Debt raising transaction costs - Ergon Energy

June, 2014

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1. Executive Summary

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

The major findings of this review are as follows.

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

Taking the market research results of the recent PwC study of debt raising transaction costs relating to the RAB debt,[1] it is relatively straightforward to calculate a 9.9 basis points per annum allowance for Ergon Energy based on its opening RAB debt of $6,280 million.

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

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

While PwC and CEG have recently estimated that the liquidity reserve required to maintain an investment grade rating is respectively between 8.8 per cent and 14 per cent of the outstanding RAB debt, the methodology employed in both of those cases was to observe the undrawn committed bank lines and to assume that this was held for the purpose of meeting liquidity requirements.[2] However, this is an indirect method and could be subject to various biases. For example, undrawn bank facilities could be held by a firm that is contemplating new acquisitions, which therefore would not be held to meet liquidity requirements for an existing business.

Our approach has been to estimate the required liquidity premium in the same way that this is done by Standard & Poor's, but applied to the cash flows of the benchmark firm. That is, we have taken cash flow forecasts for Ergon Energy, and have solved for the quantum of undrawn committed bank lines that would be required to achieve a cash flow sources / uses ratio of 1.1x in each year of the new regulatory period, and achieve sources equal to uses if a 15 per cent reduction in EBITDA is

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

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

modelled, using the cash flow forecasts that are generated by the Australian Energy Regulator's (AER's) Post Tax Revenue Model (PTRM) for Ergon Energy's proposal for this purpose.

Applying this approach to Ergon Energy's benchmark cash flow forecasts, we found that over the forecast regulatory period of 2015-16 to 2019-20 the liquidity reserve required to achieve Standard & Poor's ratios needed to maintain an investment grade credit rating lies between 6.8 per cent and 8.0 per cent of benchmark RAB debt. The corresponding benchmark cost of maintaining the required liquidity reserve is estimated at 4.5 to 5.2 basis points (based on the level of benchmark regulatory debt) and a levelised cost of 4.9 basis points per annum relative to Ergon Energy's regulatory debt.

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

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

We also concur with PwC's approach to estimating the cost of re-financing 3 months ahead. In Table 9 in the main body of this report, we have used Ergon Energy's cost of debt assumption of 6.99 per cent, and assumed re-investment of the funds raised through the 10 year bond issue for 3 months in a BBB rated bond (which was 3.90 per cent based on the Bloomberg fair value for the 16 days to 26 May, 2014),[3] with the difference between these rates over the 3 month period being the cost of meeting the requirement. We have assumed that the funds are re-invested in 3 month bonds with the same credit rating so that the overall risk of the benchmark firm is not changed. This results in a lower cost than would be implied by reinvestment in Commonwealth Government bonds. Given the benchmark debt raising amounts derived in this report, this implies a cost equivalent to between 4.7 and 5.7 basis points per annum on the regulatory debt, and a levelised cost of 5.0 basis points per annum relative to Ergon Energy's regulatory debt.

1.4 Total debt-raising transaction costs

Our analysis indicates that based on the assumptions in this report, including Ergon Energy's assumptions about the cost of debt and its PTRM cash flow forecasts, the benchmark, non-margin components of the direct cost of debt (expressed in terms of basis points per annum on regulatory debt) is comprised of levelised amounts of:[4]

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[3] At the time of writing Bloomberg did not provide 3 moth BBB fair value yield data up to 30 May, 2014, and we have averaged the available 16 days of data up to 26 May, 2014.

[4] That is, using a generic discount rate of 10 per cent, we calculated the NPV of these transaction costs over the regulatory period and divided by the NPV of the RAB values over the same period to obtain a

- **9.9 basis points per annum** for the costs of issuing the bonds in an assumed debt portfolio of $6.28 billion (i.e. RAB debt);

- **4.9 basis points per annum** to establish and maintain bank facilities required to meet Standard & Poor's liquidity requirements condition for maintaining an investment grade credit rating; and

- **5.0 basis points per annum** to compensate for the requirement (again as a condition of maintaining an investment grade credit rating) that Standard & Poor's requires businesses to re-finance their debt 3 months ahead of the re-financing date.

Summing these three components of the total transaction costs over the regulatory period, we have estimated a total levelised cost of **19.7 basis points per annum** on the regulatory debt.

levelised cost in basis points per annum. Since the discount rate applied is the same in the numerator and the denominator, the resulting levelised cost is not sensitive to the choice of the discount rate (i.e. virtually the same result is obtained whether 10 per cent, or the WACC is applied).

2. Terms of Reference and outline of report

2.1 Terms of Reference

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

2.2 Outline of report

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

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

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

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

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

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

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

The 2004 ACG report to the ACCC observed that there are two major components of debt-raising transaction costs: [5]

- The arrangement/placement fees (arrangement fees) that are paid to investment banks to compensate them for their management of the bond issuance process; and

- Other costs that are associated with the bond issuance, including lawyers' fees and credit rating agency fees.

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

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

3.2 Subsequent analysis of debt raising transaction costs

Subsequent analysis of the debt raising transaction costs identified by ACG has found that the arrangement fee component of the total cost has been increasing. The PwC report undertaken for Powerlink in 2010 found that the arrangement fee component had risen from 5.5 basis points to 7.2 basis points,[6] and the Australian Energy Regulator (AER) accepted this.[7] More recently, PwC found

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

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

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

that the arrangement fee component has increased to 8.5 basis points, and that the standard bond issue has increased to $250 million.[8] This has not had a great impact on the overall estimated cost for a single bond issue, as the impact of 'other costs' has reduced. Hence, ACG's (2004) estimate of 10.4 basis point for a single $175 million bond issue compares with PwC's (2013) estimate of 10.8 basis point for a single $250 million bond issue. However, the relatively higher arrangement fee component found by PwC means that larger firms are now incurring higher debt raising transaction costs, which do not fall much below 9.9 basis points per annum.[9]

3.3 Benchmark debt-issuing transaction cost allowance

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

PwC found that Australian businesses issuing bonds in the US are incurring an arrangement fee in the order of 8.5 basis points per annum (bppa), which was found to be relatively invariant to size, term at issuance, or issuance size.[10] Based on interviews with legal firms, banks and credit rating agencies that are involved in the bond raising process, and charge fees for their services, PwC compiled the list of bond issuance transaction costs shown in Table 1 below.

Table 1: Other bond issuance transaction costs – Domestic (2013)

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

Source: PwC (2013), p.19.

The components are described as follows:

- *Legal counsel – Master program* – these are the legal costs for the preparation of a Master Program, which becomes the base document for multiple issuances over the next 10 years;
- *Legal counsel – issuer's* – these are legal fees for the preparation of documents under the Master Program;
- *Credit rating agency – Initial credit rating* – a fee to establish the credit rating;

8 (PwC (June, 2013), pp. i-iii.
9 PwC (June, 2013), p. iv.
10 PwC, (June, 2013), p.77.

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

PwC's survey of recent debt issuance by infrastructure businesses found that the standard bond issuance size is $250 million. With a Regulated Asset Base (RAB) of $10,467 million, and benchmark gearing of 60 per cent, Ergon Energy's benchmark debt level is $6,280 million. This implies that the benchmark firm would need to undertake 25 bond issues, each with an approximate issue size of $250 million.

As shown in Table 2 below, by applying PwC's observations of practice, the estimated benchmark debt-raising transaction cost would be 10.8 basis points for one bond issue of $250 million, and a cost of **9.9 basis points per annum** (bppa) for Ergon Energy's estimated 25 benchmark bond issues.

Table 2: Ergon Energy – benchmark debt-raising transaction costs (bppa)[11]

Number of bonds	Value	1 bond issued	25 bonds issued
Amount raised		$250 million	$6,250 million
Arrangement fee		8.51	8.51
Bond Master Program (per program)	$56,250	0.33	0.01
Issuer's legal counsel	$15,625	0.09	0.09
Company credit rating	$77,500	0.46	0.02
Annual surveillance fee	$35,500	0.14	0.01
Up-front issuance fee	5.20 bp	0.77	0.77
Registration up-front (per program)	$20,850	0.12	0.12
Registration - annual	$7,825	0.31	0.31
Agents out-of-pockets	$3,000	0.02	0.02
Total (bppa)		**10.8**	**9.9**

Source: Based on PwC (2013), p.19.

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

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

4.1 Liquidity requirement costs are 'direct'

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

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

We observe at the outset that the label of these cost items as 'indirect costs' is misleading. Both of these items represent cash costs that regulated entities are required to incur in order to meet and maintain the requirements for an investment grade credit rating (the actual requirements are discussed further below) and are therefore direct costs. Our discussion with Standard & Poor's has confirmed that it also considers these costs to be direct costs, which are fundamentally no different to the other direct costs associated with debt raising that have been recognised as direct cost in the past.[12]

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

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

The most cost effective means of creating and maintaining a liquidity reserve is to secure and retain bank debt facilities that are committed (meaning that they can be drawn upon immediately as needed) but undrawn. The quantum of committed but undrawn bank debt would reflect the requirements of the rating agencies, the specific details of which are discussed further in section 4.3.

In view of this, PwC, and later CEG, estimated the level of the liquidity buffer required to meet the requirements of the rating agencies by observing the levels of committed but undrawn debt on the balance sheets of regulated energy transmission and distribution businesses. As noted in the ENA's recent submission to the AER:[13]

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

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

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

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

- The observed level of committed but undrawn bank debt may in part reflect other objectives of the business – for example, APA Group is well known for its numerous acquisitions of additional pipelines, and may therefore be expected to pay for committed but undrawn bank lines that would enable it to take immediate advantage of new acquisition opportunities. This would mean that the observed committed but undrawn bank facilities may overstate what a benchmark business would require to meet the requirements of rating agency purposes.

- The regulated businesses used in the sample may have unregulated activities that may be more risky and require more liquidity buffer than the regulated component. This would also mean that the observed committed but undrawn bank facilities may overstate what a benchmark business would require to meet the requirements of rating agency purposes.

- In contrast, due to parental support, some firms may have a stronger financial position than is assumed for the benchmark firm, which would reduce the size of the bank facility required to maintain a liquidity reserve. This would mean that the observed committed but undrawn bank facilities may understate what a benchmark business would require to meet the requirements of the rating agency.

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

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

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

4.3 How Standard & Poor's derives the liquidity requirement

In its 2014 report titled, *Methodology and Assumptions: Liquidity Descriptors for Global Corporate Issuers*, Standard & Poor's describes how it assigns liquidity ratings to corporate issuers, and states that a minimum rating of 'adequate' is required in order to support an investment grade credit rating.[14] In order to establish the liquidity rating of a business, Standard & Poor's applies a forward looking estimate of the ratio of 'sources' of cash flow (designated as 'A') to the 'uses' of that cash flow (designated as 'B'), including debt re-financing. Specifically, an 'adequate' level of liquidity is indicated if:

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

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

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

Standard & Poor's assesses the cash flow forecasts for the business for the period 6 months ahead, and estimates the base case sources and uses of funds over that timeframe. To the extent that the liquidity requirements are not met from the cash flows, then the business would be required to supplement the 'sources' of cash until the liquidity requirements are met. In addition, if the actual level of sources falls short of the level needed to meet the liquidity requirement at any time in the future then the firm's investment grade credit rating would be placed under review. Hence, in order to maintain its investment grade credit rating, if it is falling short of the required liquidity levels, a firm would need to secure additional 'sources' until the liquidity requirements were met.

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

The primary concern of Standard & Poor's is a scenario in which capital markets are temporarily closed, so that re-financing of debt must be undertaken based on existing cash flow sources, taking

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

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

account of other uses of cash. As noted by Standard & Poor's, since 2008 there have been three occasions that did, or could have, had the potential to close down capital markets for a period of time:

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

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

- *Sources of funds* **-** The major source of cash flow of a business is its Funds Flow from Operations (FFO), which may be supplemented by working capital inflows (if positive), the proceeds of asset sales, an expected cash injection from a Government shareholder or parent company, or undrawn committed bank lines. During our meeting, Standard & Poor's stated that as a general rule it would not assume that a cash injection from a Government or major private shareholder would be forthcoming. Standard & Poor's would also expect that no proceeds are available from new debt issues or dividend reinvestment plans, since what is being modelled is a situation in which capital markets have shut down.

- *Uses of funds* – A major use of funds that is modelled is the forecast expected capital expenditure. Standard & Poor's told us that it takes the view that the capital expenditure that is expected to be undertaken is actually undertaken. Other significant cash uses are debt repayments, and dividend payments. The financial health of the business pivots around the need to repay debt when it falls due. The position of Standard & Poor's is that it would be difficult for the business to cut its dividend significantly in order to find the cash to repay a maturing debt.[16,17]

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

4.4.1 Our application of the bottom-up methodology

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

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

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

- *Sources of funds* – From the perspective of the PTRM model, the base case Funds Flow from Operations (FFO) for each year / 6 monthly period can be established by reference to the benchmark revenues, operating costs, cash taxes paid, and interest paid, all based on the benchmark gearing, weighted average cost of capital (WACC) and regulated asset base (RAB) assumptions.

- *Uses of funds* – Similarly, forecasted capital expenditure can be derived using Ergon Energy's PTRM. Turning to dividend payments, we observe that the AER's intention is to estimate dividends by reference to an assumed payout ratio of 70 per cent.

The last remaining assumption required is the level of debt financing (including refinancing) that is assumed to take place in the forecast period. While the level of new debt financing required in any regulatory year is reasonably straightforward – this is just the level of capital expenditure plus the net change in the RAB due to depreciation and inflation indexation[18] – the level of refinancing of existing debt requires assumptions about the timing of historical debt issuances. The higher the assumed quantum of debt financing, the lower the ratio of sources to uses of funds, and the higher the quantum of committed undrawn bank lines (i.e. the higher the costs associated with Standard & Poor's liquidity requirement). The assumption we have adopted is that the quantum of debt to be refinanced in regulatory year t is equal to the average provided by two proxies:

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

- 10 per cent of the closing RAB for year *t-10*.

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

Box 1: The debt re-financing assumption

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

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

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

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

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

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

We observe that:

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

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

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

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

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

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

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

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

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

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

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

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

The quantum of the required liquidity reserve

As discussed above, in order to estimate the benchmark quantum of bank debt that is needed by a benchmark firm in Ergon Energy's circumstances to satisfy the liquidity reserve required by Standard & Poor's, we have tested whether the forecasts of Ergon Energy's cash flows calculated according to the method described above meet the liquidity requirements. If the liquidity requirements are not met, we have calculated the additional 'sources' that would be needed to meet those requirements. Our results are set out in Table 3 below. As shown in Table 3, we estimate that the quantum of committed but undrawn bank lines needed to meet the liquidity requirements ranges from $503.8 million to $589 million over the next regulatory period, and between 6.8 per cent and 8 per cent of benchmark debt. As shown in the table, the second limb of Standard & Poor's liquidity requirements is the binding requirement in all years (although it is noted that the requirements of the second and first limbs are similar in all years).

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

PTRM model outputs:	2015-16	2016-17	2017-18	2018-19	2019-20
Revenue (Smoothed)	824.5	849.9	876.1	903.1	930.9
Operating costs	191.1	197.1	204.8	215.4	220.5
EBITDA	633.4	652.9	671.4	687.7	710.5
Sources:					
EBITDA	633.4	652.9	671.4	687.7	710.5
Less, Cash taxes	45.3	42.3	39.5	37.3	36.8
Less, Interest paid	130.0	139.1	148.4	156.1	162.1
Funds From Operations	458.2	471.4	483.5	494.3	511.6
Plus, Proceeds of asset sales	3.0	3.0	3.0	3.0	3.0
Total Sources (not incl. committed but unused bank lines):	**461.2**	**474.4**	**486.5**	**497.3**	**514.6**
Total Sources (not incl. committed but unused bank lines) EBITDA falls 15%:	**297.1**	**301.8**	**305.1**	**307.6**	**316.6**
Uses:					
Expected capital spending	486.5	486.3	476.7	461.2	484.2
Plus, Debt repayments	227.0	249.5	264.9	298.0	351.6
Plus, Dividend payments	126.4	128.7	138.1	137.2	140.0
Total Uses:	**839.9**	**864.5**	**879.8**	**896.5**	**975.8**
Committed undrawn bank lines for A/B = 1.1x*	462.7	476.5	481.3	488.8	558.7
Undrawn bank lines as % of debt	7.4%	7.1%	6.7%	6.4%	6.9%
Undrawn committed bank lines for A-B = 0 when EBITDA falls 15%	503.8	506.1	509.7	522.0	589.0
Undrawn committed bank lines as % of regulatory debt	8.0%	7.5%	7.1%	6.8%	7.3%

Source: Ergon Energy data and Incenta analysis

The commitment fee

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

While the core benchmark debt is observed (and typically therefore assumed) to be financed through long term corporate bonds, the debt that is used to provide a liquidity buffer must be bank debt. This reflects the fact that bank debt has the feature of being available at any time upon the payment of a commitment fee. In Table 4 below, we calculate the cost of the commitment fee to be 62 basis points, which is estimated as half of the spread between the Bloomberg BBB 3 year yield and the 3 year swap rate.

Table 4: Ergon Energy – Calculation of commitment fee (20 days to 30 May, 2014)

	Fee per annum
Bloomberg 3 year BBB yield	4.31%
AUD 3 year swap rate	3.10%
Bloomberg 3 year implied margin (proxy for bank debt margin)	1.24%
Commitment fee (50 per cent of margin)	0.62%

Source: Bloomberg and Incenta analysis

The commitment fees that would be required during each year by a firm with Ergon Energy's benchmark characteristics are shown in Table 5 below. That is, the bank facility required each year to support committed but unused bank lines in order to satisfy Standard & Poor's liquidity requirements (as calculated in Table 3 above) convert to a commitment fee (in dollars based on the 0.62 per cent per annum calculated in Table 4), which in turn convert to a basis points per annum fee (based on the outstanding debt component of the RAB). Undertaking these calculations we found that the commitment fee ranges from $2.9 million to $3.5 million per annum, or 4 to 4.6 basis points, and 4.7 basis points on a levelised basis.

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

	2015-16	2016-17	2017-18	2018-19	2019-20
Debt (60% of RAB) ($m)	6,280.4	6,754.6	7,215.1	7,654.1	8,087.5
Bank facility required ($m)	503.8	506.1	509.6	522.0	589.0
Commitment fee ($m)	2.9	3.0	3.0	3.0	3.5
Commitment fee (bppa on regulatory debt)	**4.6**	**4.4**	**4.1**	**4.0**	**4.3**
Levelised cost (bppa)	**4.7**				

Source: PwC (2013) and Incenta analysis

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

The third input to calculate the cost associated with the maintenance of a liquidity reserve is the upfront cost of establishing the bank debt facility. We have adopted the benchmark values that were estimated by PwC, which came to an annualised cost of $786,549 for 2015-16, or approximately 0.67 basis points.[19] The individual cost components and assumptions underlying the derivation of these figures are shown in Table 6 below.

[19] PwC (June, 2013), p.iv.

Table 6: Ergon Energy – establishment fee and other transaction costs associated with establishing a committed but unused bank debt facility for a debt portfolio of $6,280.4 million (2015-16)

	Basis	Cost	Annual	Bppa	Source:
Establishment fee	Up-front	$786,549.00	$316,283	0.50	PwC (2013): 0.17% x quantum of bank debt ($462.7) million, annualised with 10% discount rate
Other bank transaction costs:					
-legal counsel – borrower	Up-front	$86,667	$34,850	0.06	PwC (2013): annualised with 10% discount rate
-legal counsel – bank	Up-front	$90,000	$36,190	0.06	PwC (2013): annualised with 10% discount rate
-Syndication fee	Per annum	$30,000	$30,000	0.05	PwC (2013): annual syndication fee
-Bank's out-of-pockets	Up-front	$3,000	$1,206	0.00	PwC (2013): annualised with 10% discount rate
Total Annual Equivalent			$418,530	0.67	Basis points per annum

Source: PwC benchmark values and Incenta analysis

In Table 7 we show how the establishment fee and other transaction costs vary with the bank facility required during each year of the regulatory period. The maximum annualised cost is $484,205 in 2019-20 (coinciding with the highest liquidity requirement of $589 million in that year), implying a 0.60 basis points per annum cost based on regulatory debt. On a levelised basis, using a generic 10 per cent discount rate, we estimated an establishment fee and other costs component of 0.60 basis points per annum.

Table 7: Ergon Energy – establishment fee and other transaction costs (basis points per annum)

	2015-16	2016-17	2017-18	2018-19	2019-20
Establishment fee (annual equivalent)	316,283	325,720	329,001	334,128	381,959
Other bank transaction costs	102,247	102,247	102,247	102,247	102,247
Total annual equivalent costs ($)	418,530	427,967	431,247	436,375	484,205
Total annual equivalent cost (bppa)	0.67	0.63	0.60	0.57	0.60
Levelised cost (bppa) on regulatory debt	0.60				

Source: PwC (2013) and Incenta analysis

4.4.2 Benchmark cost of establishing and maintaining a liquidity reserve

Table 8 sets out our estimate of the benchmark cost to Ergon Energy of establishing and maintaining the liquidity reserve that would be needed to meet Standard & Poor's liquidity requirements. We found this cost to be between $3.3 million $4 million, which converts to a levelised cost of **4.9 basis points per annum** on the regulatory debt.

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

	2015-16	2016-17	2017-18	2018-19	2019-20
Commitment fee (annual equivalent)	2.87	2.96	2.99	3.04	3.47
Establishment fee & other costs	0.42	0.43	0.43	0.44	0.48
Total annual equivalent costs ($)	3.29	3.39	3.42	3.47	3.96
Total annual equivalent cost (bppa)	**5.2**	**5.0**	**4.7**	**4.5**	**4.9**
Levelised cost (bppa) on regulatory debt	**4.9**				

Source: PwC (2013) and Incenta analysis

5. Costs associated with re-financing 3 months ahead

5.1 No 'double-count' associated with 3 month ahead financing

In 2010, ETSA Utilities provided a report commissioned from PwC to the AER that discussed Standard & Poor's requirements with respect to the refinancing of maturing debt. It noted that the minimum period over which the refinancing would need to be completed prior to the maturity is 3 months. PwC also discussed three alternative approaches to ensure funding could be secured three months ahead of a re-financing, and provided benchmark cost estimates for each method. These methods were:[20]

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

PwC estimated the costs of each of these approaches, and determined that the lowest cost was obtained by adoption of the Completion Method.

The AER in that matter rejected ETSA Utilities' proposal. The AER was advised by Associate Professor John Handley on this matter, who considered that this would represent a 'double-counting' of costs that had already been provided by the AER elsewhere. Specifically, Associate Professor Handley observed that it was 'not clear why there should be allowance for both the costs of the Completion Method and gross underwriting fees'.[21] That is, Associate Professor Handley considered it likely that 'underwriting fees' had already been incorporated in the 9.1 basis point allowance that the AER had already provided to ETSA Utilities for 'debt raising costs'. This was because, according to Associate Professor Handley, the ACG (2004) report that had informed the quantum of the 9.1bp allowance, had already incorporated 'gross underwriting fees' within that amount. Based on this advice from Associate Professor Handley, the AER considered that the costs associated with the Completion Method for early re-financing were already incorporated into the 9.1 basis point provision for 'debt raising costs', and therefore disallowed this as an efficient cost.

However, the more recent PwC (2013) report undertaken for the ENA showed that Associate Professor Handley's objection to underwriting fees, and hence the AER's dismissal of the costs associated with implementation of the Completion Method, was founded on a misunderstanding of the term 'underwriting fees' as it was being applied by the ACG (2004) report.[22] The ACG report had applied the term 'underwriting fees' to describe 'arrangement fees', since this was the terminology

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

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

22 ACG (December, 2004), p. 38.

that had been applied by Bloomberg, which was the source of the data for this cost item.[23] However, the label 'underwriting fees' referred to in the ACG (2004) report actually refers to the fee that is paid to investment banks for the service of arranging the offer. Investment banks do not ordinarily underwrite corporate bond transactions (much less doing so 3 months prior to the issuance transaction taking place), rather the standard practice is for the yield on bonds at issue to be varied until all of the bonds are placed (which is referred to as a 'book build' process). Thus the fees that are referred to as underwriting costs actually have nothing to do with the ordinary concept of underwriting that was referred to by PwC (February, 2010) in its report on approaches that may be applied to satisfy Standard & Poor's requirement for the securing of funding three months ahead of a re-finance.

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

5.2 Estimated cost of 3 month ahead financing

As noted above, we consider that the methodology applied by PwC to estimate the cost of re-financing bonds 3 months ahead of their maturity is fundamentally sound. PwC (2013) argued that:[24]

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

PwC (2013) found that the annual net cost of re-financing one-tenth of this portfolio three months ahead was 4.7 basis points, which was the net outcome of:[25]

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

In Table 9 below we have used Ergon Energy's cost of debt assumption of 6.99 per cent, and assumed re-investment for 3 months in a BBB rated bond at 3.90 per cent (based on the Bloomberg BVAL fair value curve). This results in an early re-financing cost of 3.1 basis points per annum.

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

24 PwC (June 2013), p. 11.

25 PwC (June, 2013), p. 25.

Table 9: Bond re-financing cost summary for $250 million bond (20 days to 30 May, 2014)

Calculation element	Upfront cash cost for $250m ($m)	Cost for $6,280 debt portfolio (bppa)
3 month interest cost on new bond	4.37	
3 month BBB credit rated interest income	(2.44)	
Total cost if invested in BBB credit risk and no redemption/buy back	**1.93**	**3.1**

Source: Bloomberg, and Incenta analysis applying PwC (2013) methodology to Ergon Energy's cost of debt assumption

In Table 10 we show that the establishment fee and other costs are proportional to the size of the maturing component of the debt portfolio, ranging from $384.1 million to $596.0 million, which has been estimated based on principles outlined in section 4.4.1 above. Our estimates of these costs range from $2.97 million to $4.61 million, which convert to a range of 4.7 to 5.7 basis points per annum, or a levelised **5.0 basis points per annum** on regulatory debt over the period.

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

	2015-16	2016-17	2017-18	2018-19	2019-20
Maturing component of debt portfolio ($m)	384.1	420.4	442.0	499.3	596.0
Establishment fee & other costs ($m)	2.97	3.25	3.42	3.86	4.61
Total annual equivalent cost (bppa)	**4.7**	**4.8**	**4.7**	**5.0**	**5.7**
Levelised cost (bppa) on regulatory debt	**5.0**				

Source: PwC (2013) and Incenta analysis

6. Total debt-raising transaction costs

In this section we bring together the three sources of debt-raising transaction costs, and combine them to calculate the levelised cost (in basis points per annum) relative to benchmark forecast debt values taken from Ergon Energy's PTRM. In Table 11 below we show the estimated total dollar value debt raising transaction costs (ranging from $12.5 million to $16.5 million) and the equivalent values in terms of basis points per annum, based on the regulatory debt (which ranges from 19.3 bppa to 20.4 bppa). The total levelised debt raising transaction cost of **19.7 basis points per annum** has been derived by taking the estimated $58.6 million net present value (NPV) of the benchmark total debt transaction costs relative to the NPV of outstanding benchmark debt over the regulatory period ($29,658 million) using a generic 10 per cent discount rate.

Table 11: Ergon Energy – total debt raising transaction costs (basis points per annum)

	2015 - 2016	2016-2017	2017-2018	2018-2019	2019 - 2020
Debt raising transaction costs ($m)	6.2	6.7	7.1	7.6	8.0
Liquidity - commitment fee ($m)	3.3	3.4	3.4	3.5	4.0
3 month ahead financing costs ($m)	3.0	3.2	3.4	3.9	4.6
Total debt raising transaction costs ($m)	**12.5**	**13.3**	**14.0**	**14.9**	**16.5**
Debt raising transaction costs (bppa)	9.9	9.9	9.9	9.9	9.9
Liquidity - commitment fee (bppa)	5.2	5.0	4.7	4.5	4.9
3 month ahead financing costs (bppa)	4.7	4.8	4.7	5.0	5.7
Total debt raising transaction costs (bppa)	**19.8**	**19.7**	**19.3**	**19.4**	**20.4**
Levelised debt raising transaction costs (bppa)	**19.7**				

Source: Ergon Energy data and Incenta analysis