cost (bppa)	10.8	9.9

Source: PwC analysis based on data from Bloomberg and interviews with legal firms, banks and credit rating agencies.

⁴³ A notional discount rate of 10 per cent was applied to derive the bppa estimate.

⁴⁴ PwC, (April 2011), *Powerlink debt and equity raising costs*, p4

5 *Indirect debt raising transaction costs*

5.1 *Introduction*

In this chapter, we estimate the indirect costs associated with debt raising by a benchmark NSP. These costs are divided into costs associated with bank debt (associated with maintain adequate liquidity reserve requirements, as required by the credit rating agencies) and bonds (the funding instrument assumed to be adopted by the NSP to fund the business).

5.2 *Bank debt - indirect cost of liquidity reserves*

5.2.1 *Cost of liquidity reserves*

In section 3 of the report, we identified that an efficient NSP maintains liquidity reserves in the form of committed funding in excess of total debt on issue of 8.8%. The common practice for maintaining liquidity reserves for corporate borrowers are committed facilities provided by banks. Bond investors do not provide similar commitments. The cost components relating to maintaining these committed funding limits are as follows:

- 1 Commitment Fee – a fee paid to financiers regardless of whether the facility is utilised, for maintaining a legally binding commitment to make funds available to the borrower, if requested by the borrower.
- 2 Direct transaction costs – these are all the costs associated with a debt financing such as as upfront establishment fees paid to financiers, arranging fees, credit rating agency fees and legal fees.

For calculating the cost of maintaining a liquidity reserve we have assumed that the NSP adopts 3 year bank debt facilities with the costs calculated as follows:

Commitment Fee

The current common market practice in relation to commitment fees is for banks to charge 50 per cent of the bank debt margin. The commitment fee is charged on the unused portion of committed funding throughout the life of the facility. Based on the Bloomberg BBB 3 year credit curve,⁴⁵ we have calculated a commitment fee of 0.86%. This is equivalent to 7.6 bppa, assuming a debt portfolio of \$2,500 m. A summary of this calculation is provided in Table 5.1 below:

⁴⁵ We have used an average of the 20 business days to 15 March 2013.

Table 5.1 – Bonds issued by Australian network infrastructure businesses

	Fee per annum
Bloomberg 3 year BBB yield	4.98%
AUD 3 year swap rate	3.26%
Bloomberg 3 year BBB implied margin	1.73%
Commitment fee (50% of margin)	0.86%

Source: PwC's analysis, Bloomberg.

The calculation for the liquidity reserve is as follows:

Table 5.2 – Liquidity reserve calculation

A	Standard benchmark NSP debt on issue	\$2,500 m
B	Liquidity reserve in excess of debt on issue	8.8%
A x B	Amount of liquidity reserve /committed unused facilities	\$220.0 m

The Commitment fee is therefore calculated as:

$$= \$220.0 \text{ m} * 0.86\%$$

= \$1.89 m or 0.076% (7.6 basis points) per annum on total benchmark NSP outstanding debt of \$2,500 m.

Direct transaction costs

There are two components of bank debt direct transaction costs. Like issuing corporate bonds, obtaining bank debt has costs for:

- 1 Establishment fee earned by investment banks to compensate for their management of the capital raising process; and
- 2 Other bank debt issuance transaction activities.

Establishment Fees

Our general methodology was to analyse publicly available data on debt raising transaction costs published by LoanConnector. For comparable businesses we identified a relevant sample of bank debt issued between 2008 and 2013, and then downloaded from LoanConnector⁴⁶ the debt arrangement fee that was charged by banks.

Bank debt establishment fees were estimated applying a two part approach. First, we selected a suitable list of bank debt issues, and secondly, we estimated the bppa implied by the up-front bank debt establishment fee.

Examining the 268 bank debt issues provided by LoanConnector, we eliminated those issues that:

- Were not investment grade;
- Did not have a tenor of 3 years;

⁴⁶ Loan Connector is a debt information service provided by Thomson Reuters. It consolidates publicly available debt information for a range of companies, including Australian and UK companies. Importantly, it consolidates publicly available bank debt information.

Indirect debt raising transaction costs

- Did not identify their credit Standard & Poor's credit rating; and
- Did not make issuance cost data publicly available.

This left 21 bank debt issues. We then removed bank debt issued by non-infrastructure businesses, as this enhanced the relevance of bank establishment fee estimates while still providing a sample size of 9 issues.

Bank debt establishment fees, were reported as an up-front fee. When the up-front fee was reported as a range, we used the middle of the range as the reported up-front fee.

We found that, based on the sample, the establishment fee for 3 year bank debt is 17.0 basis points.

Applying this fee to 8.8% (liquidity reserve amount) of the total debt portfolio of \$2,500 m, this equates to 0.6 bppa.

Other bank debt issuance transaction costs

As in section 4 of this report, our approach when calculating “other bank debt issuance costs” was to contact a number of representatives of legal firms and banks and request information about the standard fees that are currently charged for each identified ‘other’ cost item, and then average the responses.⁴⁷

Table 5.3 – Other bank debt issuance transaction costs (2013)

	Unit	Estimated value	Source
Legal counsel – borrower	Per issue	\$86,667	Legal firms
Legal counsel – Banks	Per issue	\$90,000	Legal firms
Agency fee	Per issue	\$30,000	Estimated
Agent's out of pocket expenses	Per issue	\$3,000	Estimated

Source: Interviews with legal firms, banks and credit rating agencies.

Based on a debt portfolio of \$2,500 m, this represents an annual fee of 0.0041%⁴⁸ (0.4 bppa) over 3 years.

Table 5.4 provides a summary of our findings of the total debt costs associated with maintaining liquidity reserves.

⁴⁷ The market participants contacted included three law firms and two investment banks.

⁴⁸ We have used a notional discount rate of 10 per cent to arrive at a bppa estimate.

Table 5.4 Indirect costs: debt raising transaction costs associated with maintaining a liquidity reserve, assuming a debt portfolio of \$2,500 million

	Cost (A\$)	Annual Equivalent (A\$) ⁴⁹	Bppa
Commitment Fee	1,892,000	1,892,000	7.6
Establishment fee	374,000	150,391	0.6
Other debt issuance transaction Costs			
- Legal counsel – borrower	86,667	34,850	0.1
- Legal counsel – bank	90,000	36,190	0.1
- Agency Fee	30,000	30,000	0.1
- Bank's out of pocket expenses	3,000	1,206	0.0
Total Annual Equivalent		2,144,638	8.6

Source: PwC analysis based on Bloomberg, and interviews with banks, credit rating agencies and legal firms.

5.3 Bond re-financing

Calculation involves three components:

- A. 3-months interest expense on the new bond
- B. Offsetting interest income generated on monies invested over 3 months

The calculation methodologies of each of these are outlined below.

A. Interest expense: New bond issue, coupon for first 3 months

= (10 year Australian Commonwealth Government Security rate + 10 year extrapolated Bloomberg BBB+ Debt Risk Premium⁵⁰) * Volume / number of quarters in a year

$$= (3.51\% + 3.11\%) * \$250m / 4 = 6.62\% * \$250m / 4$$

= \$4.14 m, equivalent to 0.166% (16.6 basis points) per annum assuming a debt portfolio of \$2,500 m

B.1 Interest Income (invested in bank credit risk): Interest income received from investment in bank deposit or bank accepted bills at BBSW for 3 months

= Volume * 3-month BBSW⁵¹ / number of quarters in a year

$$= \$250m * 3.01\% / 4$$

= \$1.88 m, equivalent to 0.075% (7.5 basis points) per annum assuming a debt portfolio of \$2,500 m.

or

⁴⁹ We have used a notional discount rate of 10 per cent to arrive at a bppa estimate

⁵⁰ The 10 year extrapolated Bloomberg BBB+ debt risk premium is calculated on 20 business days to 15 March 2013.

⁵¹ 3-month BBSW, calculated as the average of the 20 business days to 15 March 2013.

B.2 Interest Income (invested in Government credit risk): Interest income received from investment in Commonwealth Government Securities for 3 months

= Volume * 3-months Commonwealth Government Securities⁵² / number of quarters in a year

= \$250m * 2.91% / 4

= \$1.82 m, equivalent to 0.073% (7.3 basis points) per annum assuming a debt portfolio of \$2,500 m.

B.3 Interest Income (invested in BBB credit risk): Interest income received from investment in BBB credit risk for 3 months

= Volume * 3-months BBB credit yield⁵³ / number of quarters in a year

= \$250m * 4.75% / 4

= \$2.97 m, equivalent to 0.119% (11.9 basis points) per annum assuming a debt portfolio of \$2,500 m.

Cost summary

Table 5.5 below summarises each of the above cost components.

Table 5.5 – Bond re-financing cost summary

Calculation element	Upfront cash cost for \$250m (\$m)	Annual cost for \$2,500m debt portfolio (bppa)
B1- Invested in bank credit risk		
3 month interest cost on new bond	4.14	16.6
BBSW interest income	(1.88)	(7.5)
Total cost if invested in BBSW and no redemption / buy back	2.26	9.1
B2 – Invested in govt' credit risk		
3 month interest cost on new bond	4.14	16.6
Commonwealth Government Security interest income	(1.82)	(7.3)
Total cost if invested in Government credit risk and no redemption / buy back	2.32	9.3
B3 – Invested in BBB credit risk		
3 month interest cost on new bond	4.14	16.6
BBB credit rated interest income	(2.97)	(11.9)
Total cost if invested in BBB credit risk and no redemption / buy back	1.17	4.7

Source: Bloomberg and PwC's analysis.

⁵² 3-month Commonwealth Government Securities, calculated as the average of the 20 business days to 15 March 2013.

⁵³ 3-month BBB yield, calculated as the average of 20 business days to 15 March 2013.

6 Conclusion: total debt raising transaction costs

6.1 Total debt raising costs

Table 6.1 below provides a summary of our estimate of the total debt raising costs associated with 60 per cent gearing, a BBB+ credit rating and a 10 year average term at issuance. For 10 issues in a bond programme amounting to \$2,500 million, the total debt raising cost is 23 bppa. Of the total amount, 9.9 bppa are contributed by direct debt raising costs, with 13.3 basis points contributed by indirect costs.

Table 6.1 – Summary of total debt raising costs (2013)

	1 issue	10 issues
Amount raised	\$250 m	\$2,500 m
Direct cost (bppa)	10.8	9.9
Indirect costs (bppa)		13.3
• Commitment fee		7.6
• Establishment fee		0.6
• Other debt issuance transaction costs		
– Legal counsel – borrower		0.1
– Legal counsel – bank		0.1
– Agency Fee		0.1
– Bank's out of pocket expenses		0.0
• 3 month early re-finance bond cost		4.7
Total debt raising cost (bppa rounded to nearest basis point)		23

Source: PwC analysis based on data from Bloomberg and interviews with legal firms, banks and credit rating agencies.

Technically, the representation of costs shown in Table 6.1 requires a new bond issue each year over 10 years, and therefore requires 10 issues. This implies that 60 per cent of the regulated asset base (RAB) of the business needs to be \$2,500 million, so that a bond of \$250 million is issued each year during the regulatory period. Since some regulated network businesses have debt portfolios that are smaller than \$2,500 million, the direct costs for these firms will need to be estimated by pro-rating the 10 bond issues down to match the size of benchmark debt implied by the RAB.

In Table 6.2 we show the effect of pro-rating for a business that has a RAB of \$2,000 million, which implies a benchmark debt value of \$1,200 million, and a benchmark 10 annual bond issues of \$120 million each. That is, demonstrating the impact for a business with lower amounts of debt, however continues to refinance a bond every year. Pro-rating the amount raised per bond issue down to \$120 million would raise the direct cost per issue to 12.4 bppa. Based on a programme of issuing 10 bonds, the total cost of issuance (including direct and indirect costs) would be 24 bppa.

Conclusion: total debt raising transaction costs

Table 6.2 – Example: Total debt raising costs for a benchmark debt of \$1,200 million

	1 issue	10 issues
Amount raised	\$120 m	\$1,200 m
Direct cost (bppa)	12.4	10.6
Indirect costs (bppa)		13.7
• Commitment fee		7.6
• Establishment fee		0.6
• Other debt issuance transaction costs		
– Legal counsel – borrower		0.3
– Legal counsel – bank		0.3
– Agency Fee		0.3
– Bank's out of pocket expenses		0.0
• 3 month early re-finance bond cost		4.7
Total debt raising cost (bppa and rounded to nearest basis point)		24

Source: PwC analysis based on data from Bloomberg and interviews with legal firms, banks and credit rating agencies.

In Table 6.3 we show the effect of total debt raising costs under various debt portfolio sizes.

Table 6.3 – Summary of total debt raising costs in bppa (2013)

Debt portfolio size	\$500 m	\$1,000 m	\$1,500 m	\$2,000 m
Direct cost	12.5	10.9	10.4	10.1
Arrangement fee	8.5	8.5	8.5	8.5
Other costs				
- Credit rating agency – Initial credit rating	0.2	0.1	0.1	0.1
- Credit rating agency – Annual surveillance	0.1	0.0	0.0	0.0
- Legal counsel – Master program	0.2	0.1	0.1	0.0
- Legal counsel – Issuer's	0.5	0.2	0.2	0.1
- Credit rating agency – Up front bond issue	0.8	0.8	0.8	0.8
- Registrar – Up front	0.6	0.3	0.2	0.2
- Registrar – Annual	1.6	0.8	0.5	0.4
- Agent's out of pocket expenses	0.1	0.0	0.0	0.0
Indirect costs	14.9	13.9	13.5	13.4
- Commitment fee	7.6	7.6	7.6	7.6
- Establishment fee	0.6	0.6	0.6	0.6
- Other debt issuance transaction costs	2.0	1.0	0.7	0.5

Conclusion: total debt raising transaction costs

Debt portfolio size	\$500 m	\$1,000 m	\$1,500 m	\$2,000 m
- 3 month early re-finance bond cost	4.7	4.7	4.7	4.7
Total debt raising cost (bppa and rounded to nearest basis point)	27	25	24	24

Source: PwC analysis based on data from Bloomberg and interviews with legal firms, banks and credit rating agencies.

Appendix A Terms of reference

Background

The Australian Energy Regulator (AER) is developing Rate of Return Guidelines that will form the basis of the regulated rate of return applied in energy network decisions. The AER published an issues paper in late December 2012 and a formal consultation paper in early May 2013 under the recently revised National Electricity Rules (NER) and National Gas Rules (NGR).

The AER undertook its last review of the weighted average cost of capital (WACC) in 2009 under a previous version of the NER.

As further detailed below, the Energy Network Association (ENA) would like to engage you to estimate the total debt financing costs for a benchmark efficient network service provider (NSP) within the scope of the allowed rate of return objective :

“[t]he 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 applied to the [Service Provider] in respect of the provision of [services]”

Scope of work

The ENA requests you to estimate the following costs:

- *Direct transaction costs* associated with a debt financing including but not limited to, costs such as upfront establishment fees paid to financiers and/or to arranging parties, legal fees, road-show costs, the credit rating fee applied directly to the financing transaction, trustee fees, registrar fees; and
- *Indirect transaction costs* associated with a debt financing including but not limited to, early financing costs, early redemption costs, and commitment fees associated with the maintenance liquidity reserves.

You are requested to provide the estimates of direct and indirect transaction costs assuming the financing is undertaken by an efficient NSP maintaining gearing (debt to RAB) at 60 per cent, and a credit rating of BBB+ (the current AER benchmark).

Indirect Transaction Costs

The ENA notes that indirect transaction costs may be defined as costs that an NSP incurs to maintain a BBB+ credit rating that therefore support an efficient interest cost and efficient direct costs incurred by an NSP in relation to its financing.

In considering the indirect transaction costs incurred by a NSP, the ENA requests you to consider the policies of the rating agencies, in particular the liquidity risk management and refinancing risk management policies. NSPs are required, to the extent that it avoids undesirable credit rating action by rating agencies, to adhere to such policies to maintain the BBB+ rating that supports all their debt financing activity. For example, in more recent years, Standard & Poor's has adopted a liquidity risk score that requires a certain level of available financing to be held by a NSP. The cost of this financial support, liquidity support, is an indirect cost to the NSP.

Terms of reference

NSPs also have risk policies that enable them to maintain a BBB+ credit rating by ensuring committed financing is available well in advance of any maturing debt. The ENA requests you to capture such costs within the pool of indirect transaction costs.

Annualised Costs

Once we have determined all direct and indirect financing transaction costs, the ENA requests you to estimate an annualised total debt financing cost for an efficient NSP, assuming that the NSP raises 10 year financing and that 1/10th of the financing is refinanced each year - i.e. a rolling 10 year approach to financing the NSP debt. You are also requested to indicate whether there are any further considerations that ought to be taken into account when determining the benchmark efficient debt financing cost; for example the size of the network service provider.

The ENA requests the consultant to provide a report which must:

- Attach these terms of reference;
- Attach the qualifications (in the form of a curriculum vitae) of the person(s) preparing the report;
- Identify any current or future potential conflicts;
- Comprehensively set out the bases for any conclusions made; and
- Only rely on information or data that is fully referenced and could be made reasonably available to the AER or others.

The ENA intends to submit the consultant report to the AER in response to the consultation paper. Accordingly the report will become a public report.

Contact

Any questions regarding this terms of reference should be directed to:

Nick Taylor (Jones Day)

Email: njtaylor@jonesday.com

Phone: 02 8272 0500

Appendix B CVs

Jeff Balchin

(Incenta Economic Consulting)

Managing Director

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Jeff is an economist at Incenta Economic Consulting. Jeff has almost 20 years of experience in relation to economic regulation issues across the electricity, gas and airports sectors in Australia and New Zealand and experience in relation to water, post and telecommunications. He has advised governments, regulators and major corporations on issues including the development of regulatory frameworks, regulatory price reviews, licensing and franchise bidding and market design. Jeff has also undertaken a number of expert witness assignments. His particular specialities have been on the application of finance principles to economic regulation, the design of tariff structures, the design of incentive compatible regulation and the drafting and economic interpretation of regulatory instruments.

In addition, Jeff has led a number of analytical assignments for firms to understand the responsiveness of consumers to changes to prices or other factors (like promotional activities) and to use this information to inform pricing strategy.

Relevant experience – Energy and Resources

- Strategic regulatory advisor – he has been a strategic adviser to regulators during a number of major price reviews, including the precedent setting early Victorian gas and electricity distribution price reviews (1998, 2001, 2003 and 2006). He has also been retained by regulated businesses to provide strategic advice during major regulatory reviews, including Australian electricity transmission businesses during several major reviews of their regulatory regime, for gas and electricity businesses during price reviews and for two major New Zealand firms (Powerco and Christchurch International Airports) during New Zealand regulatory reviews. Has also assisted a number of firms in relation to unregulated infrastructure, to justify their prices (providers) or to respond pricing proposals (customers) for infrastructure assets, including Dunedin Airport, Virgin Australia and SunWater.
- Review of regulatory regimes – has assisted major utilities during the review of regulatory regimes, including major assignments for the Australian electricity network businesses during the drafting and subsequent review of the regulatory regime for electricity networks.
- Regulatory finance issues – he has provided advice on a range of finance issues to regulators and regulate businesses, including major reviews of equity betas and deriving a benchmark cost of debt and complex valuation issues (including the proper specification of target revenue formulae). He has also provided extensive advice in relation to regulatory accounting issues, including the treatment of related party arrangements, provisions and revaluation gains, and on methodologies for allocating costs between activities. Similarly, he has provided extensive advice in relation to deriving an allowance for taxation for regulatory purposes. He has also provided substantial advice in relation to regulatory asset valuation and depreciation issues.
- Cost benefit studies – he has advised in relation to methodological issues in quantifying the economic costs and benefits of electricity distribution and transmission investment, including specific advices

on the treatment of green obligations and on the economic benefits of IT projects to make expanded use of advanced metering infrastructure.

- Incentive regimes – he has advised on the design of incentives for regulated businesses to minimise cost, undertake efficient service improvement and on the design of price controls (an objective of which is to create an incentive for firms to structure prices efficiently).
- Market structure – he was involved in the early debate around market structure in the Australian energy sector and assisted in the design of the ring fencing arrangements in place for the gas sector. More recently, he undertook a major review for the Victorian government on the need for continuing with special cross ownership rules for the energy sector.
- Analytical pricing activities – has undertaken assignments for a major Australian supermarket and department store to use analytical techniques to estimate the sensitivity of sales to prices and other factors (including promotional activities) from transactions data bases to assist in pricing strategy and to review the effect of pricing activities.

Qualifications and memberships

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

Michael Lawriwsky **(Incenta Economic Consulting)**

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:

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 South Australia 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:

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:

Federal Government Department – Strategic and governance review

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:

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.

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 – 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.

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



Matthew Santoro

(PwC)

Managing Director, Joint National Head - Debt & Capital Advisory

Tel: (03) 8603 4707

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Professional qualifications and memberships

- Bachelor of Economics (Honours), University of Adelaide
- Affiliate, Institute of Chartered Accountants

Career summary

Matthew has over 28 years of debt and capital markets experience, comprising over 20 years of corporate and institutional banking experience with Deutsche Bank and Citibank and the last eight years in an advisory capacity. Matthew is experienced in a wide range of financing and fundraising transactions, in particular in the area of project financing, acquisition financing, leverage financing, re-financings, property financing and procurement of debt capital markets instruments across the Australian, European and USA markets. His experience includes dealings with credit rating agencies such as Standard and Poor's and Moody's. Prior to joining PwC, Matthew established and was Joint National Head of KPMG's debt advisory practice for a period of five years.

Matthew has extensive experience in the utilities and energy sector, having been responsible for structuring, underwriting and syndicating multi-billion dollar financings for successful bidders during the privatisations of the Victorian and South Australian electricity industries. Debt transactions successfully completed during these privatisations cover the full spectrum of the industry; electricity generation, gas and electric distribution and gas and electric transmission and.

Relevant experience

- Debt structuring, arranging and procurement, onshore and offshore
- US Private Placement, Australian and European Bond markets
- Capital management
- Credit rating agencies



Steven Hong **(PwC)**

Manager

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Steven is a Manager in PricewaterhouseCoopers' Australian Economics practice with specific experience in regulatory economics and the application of economic and financial principles in regulation.

Prior to joining PricewaterhouseCoopers, Steven was a Senior Analyst at the Australian Competition Consumer Commission, where he was mainly responsible for providing financial and economic advice in regulatory projects.

Relevant experience

- **Regional development authority** – Steven is currently helping a development authority build an investment case for a piece of energy network infrastructure. Part of the project involves identifying the major drivers of investment and the exploring whether future developments in the drivers will support a case for a regulatory investment.
- **Energy Networks Association** – Steven is currently helping the Energy Networks Association (ENA) with a strategy for the future cost of equity. Recent changes to regulatory cost of capital determination procedures allowed the Australian Energy Regulator more freedom to determine the cost of equity. As a result, the ENA want to develop a strategy for future cost of equity proposals.
- **Queensland Competition Authority** – Steven is currently developing a first principles study into the cost of debt. The major issues behind this study is what yield should long-term debt be paying that is supported by financial and economic theory and empirical evidence.
- **Indonesian gas pipeline operator** – Steven helped prepare a submission on the likely return on equity expected by investors on an Indonesian gas pipeline in the past, considering issues such as how the capital asset pricing model would have been applied and whether international cost of equity values can be used as comparators.
- **Goulburn-Murray Water** – Steven helped Goulburn-Murray water develop its operating and capital expenditure forecasts for its third water plan. It involved collaborating with the operating, finance and capital expenditure teams within Goulburn-Murray water so that information can be collated and structured to explain to a regulator the cost forecasts for operating and capital expenditure.
- **Electricity and gas utilities** – Development of a methodology to estimate a regulatory debt margin in light of the current uncertainty of a fair value of long term bonds.
- **Energy Networks Association** – Assisted in producing a report that advised on the risks and implications of two possible incentive

mechanisms for capex during the AEMC's review of transmission frameworks. The two incentive frameworks are ex-post capex reviews and an efficiency carryover mechanism.

- **Investment consortium** – Steven helped advise an investment consortium on a bid for a regulated asset. Steven's major roles were to: review and identify risks in the asset's the pricing structure, and review the regulatory model that were used to project the asset's revenue in the future
- **Airline** – Steven assisted an airline in providing financial modelling and regulatory advice to help them negotiate aeronautical charges. The issues covered range from depreciation, allowance for funds used during construction and analysis of pricing models
- **Resources Company** – Steven assisted a resources company in negotiating gas tariffs for a pipeline that is about to be constructed.
- **Resources Company** – Steven helped a resources company re-negotiate gas capacity tariffs by modelling the impact on gas tariffs if they were to be regulated.
- **Resources Company** – Steven assisted a resources company in a gas tariff appeal whereby he modelled the impact of varying degrees of cost allocation. The outcome of this work secured a significant cost decrease by way of lower gas tariffs.
- **Powerco New Zealand** – Steven has assisted Powerco in New Zealand in a number of regulatory engagements in relation to the New Zealand Commerce Commission's review of input methodologies
- **Dunedin International Airport Limited** - Steven has helped Dunedin airport in preparing their pricing proposal to key stakeholders. In this, Steven played a key role in creating a regulatory modelling as well as drafting of the pricing proposal, covering topics such as cost allocation, cost of capital and financial modelling.
- **Kimberly Clark Australia** – Steven was involved in assisting in providing advice as to how an initial regulatory asset base would be set for a gas pipeline if it is to be declared.
- **Powerlink Queensland** – Steven helped Powerlink estimate how much it would cost to raise debt and equity. Steven is also helping to propose a methodology to estimate a debt risk premium in a situation where there is a lack of reliable information.
- **Aurora Energy** – Steven assisted Aurora Energy by writing their debt risk premium submission to the Australian Energy Regulator
- **Independent Market Operator WA** – Steven assisted 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.
- **Jemena Gas Networks** - Steven assessed 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.
- **Assorted energy companies and regulators** – Steven has prepared advice on the appropriate method to estimate a

benchmark cost of debt.

- **Christchurch International Airport Limited** - Steven is regularly engaged to provide advice to Christchurch International Airport Limited in relation to input methodologies as part of a regulatory review undertaken by the New Zealand Commerce Commission.
- **Air Services Australia** - Steven assisted the review of WACC parameters applicable for Air Services Australia
- **Snowy Hydro Limited** - Steven reviewed and updated the regulatory WACC parameters for Snowy Hydro Limited.
- **Queensland Competition Authority** – Steven was involved in assessing the financial model used to support a proposed infrastructure charges schedule
- **Queensland Competition Authority** – Steven has prepared advice on the appropriate method to estimate a benchmark cost of debt.
- **Airline** - Steven was involved in a high level review of the WACC assumptions and methodologies applied by three airports with respect to aeronautical pricing.
- **Essential Services Commission of South Australia** - Steven was involved in a review on the advantages and disadvantages of two methodologies to set an initial regulatory asset base.

Qualifications and memberships

- Bachelor of Commerce (Economics) with Honours, University of Melbourne
- Chartered Financial Analyst
- Institute of Public Administration, corporate member

