

Financial and Strategic Review of Hydro
Tasmania's Capital Structure and Investment
Funding Requirements

Hydro Tasmania

13 May 2008

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1. Overview

In recent years, Hydro Tasmania's financial position has weakened due to a number of factors including:

- ▶ Difficult hydrological conditions which have had an adverse impact on Hydro Tasmania's financial position via the need to increase both the level of generation at the Bell Bay Power Station and the level of electricity imports over Basslink;
- ▶ A highly contracted position in the Tasmania market coupled with low contracted prices for large customers and high energy prices in the National Electricity Market in the 2007 financial year; and
- ▶ Increasing capital expenditure requirements on core hydro-electric assets as they approach mid-life.

Given these pressures, Hydro Tasmania has sought an equity injection from the Government which would initially enhance its capital structure, as well as providing scope to fund incremental capital expenditure and equity contributions to the Roaring 40s joint venture with China Light & Power, with operating and development wind farm projects in Tasmania, South Australia, China and India.

In order to consider the merits of Hydro Tasmania's request for an equity injection, the Government is undertaking a financial and strategic review, focusing on Hydro Tasmania's current and projected capital structure.

This review is also to consider the impact on Transend Networks' capital structure should a decision be made to transfer some of its equity to Hydro Tasmania, taking into account higher borrowings on its capital expenditure programme.

In addition, the likely impact of any equity restructuring on the State's credit rating is also to be considered.

In this context, Ernst & Young Transaction Advisory Services Limited ("E&Y") has been asked to:

- ▶ Review the appropriateness of Hydro Tasmania's capital structure in the context of its ongoing capital expenditure program and funding for growth opportunities, specifically its participation in the Roaring 40s joint venture ("JV"); and
- ▶ Determine the conditions needed to ensure any equity restructuring is consistent with maintaining the State's Aaa/AA+ credit ratings.

In addition to this, E&Y has also been asked to consider the scope for withdrawing equity from Transend Networks ("Transend") should a decision be made to transfer some of its equity to Hydro Tasmania.

In undertaking this review, E&Y has focussed on the standalone credit ratings of Hydro Tasmania and Transend without the implied credit support provided by the Government. In this regard, we note the following:

- ▶ The primary rationale for credit rating companies is to allow debt and equity investors to appropriately price counterparty credit risk. In this regard, the level of implied credit support provided by Government ownership is a key consideration;
- ▶ From an external counterparty perspective, the focus will be on the credit ratings of Hydro Tasmania and Transend incorporating all key factors. These factors will include ownership structure and all forms of credit support, both implicit and explicit; and
- ▶ From the State's perspective, ratings agencies will focus on the State's net financial liabilities including the impact of public trading enterprise net financial liabilities. The State's Energy Businesses will be viewed on a portfolio basis and the respective capital structures of Hydro Tasmania and Transend will not be a key driver of the State's credit rating apart from any implications in terms of supporting an enhanced investment program by a generation business.

However, despite the lack of immediate practical impact of the standalone credit ratings of Hydro Tasmania and Transend, E&Y consider that such measures are important because:

- ▶ They provide incentives for the respective businesses to operate on a sound commercial basis;
- ▶ They allow the businesses to be appropriately benchmarked against their private sector peers in terms of key return parameters (e.g., return on equity, dividend yield) and public sector peers on a like-for-like basis;
- ▶ Standalone analysis is based on the cash generation performance of a business rather than relying on implicit credit support arrangements; and
- ▶ Having appropriate standalone capital structures in place simplifies any future restructuring in the State's portfolio.

2. Qualifications and Limitations

This report has been prepared solely for the purpose set out in this report. In accordance with our normal practice, we hereby expressly disclaim liability to any persons other than the Department of Treasury and Finance. The information contained in this report may not be relied upon by anyone other than Department of Treasury and Finance in any manner whatsoever without the prior written consent of Ernst & Young Transaction Advisory Services Limited.

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The conclusions are based on the assumptions stated and on information provided by the Department of Treasury and Finance and/or Hydro Tasmania and Transend Networks. Neither Ernst & Young Transaction Advisory Services Limited, Ernst & Young nor any member or employee thereof undertakes any responsibility in any way whatsoever to any person in respect of errors in this report arising from incorrect information provided by the Department of Treasury and Finance and/or Hydro Tasmania and Transend Networks or in respect of the failure of any forecasts or projections in being achieved.

The preparation of this report did not include an audit of any of the financial models or information provided to us and E&Y has not undertaken any procedures that should be construed as forming part of any such audit. It is usually the case that some events and circumstances do not occur as expected or are not anticipated. Therefore, actual results will almost always differ from the forecasts and such differences may be material. To the extent that our conclusions or comments are based on forecasts, we express no opinion on the achievability of those forecasts.

E&Y has also not been required to, nor do we, express any opinion on the validity of the underlying commercial assumptions or risks, or on the possibility of the financial projections being achieved, and this report therefore provides no comfort on these matters.

3. Methodology

In accordance with E&Y's terms of engagement, we are pleased to present our Financial and Strategic Review into the appropriateness of the current capital structures for Hydro Tasmania and Transend and the implications for Hydro Tasmania's request for an equity injection.

In accordance with the terms of reference as set out in our **Contract for Services**, our approach to this engagement has included the following key steps:

- ▶ Receiving from Hydro Tasmania, via the Department of Treasury and Finance, a range of scenarios covering revenue, operating cost and capital cost assumptions.;
- ▶ Building the scenario assumptions into a 5 year forecast financial model to measure the impact on a range of key financial ratios as well as on the running cash balance;
- ▶ Comparing the model results against the Standard & Poor's ("S&P") international guidance of typical ratio ranges for the various utility sectors to determine the equity injection required to allow Hydro Tasmania to target an investment grade rating of "BBB";
- ▶ Using the downside scenarios to determine the minimum equity injection required to ensure a capital position for the Hydro Tasmania business on a standalone basis that can deal with ongoing hydrological risk;
- ▶ Commenting on the strategic implications of investing varying amounts of equity to support the standalone Hydro Tasmania business;
- ▶ Analysing the potential impact on Transend Networks' capital structure should a decision be made to transfer some of its equity to Hydro Tasmania, taking into account the impact of higher borrowings on its regulated capital expenditure program; and
- ▶ Analysing the potential impact on the State's financial position of investing varying amounts of equity to support the Hydro Tasmania business both on a standalone basis and including the Roaring 40s requirements.

4. Hydro Tasmania Standalone - Findings

4.1 Context

Hydro Tasmania is a Government Business Enterprise (“GBE”) owned by the State of Tasmania. It is Australia’s leading renewable energy company, principally generating renewable energy and providing consulting services for environment and catchment management, renewable energy and power engineering. Hydro’s business model is based on:

- ▶ An asset backed trader model, utilising a generating capacity of 2615 megawatts (“MW”) to sell electricity and electricity derivatives products in the Australian National Electricity Market (“NEM”). Hydro Tasmania has back-to-back contacts with retailers for a significant proportion of the Tasmanian load to support contracts with major industrial (“MI”) clients;
- ▶ Utilising Basslink to export electricity at peak periods as well as importing electricity to manage dam levels. This has exposed the business to additional merchant risk as well as exposure under the Basslink Services Agreement and Facility Fee Swap and the concomitant risk sharing arrangements;
- ▶ Under the brand Hydro Tasmania Consulting, engineering and environmental consulting services are provided to a world-wide market in the areas of renewable energy, hydropower and transmission developments and environmental and water management; and
- ▶ Participation in the Roaring 40s joint venture with China Light & Power, with operating and development wind farm projects in Tasmania, South Australia, China and India.

In the 12 months to June 2007, Hydro Tasmania experienced one of its worst years on record in terms of poor inflows and declining storage levels, which fell below 20 per cent full for the first time since 1967.

Because of the continued low rainfall, the Annual Report 2007 reports that Hydro Tasmania’s cash flow as measured after receipts and payments to suppliers and employees was \$87.1 million below the previous year at \$134.5 million.

The need to support its contractual position under an asset backed trader model required Hydro Tasmania to increase Basslink imports and utilisation of the Bell Bay Power Station. At the same time, prices in the NEM increased significantly during the year, adding considerable cost to Basslink imports, with spot prices in Victoria increasing by 68.8 per cent on the 2006 financial year.

4.2 Strategic Issues

Under the *Government Business Enterprises Act 1995*, Hydro Tasmania is required to operate on a sound commercial basis. Hydro’s risk preference is to target a “BBB” (investment grade) credit rating.

This risk preference is seen by Hydro Tasmania to be an appropriate target to ensure that it can meet its financial obligations such as finance charges and dividend payments.

It can be seen in the table below where in the credit risk continuum Hydro Tasmania is looking to target:

Long Term Rating

AAA (highest possible rating)
AA
A
BBB
BB
B
CCC

Capacity to Meet Financial Obligations

Extremely Strong
Very Strong
Strong
Adequate
Speculative - Less Vulnerable
Speculative - More Vulnerable
Speculative - Very Vulnerable

In our view a “BBB” rating is a reasonable target for Hydro Tasmania. We note that similar targets are common for other GBEs such as Delta Electricity and Macquarie Generation. However, we also note that it is common for the credit ratings of these GBEs to drop below the “BBB” target for extended periods, particularly following financial close on major capital intensive projects. In general, if a business’ credit rating is forecast to recover to “BBB” over a 3 to 5 year time horizon the GBE is considered to be appropriately managing its capital structure. However, the external environment may ultimately prevent the business from reaching a financial position consistent with its targeted “BBB” rating.

In addition, it should be noted that generation companies cannot gear themselves as highly as regulated asset companies due to their exposure to a range of market risks such as:

- ▶ generator performance/availability risk;
- ▶ pool price risk;
- ▶ input cost (coal, gas, water) risk; and
- ▶ input supply risk.

They are also commonly viewed in the marketplace as growth rather than yield assets. These factors mean that these types of businesses generally exhibit lower credit ratings than regulated transmission or distribution businesses.

4.3 Review of Existing and Forecast Capital Structure

4.3.1 Capital Injection to Achieve a “BBB” Rating

Based on our analysis, an equity injection of between \$185m and \$495m to reduce debt is required to allow Hydro to achieve a “BBB” rating by the end of the 5 year forecast period. This analysis is based on a range of inflow scenarios provided by Hydro Tasmania.

We note that Hydro Tasmania has indicated that there is more chance of achieving the low inflow case than the high inflow scenario it provided for this review, and there is a risk that recent hydrological conditions, if sustained, will lead to a further downgrade of long term average inflows and consequential deterioration in revenue forecasts.

A prudent approach would be to review the situation in mid 2009 as the ongoing hydrological situation can be considered.

4.4 Hydrological Risk Reserve

In addition to the scenarios referred to above, Hydro Tasmania has provided E&Y two additional downside scenarios:

- ▶ Downside Scenario 1: 80% inflows in 2008 and 2009 with inflows reduced to 92% in the final two years; and
- ▶ Downside Scenario 2: 70% inflows in 2008 and 2009 with average inflows (returning to 9,500GWh per annum) from that point onwards.

We have been informed by Hydro Tasmania that the Downside Scenario 2 approximates a 90% lower confidence limit on the five year flow projection. That is, an inflow scenario equal to or worse than Downside Scenario 2 has only a 10% likelihood of occurring.

Our earlier analysis was focussed on achieving a “BBB” credit rating over the forecast period. However, the hydrological risk analysis is focussed on ensuring that the business cashflows under the two downside scenarios are sufficient to ensure the business meets agreed debt service cover ratios on a recurring basis.

For this purpose we have chosen a cash interest cover ratio (ratio of operating cashflow to interest) of 1.1 times as the minimum target for a sustainable level of debt under downside conditions. The cash interest cover ratio is a widely used cash measure indicating the ability of a company to service ongoing debt obligations. A ratio of 1.1 times is a common lock-up/default trigger in relation to non-recourse debt structures where credit support from the parent entity is not available (i.e. standalone project-based debt funding).

In each scenario we have calculated the additional cashflow that would be required by Hydro Tasmania to bring the Cash Interest Cover to 1.1 times in each year over the forecast period. We have then discounted these amounts at Hydro Tasmania’s cost of debt to arrive at the amount that would need to be reserved/set aside in the 2007 financial year to ensure that the Cash Interest Cover requirement is not breached over the 5 year forecast period.

The results of the analysis are that an amount of approximately \$100m would need to be set aside via an equity contribution to Hydro Tasmania or some other form of cashflow support (which may include suitable standby facilities with Tascorp or other financiers).

We consider this to be the minimum required contribution if it is determined that a larger equity contribution should not be made to target a “BBB” rating over the forecast period.

4.5 Funding headroom

If an equity injection is made of between \$185m and \$495m to reduce debt, Hydro Tasmania will be provided with debt headroom under the existing Tascorp lending covenants.

Hydro Tasmania will be able to access this additional borrowing capacity to upgrade infrastructure or support revenue enhancing projects such as Roaring 40s subject to maintaining a buffer emergency borrowing capacity. This buffer can be sized on the required liquidity to ensure a sustainable capital structure.

In the absence of any conditions imposed on the equity contribution to Hydro Tasmania, new borrowing limits set by the Government, or Tascorp adjusting its lending covenants, Hydro Tasmania can draw down these amounts at its discretion.

4.6 Recommendations

Our key findings are as follows:

- ▶ Hydro Tasmania's target "BBB" credit rating is appropriate;
- ▶ Analysis based on Hydro Tasmania's Corporate Plan forecast shows that Hydro Tasmania would likely have a standalone rating in the "BB" range;
- ▶ To achieve financial ratios that would support a "BBB" credit rating using typical Standard & Poor's ("S&P") benchmarks (see appendix 1) over the 5 year forecast period, a capital injection ranging from \$185m to \$495m is required based on a range of revenue/inflow scenarios as provided by Hydro Tasmania.

Our key recommendations are as follows:

- ▶ An equity injection of \$185m to \$495m is required to repay debt to allow Hydro Tasmania to achieve a "BBB" rating over the forecast period. However, it appears that funds available are currently limited to a range of \$220m to \$270m (see comments on Transend below);
- ▶ Based on the analysis E&Y has done in relation to two downside scenarios provided by Hydro Tasmania, the hydrological risk reserve (excess borrowing capacity) that should be set aside is approximately \$100m. We note that this reserve may also be met by alternative arrangements such as standby facilities if such an approach is preferred;
- ▶ This leaves available funding headroom which will depend on the amount of equity ultimately transferred. This additional borrowing capacity may be used to upgrade infrastructure or support revenue enhancing projects such as Roaring 40s subject to any conditions imposed on the use of the transferred capital, new borrowing limits or governance arrangements (see comments on State of Tasmania below). However, utilisation of this headroom without generating sufficient cashflow improvements to support the increased debt burden will put at risk achievement of a "BBB" rating by the end of the forecast period; and
- ▶ Hydro Tasmania's capital structure should be reviewed in mid 2009 to allow the hydrological situation and the implications for Hydro Tasmania to be reviewed.

5. Transend - Findings

5.1 Context

Transend Networks Pty Ltd (“Transend”) is owned by the State of Tasmania and owns and operates the electricity transmission system in Tasmania. It owns 3650 circuit kilometres of transmission lines, 47 substations and nine switching stations.

Transend is registered with the National Electricity Market Management Company as a participant in Australia’s National Electricity Market (“NEM”). The NEM operates on an interconnected power system that extends from Queensland to South Australia. Tasmania is connected to the NEM via Basslink.

Transend’s core business of electricity transmission is a regulated monopoly. Transend submits a revenue proposal to the Australian Energy Regulator (“AER”) every five years. The next submission is due in May 2008 to cover the period 1 July 2009 to 30 June 2014.

The revenue proposal and decision process is an integral part of the corporate planning process. Planning for the next revenue cap is an ongoing requirement. Transend must constantly assess progress against the current revenue cap and plan for what must be achieved in future revenue caps.

5.2 Strategic Issues

Transend is a State-owned Corporation which under the Electricity Companies Act 1997 is required to operate on a sound commercial basis. Transend’s risk preference is to target achieving financial ratios that would support at least an “A” rating as being consistent with the ratings typically achieved by electricity transmission companies.

This relatively low risk preference is seen by Transend to be an appropriate target to ensure that Transend can meet its financial obligations such as finance charges and dividend payments and to ensure that Transend generates sufficient retained earnings to support its ongoing capital expenditure program.

Transend’s current dividend policy is to return 50 per cent of net profit to shareholders. Given the company’s substantial capital program, which requires the company to borrow significant sums each year, the board has decided that this policy should be maintained.

If the dividend pay-out ratio were to exceed 50 per cent, Transend would need to further increase debt to fund its capital program and any growth strategies. This assumes that debt is the only source of funds other than retained earnings and that additional equity is not an available option given the shareholders’ current policy of retaining 100 per cent ownership of the company.

E&Y also notes that estimates of the cost of equity capital for regulated entities assume, implicitly, that the form of the equity offered by regulated businesses is similar to that observed in private firms (and, most notably, the listed entities). A characteristic of these firms is that high and stable yields (i.e. distributions to shareholders) are provided.

An “A” rating for these firms is often an outcome of a capital structure that:

- ▶ Seeks to leverage up equity returns through increasing debt while still allowing a stable, low risk return to be provided to investors; and
- ▶ Allows relatively lower cost, long tenor bond financing to be accessed.

In our view, a minimum “A” rating is a reasonable target for Transend to ensure it operates on a sound commercial basis. The requirement to support the ongoing capital program required to sustain this capital intensive business through debt and retained earnings indicates that a conservative capital structure profile should be maintained.

We note that there has been contention among academics and practitioners on the appropriate credit rating target for a transmission company. For example, there has been extensive recent debate on whether “A” or “BBB+” is the maintainable credit rating for a transmission company at a 60% benchmark gearing level¹. In recent regulatory decisions the Australian Energy Regulator has applied a “BBB+” rating to calculate the appropriate debt credit margin for use in calculating the required regulatory return.

The “A” rating is broadly defined for S&P’s quantitative ratings criteria, and effectively covers the range from “A+” to “A-”. To deal with this issue E&Y has targeted maintaining key credit rating ratios above the bottom of the range for an “A” rating. This means that we are targeting a credit rating never goes below the cusp between a rating of “A-” and “BBB+”.

5.3 Review of Existing and Forecast Capital Structure

5.3.1 Forecast Capital Structure

Based on our analysis, additional debt of between \$220m and \$270m can be borne by Transend without putting at risk a standalone “A” rating, ignoring any implicit support provided by Government ownership. This analysis is based on a range of scenarios provided by Transend.

It should also be noted that next regulatory revenue submission to AER is due in May 2008 to cover the period 1 July 2009 to 30 June 2014. This raises additional revenue risk that must be borne in mind when raising additional debt at the Transend level.

5.4 Recommendations

Our key findings are as follows:

- ▶ Transend’s target “A” credit rating is appropriate;
- ▶ Analysis based on Transend’s forecasts show that Transend currently has a very strong financial structure, well in excess of what is required for an “A” rated transmission company;
- ▶ This raises the potential to draw down additional debt in Transend which can be contributed to Hydro Tasmania in the form of an equity injection which Hydro Tasmania will use to repay debt; and
- ▶ In determining the amount of additional debt that Transend can bear, E&Y has targeted maintaining key credit rating ratios above the bottom of the range for an “A” rating. This means that we are targeting a credit rating that never goes below the cusp between a rating of “A-” and “BBB+”, which is consistent with recent regulatory decisions by the Australian Energy Regulator;

Our key recommendations are as follows:

¹ For example, see:

Allen Consulting Group (2006) Credit rating for a benchmark electricity transmission business. report to the Electricity Transport Network Owners Forum, May 2006; and

Lally, M (2006) The appropriate Credit rating for Australian Transmission Businesses, Report to the Australian Energy Regulator, March 2006.

- ▶ Our analysis indicates between \$220m and \$270m of additional debt can be borne by Transend without putting at risk a standalone “A” rating based on a range of scenarios provided by Transend.; and
- ▶ Transend’s capital structure should be reviewed in 2009 when the outcome of Transend’s regulatory submission to the AER in May 2008 to cover the period 1 July 2009 to 30 June 2014 is known.

As noted earlier, Hydro Tasmania requires an equity injection of between \$185m and \$495m on a stand-alone basis to reach a “BBB” rating. However, Transend’s additional borrowing capacity is restricted to between \$220m and \$270m. This raises an important policy issue for the Government to consider.

6. Implications for Tasmania's Financial Position – Findings

6.1 Review of Existing Financial Position

According to a Standard & Poors RatingsDirect report on the State of Tasmania as at September 18, 2007, the State has an Issuer Credit Rating of AA+/Stable/A-1+.

Key features of the financial position of the State referred to in the report include:

- ▶ A strong liquidity position, with liquid assets as at June 2007 of \$A3.9bn against maturing debt in fiscal 2008 of \$A2.4bn;
- ▶ A strong core government debt balance sheet; and
- ▶ A large public trading enterprise sector, the revenue from which tends to carry greater risk than standard government taxes.

6.2 Review of Impacts

As an initial comment we note that ratings agencies focus on the marginal effect on the recurrent cash flow of a Government Business Enterprise of a capital allocation transfer, rather than the form used to complete the transaction. For example, if the only effect of a capital transfer between Transend and Hydro Tasmania was a change in the characterisation of debt and equity on the entities' balance sheets then the transaction would have little or no ratings impact. The only change would be in the form that the operational cash flow of these businesses would be distributed to Tasmanian Treasury (i.e. the split between debt servicing and dividend payments).

However, the ratings agencies will closely monitor any additional expenditure or investment implemented as a result of the increased borrowing capacity that a capital transfer will permit.

S&P typically view generation assets as higher risk than regulated transmission assets and hence would focus additional analysis on any transfer of capital between GBEs that facilitate an enhanced investment program by a generation business. To the extent that equity is transferred from Transend to Hydro Tasmania to support the Roaring 40s JV, due to the long lead time to cash generation and the country risk profiles involved, S&P would likely view such a transfer as an additional borrowing at the State level.

In this context, any strategic decision by the State to invest excess equity held by Transend in Roaring 40s, must be carefully considered.

We note that it may be prudent to engage with S&P to the test its view on the value it would attribute to the future cashflow (2011 and 2012) that Roaring 40s will generate in determining the additional debt that this cashflow can support.

The timing and magnitude of any equity transfer from Transend to Hydro Tasmania should take into account rating agency feedback, after considering the State's additional forward capital

expenditure commitments.

6.3 Recommendations

The Department of Treasury and Finance should ensure that any capital restructuring of Transend and Hydro Tasmania is viewed not in isolation but as a part of the State's overall funding program over the next five years.

In this respect we make the following findings:

- ▶ In principle, a straight transfer of equity from Transend to Hydro Tasmania should not have an impact on the State's rating to the extent it represents a rebalancing of capital structures and the underlying businesses do not undergo significant change;
- ▶ S&P typically view generation assets as higher risk than regulated transmission assets and hence would focus additional analysis on any transfer of capital between GBEs that facilitate an enhanced investment program by a generation business; and
- ▶ To the extent that equity is transferred from Transend to Hydro Tasmania to support the Roaring 40s JV, due to the long lead time to cash generation and the country risk profiles involved, S&P would likely view such a transfer as an additional borrowing at the State level.

Our key recommendations are as follows:

- ▶ Conditions should be imposed on the use of the capital transferred from Transend to Hydro Tasmania and associated debt funding headroom including new borrowing limits and governance arrangements;
- ▶ Robust financial analysis should be undertaken of the whole-of-State effects of the transfer;
- ▶ Ratings agencies may be engaged ahead of the implementation of a capital restructuring, and any decision made on the magnitude of the equity transfer should take the ratings agencies views into account; and
- ▶ Given hydrological risks for Hydro Tasmania and regulatory risks for Transend, the respective capital structures should be reviewed in mid 2009.

It is our view that ratings agencies react much more favourably when they are consulted and stepped through a GBE capital structure transaction.

Appendix 1 - Standard & Poors International Utility Ratings and Ratios

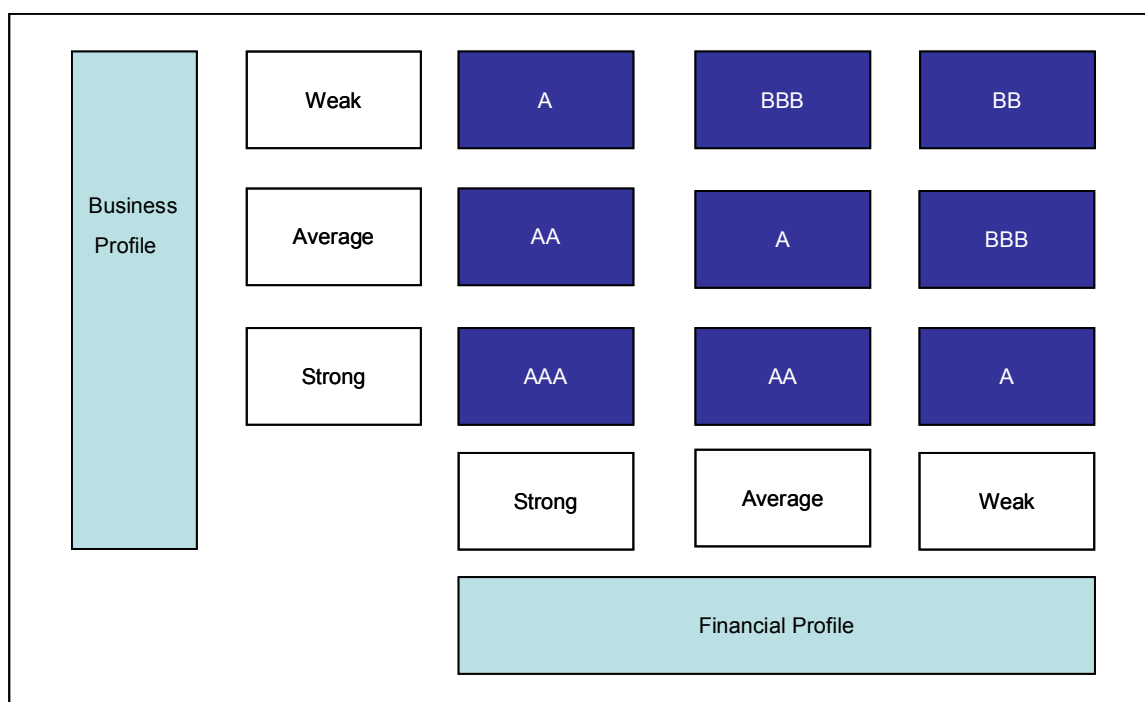
S&P has issued guidance of typical ratio ranges for the various utility sectors. In this section, we outline S&P credit rating ratio ranges relevant to this review.

1. General S&P Ratio Rating Methodology

In order to evaluate credit risks, S&P's ratings methodology for power utilities incorporates a business profile (qualitative analysis) and financial profile (quantitative analysis). The two components are linked. Generally, S&P sees tightly regulated distribution utilities as facing lower-than-average business risk, and tend to exhibit stable revenues and sound profitability. Conversely, generation and retail supply companies operating in a very competitive environment face higher business risks with potential pressure on margins as well as cash flow volatility.

The financial analysis is predominantly quantitative, although also takes into account a company's financial policies (such as dividend payout policy, interest and debt maturity profiles, foreign exchange policy and capital structure policy) and financing flexibility (including an assessment of a company's access to capital markets).

S&P uses financial and business profiles of strong, average and weak as illustrated in the matrix below.



The matrix above indicates that in order to maintain a "A" credit rating for example, the weaker the business profile of the organisation the stronger the required financial profile and vice versa.

2. Financial Ratio Ranges for Electricity Utilities

Observed financial ratio ranges for various electricity utilities operating in the developed, disaggregated markets of Continental Europe and Australasia are outlined below. It should be

noted that many utility ratings are influenced by their ownership structure (eg. Strongly rated regional government ownership may strengthen rating).

For Generation Utilities	A	BBB	BB
Pretax interest cover (x)	4.0 to 6.0	3.0 to 5.0	2.0 to 3.5
FFO interest cover (x)	5.5 to 8.0	3.5 to 5.5	2.5 to 4.0
FFO to total debt (%)	30 to 45	20 to 35	10 to 20
Total debt to total capital (%)	20 to 30	30 to 45	35 to 50
For Transmission Utilities	AA	A	BBB
Pretax interest cover (x)	2.0 to 3.0	1.5 to 2.5	1.0 to 1.7
FFO interest cover (x)	3.0 to 4.0	2.0 to 3.0	1.5 to 2.0
FFO to total debt (%)	12 to 17	10 to 15	5 to 10
Total debt to total capital (%)	50 to 60	55 to 70	65 to 80
For Distribution Utilities	AA	A	BBB
Pretax interest cover (x)	4.0 to 5.5	2.0 to 4.0	1.3 to 2.5
FFO interest cover (x)	5.0 to 7.0	3.0 to 5.0	2.0 to 3.0
FFO to total debt (%)	30 to 40	13 to 25	8 to 16
Total debt to total capital (%)	20 to 40	40 to 60	55 to 80
For Integrated Utilities	AA	A	BBB
Pretax interest cover (x)	4.0 to 7.0	2.5 to 4.5	1.5 to 2.5
FFO interest cover (x)	5.0 to 8.0	3.0 to 5.5	2.5 to 3.5
FFO to total debt (%)	30 to 45	15 to 35	10 to 15
Total debt to total capital (%)	25 to 45	40 to 60	60 to 75

Appendix 2 – Glossary of Key Terms and Ratios

Ratio	Description
Operating cashflow	Funds from operations (FFO) less movements in working capital.
EBITDA	Earnings before interest, tax, depreciation and amortisation
EBIT	Earnings before interest and tax
Funds from operations	Funds from operations (FFO) is defined as operating profit plus depreciation and amortization less income tax paid, plus/(minus) net non-cash abnormal losses/(gains), plus/(minus) net losses/(gains) on the sale of assets.
Funds From Operations (“FFO”) Interest cover	<p>S&P use Funds From Operations (“FFO”) Interest cover as the key financial ratio in assessing a power company's ability to meet its debt obligations.</p> <p>The FFO Interest Cover ratio is calculated as:</p> $\frac{\text{FFO}}{\text{Interest paid}}$
Pre-tax Interest Cover	$\frac{\text{Earnings Before Interest and Tax}}{\text{Gross Interest Expense}}$
Funds from Operations (FFO) to Total Debt	$\frac{\text{FFO}}{\text{Long-term Debt} + \text{Short Term Debt}}$
Total Debt to Capital	$\frac{\text{Short term Debt} + \text{Long Term Debt}}{\text{ST Debt} + \text{LT Debt} + \text{Equity}}$