EV/RAB multiples

AER

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FINAL REPORT

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EXECUTIVE SUMMARY

As part of its work for the 2022 Rate of Return Instrument (RORI), the Australian Energy Regulator (AER) engaged CEPA to undertake analysis of EV/RAB multiples. Our terms of reference were: to review previous commentary on EV/RAB multiples; to estimate EV/RAB multiples for Spark Infrastructure and Ausnet Services; and to identify what inferences could be drawn that would contribute to the work on the RORI.

EV/RAB multiples

For companies regulated using a building blocks approach, the **Regulated Asset Base (RAB)**, is multiplied by the allowed return to give the (pre-tax) profit block of the revenue allowance. Under the regulatory framework for networks, the RAB reflects the value of an implicit promise by the regulator to companies to allow them reasonable returns on the capital that they have invested. It is equal to the net present value of expected revenue less expected costs, discounted at the allowed return on capital.

The **Enterprise Value (EV)** of a company is the total value of its debt, equity, and other securities, and represents the net present value of future cash flows discounted at the weighted average cost of capital. If the allowances in the building block formula for a regulated company accurately reflect expected costs, the allowed return is equal to the cost of capital, and the assets and liabilities that the EV represents are the same as those included in the RAB, it follows that EV will equal RAB. A ratio of EV to RAB ("EV/RAB multiple") that is not equal to 1 signifies that the investors anticipate allowances for costs that differ from costs, and /or that the allowed return on capital in future successive price controls is expected to be different from the cost of capital required by investors for an investment of similar risk.

EV/RAB has been taken by some commentators to be a direct indicator of the cost of capital. However, there are a range of other factors that can affect the ratio. These relate to:

- The **measurement** of EV/RAB. The EV/RAB must be measured for the same assets, with estimates of the value of other assets to be excluded from EV. The EV should reflect the market value of all securities. Consideration should be given to the value of regulatory promises on the cost of debt, which in the case of the AER is the trailing average approach to the cost of debt allowance.
- The **inferences** that can be drawn from a particular EV/RAB ratio. This requires assumptions about expected outperformance of regulatory expectations, as well as the expected growth of the RAB.

Any observed EV/RAB ratio results from expectations by investors of a combination of different variables. These expectations are not directly observable. However, we can look for evidence to assess what expectations of variables are reasonable, and from this draw inferences about the cost of equity and other return assumptions.

There will be uncertainty about such estimates. But there is uncertainty about the inferences that can be drawn on the cost of equity from all approaches used by regulators, including those from all approaches to estimate parameters in the AER's foundation model, the Sharpe-Lintner CAPM.

Measurement of EV/RAB: base estimate

Section 3 of this report sets out our estimates of the EV/RAB multiple for two electricity network businesses, Spark Infrastructure (SKI) and Ausnet Services (AST). Both businesses have now been acquired and delisted, and we report ten years of annual estimates of EV/RAB for each, as well as estimates at the time of the transactions.

The EV attributable to RAB regulated activities comprises: the market value of equity *less* cash *plus* the market value of debt *less* the estimated market value of businesses that are not RAB regulated. The market value of debt is estimated

from listed data on bonds where available. We have used appropriate comparator valuation ratios from listed companies and applied these ratios to data from SKI and AST group companies to estimate a range of values for the non-regulated businesses. For SKI, which has minority stakes in RAB regulated businesses, we estimate the proportional value of debt in the calculation, and the proportional value of non-RAB regulated activities. For periods when the listed securities were stapled securities (i.e. investors own a combined equity security and a loan note that could not be separately traded) the EV is the market capitalisation of the stapled security plus debt excluding the loan note (the value of which will be included in the market capitalisation).

Our central estimate of the EV/RAB at the transaction date is **1.64x** for SKI and **1.74x** for AST with ranges of 1.53x – 1.75x and 1.69x – 1.79x respectively depending on the value of the non-regulated businesses. On average, our estimate of the trading multiple over the period 2011-21 is 1.46x for SKI and 1.31x for AST.

Measurement of EV/RAB: cost of debt adjustment

In its 2013 Rate of Return Guideline, the AER introduced a "trailing average" approach to the cost of debt to replace its previous "on the day" approach which has been applied in subsequent price control determinations. When fully implemented, under this approach, the allowed cost of debt reflects the average yield on 10 year corporate bonds over the previous 10 years. During a transition period, part of the allowed debt reflects the trailing average cost of debt, and the remainder the on the day approach.

In a period of falling interest rates (as has been the case in Australia), the allowed cost of debt under this approach is higher than the on the day approach. As a result, the value of the debt portion of RAB to an investor is higher than its face value. We have calculated the value of this regulatory promise and added it to the RAB to create an "adjusted RAB", and derived an adjusted EV/RAB.

As we have had a period of falling interest rates, the adjusted EV/RAB is **lower** than the raw EV/RAB, and the size of the adjustment is significant. Our central estimate of the adjusted EV/RAB at the transaction date is **1.55x** for SKI and **1.68x** for AST.

Reasons for EV to differ from RAB

The reasons why an investor's EV may differ from RAB are:

- The regulatory promise related to the **trailing average cost of debt**. As interest rates have fallen, the allowance is higher than the prevailing cost of debt. This means that the overall return on capital is higher than the cost of capital which increases the value that investors place on the assets, i.e. the EV.
- **Out- (or under-) performance** against **cost of debt** assumptions. Companies may secure debt financing at a lower cost than regulatory assumptions. There are several reasons for this. A company may choose to finance at a shorter tenor than the AER's 10 year assumption. This would typically lead to lower debt costs at the time of debt issuance, but the company would be exposed to rate movements. Companies may also achieve financing at lower cost than other companies with a similar credit rating e.g. due to the skill of their corporate finance department.
- **Incentive schemes**. The AER provides additional revenue to companies that achieve agreed outcomes that they consider to give customer value.
- **Opex outperformance**. If companies achieve cost savings they capture value from this outperformance for a period. In the long term this benefits customers through lower cost allowances. If investors expect continued productivity gains, then future cash flows will reflect a sustained enhancement to allowances.
- **Tax** savings. The AER's tax allowance relies on assumptions about the tax regime. Companies may be able to optimise their tax liabilities and either defer tax or reduce it, which would increase EV. For

example, independent valuation reports on the AST transaction note a reduction in taxation from a "step up" in the tax asset base which may increase tax depreciation, reduce tax liabilities, and increase EV.

- **RAB growth**. If the achieved returns reflect investor requirements, investment leading to RAB growth has no value for investors. However, if investors to expect the regulatory regime to allow them to earn a premium over their required returns, then RAB growth further enhances their EV on top of the premium from outperformance.

- A difference between the expected allowed return on equity from the cost of equity ("**cost of equity difference**").

Inferences from EV/RAB multiples

We have constructed stylised financial models for RAB regulated entities within SKI and AST. These are based on the post tax revenue models (PTRMs) published by the AER, populated with data extracted from these, but simplified so that they are suitable for making stylised assumptions about variables above.

Using industry data, we make estimates of the value to an investor of each of the factors above except for RAB growth and the cost of equity difference. Historically, for the regulated entities we are examining, opex outperformance has been between 5% and 12% of opex, and incentive schemes have provided between 0% to 3% of revenue. Companies have also enhanced equity returns through achieving debt costs that are lower than allowances, partly through issuing at a lower tenor than the AER assumption (which exposes companies to risk of rate rises). For our base case, our outperformance assumptions moved the EV/RAB ratio to 1.35 for AST and 1.29 for SKI. The AER promise to allow companies a trailing average cost of debt rather than the prevailing cost is valued at around 3.4% of RAB for AST and 5.7% for SKI.

So overall, for SKI, we find that of the 64% premium to RAB for the transaction approximately 35% of the premium remains unexplained by the first five factors. For AST, we find that approximately 39% of the premium is unexplained by the first five factors.

Keeping the estimate of the value of the first five factors fixed, there is a range of combinations of assumptions of RAB growth and cost of equity difference that are consistent with the observed EV/RAB multiple. For example, 1% nominal RAB growth compounded over our modelling period is consistent with a cost of equity difference of just under 2% and 5% RAB growth is approximately consistent with a no out-performance on the cost of equity.

There is uncertainty about what RAB growth should be expected. Transmission networks are expected to grow strongly with the implementation of the ISP. Increased electrification of energy, e.g. with the use of electric vehicles, as well as clean hydrogen production, may lead to substantial increases in electricity demand. However, network growth may be lower, as increased penetration of DER and better management of peak load should allow network capacity growth to be lower than that of energy demand.

We also note that there is uncertainty around the assumptions of the first five factors, as well as the value of non-RAB regulated assets in the base EV/RAB ratios. However, our analysis indicates that for plausible combinations of assumptions, it can be inferred that investors expect persistent outperformance on cost of debt and/or an allowed return on equity that is persistently above the market cost of equity for assets of equivalent risk.

In an incentive-based regulatory framework, it is crucial that companies have an opportunity to outperform regulatory expectations on opex, capex, and financing costs as well as to create value in non-RAB regulated businesses. This is in the interests of customers, as well as investors. These opportunities provide reasons why capital is attracted to the sector, and it is natural that investors should value them. We suggest that the analysis presented here can support an effective discussion about the appropriate structure and level of the incentive arrangements, in combination with discussions of the appropriate return on equity and debt.

1. INTRODUCTION

The AER is currently undertaking a review of the rate of return parameters as part of its 2022 Rate of Return Instrument determination process. Regulated Network Services Providers (NSPs) currently receive a return on their regulated asset base (RAB) as determined by the AER. In order to promote the efficient investment in energy assets, the rate of return is set to a level such that, all else equal, provides ex-ante compensation for efficient financing costs. This aims to help achieve the goals set out by the National Electricity Objectives (NEO) and the National Gas Objectives (NGO) of promoting efficient investment in, and efficient operation of electricity/gas services for the long-term interests of consumers of electricity/gas.

As part of the review process the AER is considering the use of cross-checks to ensure the allowed rate of return is reasonable and appropriate and to inform the AER of any potential issues with the approach or assumptions to determine the allowed rate of return.

One cross-check being considered by the AER is the EV/RAB multiple, the ratio of the enterprise value (EV) of the firm to the RAB. The EV/RAB multiple can be observed continuously if the company is publicly traded in the stock market, otherwise it can be observed at fixed points of time when the company is acquired for a publicly known price. In financial theory, the value of an asset is the present value of all its future cashflows. It follows that under a strict set of conditions,1 if the allowed rate of return is set at an efficient level then the present value of its future cash flows (as determined by the allowed rate of return and RAB) should equal the RAB.

Measured RAB multiples in Australia, however, are typically greater than 1. This could be because: the enterprise value includes activities which are not remunerated based on regulatory asset values so effectively the EV is over-stated; the business is expected to outperform its regulatory allowances and earn a premium return for a sustained period; or the allowed cost of capital is higher than the return that investors require. A further reason is that the EV of the business may be high because the AER's trailing average approach to the cost of debt increases the value of the cash flows to the business when interest rates fall.

A key issue for the RORI review is the extent to which inferences about the cost of capital can be drawn from an analysis of EV/RAB multiples. The AER has asked CEPA to undertake work to provide insight on this issue. In particular:

- To review recent relevant commentary on EV/RAB multiples, and to synthesise and draw conclusions from this work. We focus on recent literature from Australia as requested by AER (Section 2).
- To estimate the EV/RAB multiple for two companies: Spark Infrastructure (SKI) and Ausnet Services (AST). We have undertaken this analysis for annual data points for each of the last 10 years, as well as the data for the date of recent transactions at which these companies were acquired (Section 3).
- To assess the inferences, if any, that can be drawn from analysis of EV/RAB multiples on the cost of capital and cost of equity of listed network companies and associated transactions. We have done this with a stylised financial model from which the impact of drivers of the RAB multiple can be assessed (Section 4).

Our synthesis of the implications of this analysis is set out in the Executive Summary above.

2. PREVIOUS WORK ON EV/RAB MULTIPLES

In this section we review three papers highlighted by the AER. We have not undertaken a full literature review on this topic, but issues raised in these papers reflect key themes that arise.

2.1. BIGGAR (2018)[1]

Darryl Biggar's 2018 paper was an important contribution to the discussion on EV/RAB multiples in Australia, and has been referred to in regulatory decisions, including the AER's explanatory statement for the 2018 RORI.

Biggar sets out the conditions that are required for RAB to be close to 1:

- EV should reflect the DCF of future cash flows
- EV/RAB is measured for the assets to which RAB derived returns apply.
- The revenues for the regulated company are derived using a standard building block revenue model, and this is expected to continue to apply.
- There is no systematic departures from the forecast regulatory revenue allowances, between forecast costs and revenues, or from forecast costs.
- The regulatory allowed return is not systematically different from the cost of capital.

Biggar notes that historic EV/RAB multiples have been different from 1 in Australia and have varied significantly. He considers that EV/RAB multiples provide information to regulators, but that there are a range of factors that can give rise to EV/RAB being different from 1. He says that it is difficult to identify a level of the EV/RAB ratio that should be considered to be "normal", but suggests 1.1x to be appropriate.

Further, he suggests, making reference to reports prepared by the AER's Consumer Challenge Panel, that:

> *a RAB multiple which is materially and persistently different from one should be the trigger for closer investigation, to explore the potential reasons and the quantify the other sources of value.*[2]

He considers that a figure outside a range 0.9x – 1.3x would be such a trigger. Questions to be asked would include the appropriate valuation treatment of non-regulated cash-flows, an assessment of whether investors expect a building blocks approach to continue to be used, whether there is systematic under- or out-performance, and whether it is likely that the allowed return is higher than the cost of capital.

Biggar also notes that if regulators do take account of information in EV/RAB multiples, there is some circularity. If investors expect that these data are used to set revenues, then they may be willing to pay less for the assets. He sets out a model explaining how this might lead to an equilibrium level of the EV/RAB ratio, between the EV/RAB ratio consistent with the cost of capital and 1.

[1] Biggar, Darryl (2018). Understanding the role of RAB multiples in regulatory processes. 20 February 2018.

[2] Biggar (2018) p16.

2.2. NERA (2018)[3]

The focus of NERA's report was to examine the drivers of RAB growth, and whether there is evidence that Rate of Return is too high. EV/RAB analysis just one relatively small part of this report. We comment here only on analysis of EV/RAB.

NERA draws a conclusion that EV/RAB exceeds 1 either if there is outperformance or if the cost of capital is lower than the allowed rate of return.

NERA provides analysis of EV/RAB for transactions in Australia between 2010 and 2017 and notes that they increased over this time period. However, NERA does not infer that this means that the 2013 Guideline was too generous, noting that investor expectations of outperformance may have increased.

NERA also reports on analysis that it had undertaken on UK regulated networks, noting large EV/RAB multiples. However, it is reluctant to infer that the allowed return is too low, noting that there are many other factors that are affecting this, including a 1 ppt outperformance against the WACC.

NERA considers that it is conceptually possible to disaggregate RAB multiples to assess the contribution of the allowed return being too high. Factors it considers it is appropriate to include in the analysis include outperformance, unregulated revenue, control premia, the economic circumstances at the time of any transaction, and the possibility of over-optimism in assumptions.

2.3. ENA (2021)[4]

This short paper provides a critique of the use of EV/RAB as a metric in regulatory decisions on cost of capital. Consistent with other papers, it highlights that under "*laboratory-like conditions"* EV/RAB should be 1, but that these conditions are never met in practice. Key issues affecting the EV/RAB multiple that highlights include:

- Difficulty in accounting for unregulated activities
- The cause of any EV/RAB multiples exceeding 1 are unclear
- Equity stakes in firms can have different value to different buyers
- The equivalent metric doesn't hold for the market, as the observed ratio of EV to book value can be up to 2.

The paper concludes that:

> *"Prudence would suggest a high degree of caution about any reliance on a single, flawed and partial measure"*

2.4. Commentary on literature

We provide comments here on some specific points raised in the papers reviewed.

EV/RAB as assessment of cash flows vs returns

Biggar (2018) states the following, a quote that is referred to by NERA (2018), that it is:

> *"more correct to say that RAB multiples provide the most direct information available on the relativity of expected cash flows and market discount rates to the cash-flows needed to just compensate investors. RAB multiples themselves say nothing about the relatively of allowed and expected returns on capital or equity".*

[3] NERA (2018). RAB growth since the AER's 2013 rate of return guideline. ENA-AER Rate of Return Consumer Reference Group joint project. 25 September 2018.

[4] ENA (2021). Multiplying uncertainties: nailing the problem with RAB multiples.

EV represents the net present value of future cash flows at the investor discount rate, RAB represents the net present value of the cash flows promised by the regulator discounted at the allowed return.

So EV/RAB does say something about the relativity of these returns, albeit there are some other variables which need to be reflected.

EV to book value in equity markets

ENA (2021) notes that the ratio of EV to book value in US equity markets is around 2, but no inferences about returns are drawn from that observation, nor do firms in competitive markets follow a rule on the ratio of market value to book value.

Part of the explanation of a high EV/Book value may be that Book value is nominal, whereas the economic value is real, so one would expect the economic value to be higher than the book value. However, we note that the most recent data from the US BEA[5] calculates "Q ratios" estimating EV divided by a measure of the current cost of assets and finds that in 2019 the Q ratio was between about 1.6x and 2.0x.

More importantly, the value of typical US companies is not physical assets. The EV of companies outside utilities includes a return on intangible assets (e.g. brands), value not typically included in book values. In contrast, for the RAB regulated network companies, RAB is the key driver of profits and therefore value. An assessment of Q ratios doesn't influence the validity of using EV/RAB ratios.

Caution about use of a single measure

ENA notes that:

"Prudence would suggest a high degree of caution about any reliance on a single, flawed and partial measure"

If the EV/RAB multiple is used as evidence of the cost of capital, there is no requirement for EV/RAB to be used as the sole measure. It can be used in conjunction with other measures, with the information content weighted with other evidence.

Indeed, as ENA suggests, it is prudent to examine a wide range of measures. Other measures of cost of capital / cost of equity, have weaknesses and are subject to significant uncertainty. This includes the parameters used in standard estimates of the SL CAPM as used by the AER.

Adjustments for control premia

It has been suggested in some literature e.g. the NERA (2018) paper, that control premia in acquisitions need to be adjusted for in estimating EV/RAB multiples.

Investors pay control premia for assets because they value an asset more highly than existing owners. The control premium is an increase to the investment cost, and for an investor to receive an adequate return, it will need to be confident that it will earn additional returns to justify the control premium paid. A control premium should not be adjusted for.

2.5. Use of EV/RAB multiples

Commentators accept that in theory EV/RAB can provide information on the difference between allowed returns and investor required returns. It is accepted that there is a range of factors that can influence EV/RAB, and adjustments can be made for these.

Some commentators suggest that the adjustments are too complex, and from that it follows that inferences about the cost of equity / cost of capital cannot be drawn. Biggar is more optimistic, and he concludes that if EVRAB is in the range

[5] Bureau of Economic Analysis (2021). Returns for domestic non-financial corporations.

0.9-1.3 it is unlikely that there is an issue that the regulator needs to address. Outside this range, further investigation is warranted.

2.6. Our approach in the context of previous work

EV/RAB multiples provide information on investors' return expectations on regulated networks compared to their required return. As with all approaches to estimate return requirements, care should be taken to put the evidence into its proper context.

In the analysis in the rest of this paper, we first **measure** the EV/RAB multiples for two listed companies now acquired. Taking on board the observations from the literature, we then investigate the sources of the premium observed, and assess what **inferences** can be drawn.

Most of the sources of the EV to RAB premium have been identified in the literature. However, there are two that we consider here that are material that we have not seen previous commentary on:

- The impact of the AER's trailing average cost of debt. With falling interest rates, this approach means that the value of the cash flows associated with the debt is higher than the book value of the debt.
- The impact of companies achieving a lower cost of debt then their allowance. This difference will increase the achieved returns to equity. If investors expect this different to persist, it will be one factor increasing EV above RAB.

3. HISTORICAL EV/RAB MULTIPLES

In this section we explain our approach to estimating the historical enterprise value (EV) and regulatory asset base (RAB) for Spark Infrastructure (SKI) and Ausnet Services (AST). Both these companies have been acquired, and we have estimated EV/RAB both for the transaction, and at 30 June each year from 2011 to 2021.

We have estimated a range of plausible values for the enterprise value due to uncertainty around the valuation of non-regulated portions of the business and the availability of data on debt. In addition, we have estimated an 'adjusted RAB' which accounts for the AER's trailing average approach to cost of debt.

The results of this analysis are used in Section 4 in which we consider what inferences can be drawn from our estimates of EV/RAB.

3.1. STRUCTURE OF BUSINESSES

Both SKI and AST have holdings in various regulated assets across Australia. The following table details SKI's regulated holdings.

Table 3.1: Spark Infrastructure regulated asset holdings

Regulated Asset	Industry	Ownership (%)	Notes
Citipower	ED	49%	Together known as Victoria Power Networks (VPN)
Powercor	ED	49%	
South Australia Power Networks	ED	49%	
Transgrid	Transmission	15%	Purchased December 2015
Dampier Bunbury Pipeline	Gas Pipeline	10-11%	Purchased May 2014 sold May 2016
United Energy	ED	8-9%	
Multinet Gas	Gas distribution	12-14%	

Source: Spark Infrastructure Annual Reports

SKI through its subsidiary Spark Renewables has developed an operational solar farm in NSW (Bomen Solar Farm) and has a significant development portfolio of wind, solar, storage and hydrogen projects.

The following table details AST's regulated holdings.

Table 3.2: Ausnet Services regulated asset holdings

Regulated Asset	Industry	Ownership (%)
Ausnet Distribution	ED	100%
Ausnet Gas	Gas distribution	100%
Ausnet Transmission	Transmission	100%

Source: Ausnet Services Annual Reports

In addition, AST has a non-regulated arm, the Development and Futures Network[6], which is primarily concerned with infrastructure development and operations.

3.2. Enterprise Value methodology

Enterprise value measures the total value of a business and can be viewed as what an investor would need to pay to purchase all the equity and debt and other securities with claims on the business. For our purposes we are only interested in the EV attributable to the regulated portions, we therefore subtract an estimated EV of the non-regulated portions of the business.

$$EV = MV_{Equity} - Cash + MV_{Debt} - EV_{non-regualted\ business}$$

Both entities are made up of holdings of different assets as a result some of the components of EV are estimated at the parent level while some are consolidated from the various subsidiaries. The following table gives a summary of the different components of the EV.

Table 3.3: Summary of components of EV

Component	Level	Description
Market Value of Equity	Parent	Estimated from market capitalisation.
Cash	Parent	Balance Sheet
Market Value of Debt	Subsidiary	Estimated from market instruments where possible.
EV of non-regulated businesses	Subsidiary	Estimated using valuation multiples.

3.2.1. Market value of debt

We have estimated a market value of debt for each subsidiary[7] and then proportionally consolidated each estimation to calculate a total market value of debt for both AST and SKI.

In order to estimate the market value of debt we have looked at three different sources of debt:

- listed bonds;
- unlisted bonds; and
- corporate debt facilities.

We have sourced values of the listed bonds from Eikon and Bloomberg. In some cases the data from both Eikon and Bloomberg was either missing or incomplete. In those cases we assumed the market value of the bond to be face value.

Data for unlisted bonds and corporate debt facilities was sourced from ASX announcements, Eikon deal history and Bloomberg. If there was enough information for the unlisted bond (i.e. a coupon rate and maturity date) we estimated a market value using standard bond pricing formulas. If a coupon rate wasn't given or was floating we assumed the value to be the face value.

In the case of AST the annual reports provide figures on the face value and carrying value of various debt instruments. We have calculated the difference between the face value of debt disclosed on annual reports and of bonds we have found, we have then added this difference to our total estimate of market value of debt. This means that our estimation of the total value of debt for AST represents the estimated market value for bonds we could find adequate information on plus the face value of all other debt.

[6] Previously called Growth and Futures Network which was the amalgamation of Mondo and customer initiated excluded transmission services.

[7] Ausnet use a common financing vehicle as has Victoria Power Networks since 2015.

SKI's annual reports provide information on net debt and total liabilities for each subsidiary. In order to supplement our estimates of total debt for SKI we provide an additional estimate of EV where we use net debt in place of market value of debt. This will inform our range of estimates of the EV/RAB ratio.

3.2.2. Value of non-regulated businesses

We have calculated estimated EV's for all non-regulated subsidiaries as well as the non-regulated revenue streams associated with the core regulated subsidiaries. Our approach has been to use typical valuation multiples from listed comparators to provide an estimate. There is a degree of uncertainty in our estimations so we provide a range of values.

In valuing spark renewables we have used an EV to MW capacity multiple. Bomen farm has an installed capacity of 100 MW. We have looked at a number of different transactions in renewable energy across Australia and New Zealand and have used a range of 1 to 4 as our multiples. We have not attempted to value the development pipeline of Spark Renewables due to the uncertainty around some of the projects.

Each subsidiary also has a non-regulated and semi-regulated revenue stream in addition to their core regulated revenue. We have valued this using an EV to Revenue multiple ranging from 1 to 3 to value these revenue streams. This includes AST's Development and Futures Networks.

We have not attempted to estimate a point estimate of the true value of these non-regulated portions, rather we provide a range of plausible market valuations. By providing a wide range of valuations we can more confidently make inferences on the relative levels of the EV compared to the RAB. We have also looked at independent valuation reports for the recent transactions of AST and SKI. Of particular note is the valuation of AST's Development and Futures Networks of approximately $3 billion AUD. This is significantly higher than our estimate, we therefore include this as well as estimates of Spark Renewables in our range of estimates provided in appendix A.

3.3. RAB Methodology

We have taken historical RAB numbers from regulatory information notices (RIN). In the case where there was a most recent historical number we used the AER's roll-forward model to estimate the RAB.

Regulated companies have different year end reporting dates. As we require a RAB value for each year at 30th of June we took a weighted average of the opening and closing RAB to get an estimate for this date. For example, if the regulatory year ran from January 1st to December 31st we would take an average of opening and closing value of a particular year to estimate the RAB for June 30th.

The AER approach to the cost of debt is to provide an allowance which is the average yield on 10 year instruments had they been issued smoothly over the last ten years (or from the date of the stat of the first price control period after 2013, whichever is the later). In a time of falling interest rates, this average will be a higher return on debt than the current return. The value of a right to such a trailing average return is therefore higher than the face value of the associated debt. We estimate a value for this approach that the AER uses to calculate the cost of debt, based on current yield curves.

Using this adjusted debt value, we add this to EV (with the other adjustments) to derive what we term an adjusted RAB.

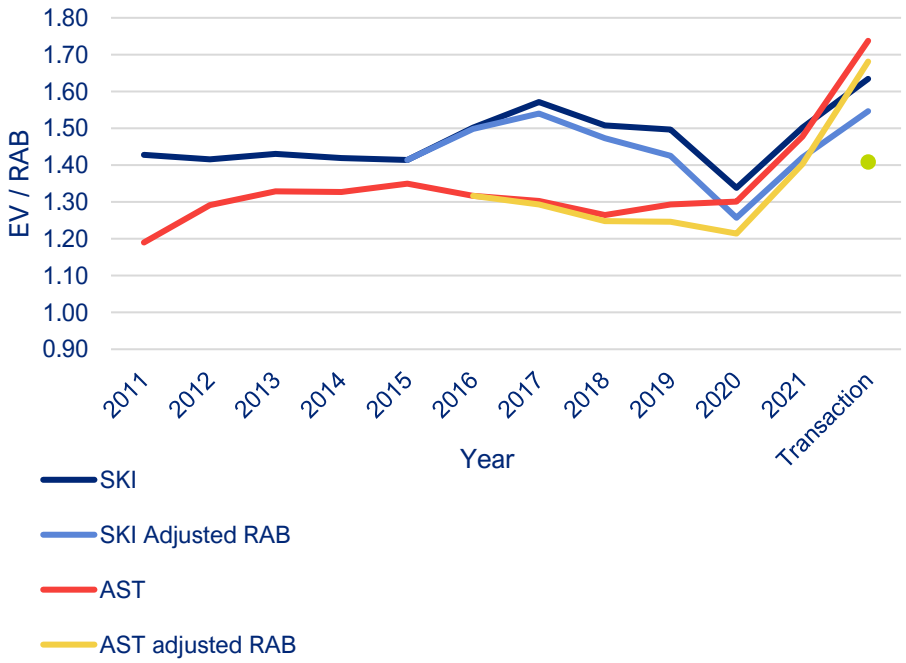
3.4. EV/RAB Results

The following chart illustrates the historical EV/RAB ratio from 2011 to the transaction. SKI Adjusted RAB and AST Adjusted RAB refer to the EV/RAB ratio when using the trailing average adjusted RAB estimation. AST Scheme Booklet / adjusted RAB refers to an estimation of enterprise value using the midpoint value of Development and Futures Network from the independent valuation report relative to the adjusted RAB.

Our estimates of the EV/RAB ratio may differ from estimates by others. The reason for any differences may be because:

- We have used the market value of debt rather than the book value of debt.
- We are presenting the regulatory asset base only and not the contracted asset base which may be included as regulated assets by some analysts.
- There may be differences in the reporting date within the year.

Chart 3.1: Historical EV/RAB



Source: CEPA analysis of Eikon, Bloomberg, Spark Infrastructure Annual Reports, Ausnet Services Annual Reports and AER data

The values in Chart 3.1 are calculated as the midpoint of our estimated ranges which can be found in appendix A. The following tables breakdown the values of EV and RAB for both AST and SKI at the date of transaction. The dates we have used is 31/12/2021 for SKI and 31/01/2022 for AST as these dates were month ends close to the delisting date for each security. The RAB is estimated at June 2021 for SKI and June 2022 for AST to allow consistency with the analysis to be undertaken in section 4.

Table 3.4: Breakdown of transaction values $AUD millions

Item	SKI	AST
Market Value of Equity	5,200	10,200
Cash	46.6	330
Value of Debt	6,200	8,248
Net Debt[8]	4,916	-
Value of non-regulated (low)	491	485
Value of non-regulated (high)	1,592	1,455
Enterprise Value (low)	9,600	16,667
Enterprise Value (high)	11,000	17,634
RAB vanilla	6,251	9,869
RAB adjusted	6,606	10,200
EV/RAB (low)	1.53	1.69
EV/RAB (high)	1.75	1.79
EV/RAB adjusted (low)	1.45	1.63
EV/RAB adjusted (high)	1.66	1.73
EV/RAB midpoint	1.64	1.74
EV/RAB adjusted midpoint	1.55	1.68
EV: RAB adjusted (scheme booklet)		1.41

Source: CEPA analysis of Eikon, Bloomberg, Spark Infrastructure Annual Reports, Ausnet Services Annual Reports and AER data

[8] Net debt of VPN, SAPN and Transgrid, doesn't include Spark Infrastructure parent debt.

4. INFERENCE MODEL RESULTS

This section sets out the methodology and results from our inference model. The aim of the inference model is to consider the potential factors that might explain the observed EV/RAB ratio as obtained from our historical model in the previous section. This includes considering the potential impact on the EV from additional cash-flows, such as from incentive schemes, and changes in the discount rate, such as from debt outperformance.

It is not our intention to produce an accurate valuation of the regulated entities but instead to consider if a realistic set of assumptions can produce the observed EV/RAB ratio. If after accounting for these assumptions the generated EV/RAB ratio is lower than that observed from the historical data, it provides an indication that investor expectations of the allowed cost of capital are higher than the actual cost of capital of investors in these regulated entities.

4.1. METHODOLOGY

We constructed discounted cash-flow models for each of 7 regulated entities. These cash-flow models are motivated by the AER's post-tax revenue model and contain many of the same inputs and calculations.

The table below sets out some of the core assumptions in our model. In addition to this report, we have also provided copies of our Excel model, which allow a further interrogation of the assumptions and calculations.

Table 4.1: Core modelling assumptions

Assumption	Description
Starting period	We have aligned our models with the AER's regulatory years. This allows clarity in the modelling as it allows a read across to the PTRMs and eliminates partial years. To allow this alignment we have shifted the assumed transaction date forward to 30th June 2022 for AST and back to 30th June 2021 for SKI. This requires an assumption that the transaction multiple observed on the transaction date would have held had the transaction occurred on a date a few months earlier or later.
Period of visible cash-flows	The period of visible cash-flows is 54 years. This means that the assuming closing/terminal value has a limited impact on our results.
Opening RAB/TAB	Where there is alignment between the start of a regulatory period the opening RAB/TAB value is sourced directly from the PTRMs. This applies to Citipower and Powercor. For the other entities we have calculated what the RAB and TAB would have been at the start of the relevant regulatory year. This has been calculated by rolling forward the RAB and TAB from the start of the current regulatory period.
WACC, imputation credit values and tax rate.	These are sourced directly from the PTRMs.
Depreciation and tax depreciation	Where a stated depreciation or tax depreciation value is available from the PTRMs this is used. For new assets the assumed asset life for straight-line depreciation purposes in 40 years. The tax depreciation value for new assets is 5% per year.
Inflation rate	The model does not allow outturn inflation to deviate from expected inflation. We have set expected inflation as stated in the PTRMs. The inflation rate drives the closing RAB value, which due to the longer modelling period has a limited impact on the enterprise value.
Revenue adjustments	Known revenue adjustments for the current or following regulatory period (e.g. EBSS) that are available from PTRMs are included.
Opex	The opex allowance outside the period known from PTRMs is assumed to grow at inflation minus 0.5%.

4.2. Results

This section presents the results of our analysis. At a high level our analysis proceeded in three stages:

1. There is an interaction between cost of equity outperformance, the size of the forward capex program and the EV/RAB ratio. We first explored how these three factors interact.

2. Cost of equity outperformance is only one potential factor that can cause an EV/RAB ratio greater than one. In the second stage, we examined the EV/RAB ratio under a set of 'baseline assumptions', representing these other factors. These include opex out-performance, incentive schemes, the closing RAB multiple and cost of debt out-performance. We provide a breakdown showing the impact of each of these factors.

3. In the third stage, we adopted these baseline assumptions and again considered the combination of cost of equity and RAB growth required to produce the EV/RAB ratio as found in our historical analysis in Section 3 above.

Step 1 – Cost of equity and RAB growth

There is an interaction between the WACC, the expected forward capex program and the EV/RAB ratio:

- If the WACC is exactly equal to the expected return then no additional value is created or destroyed by any changes in the expected forward capex program. The EV/RAB ratio becomes independent of the expected future size of the RAB.

- If the WACC is lower than the expected return then additional value can be created by increasing the size of the RAB. There is a positive relationship between the EV/RAB ratio and the size of the expected forward capex program.

- Likewise, if WACC is higher than the allowed return then value is destroyed by increasing the size of the RAB. There is a negative relationship between the EV/RAB ratio and the size of the expected forward capex program.

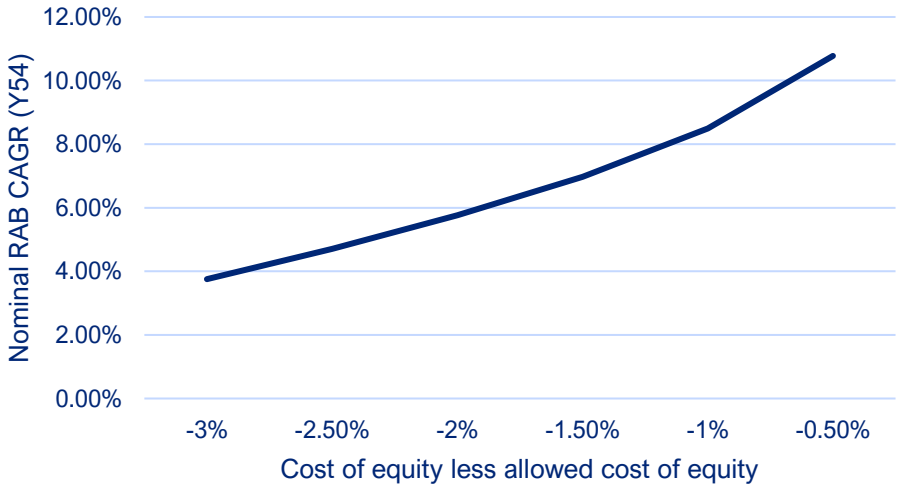
In this sub-section, for simplicity, we focus on cost of equity rather than WACC overall. However, cost of debt out-/under-performance and any movement away from assumed gearing can also cause a wedge to develop. We consider these issues further in the next sub-section.

The figure below demonstrates the combination of cost of equity differences and nominal RAB growth required to produce an EV/RAB ratio of 1.74 for AST. All other variables do not deviate from those assumed by the AER's regulatory model, for example there is no opex outperformance. RAB growth is measured as the compound annual growth rate (CAGR) required to move the opening RAB in the first year of the modelling period to the closing RAB in the 54th year of the modelling period in nominal terms.

At the furthest left point on the figure the cost of equity is assumed to be 3% below the allowed cost of equity. The nominal RAB CAGR required for an EV/RAB ratio of 1.74 at this point is 3.8%.

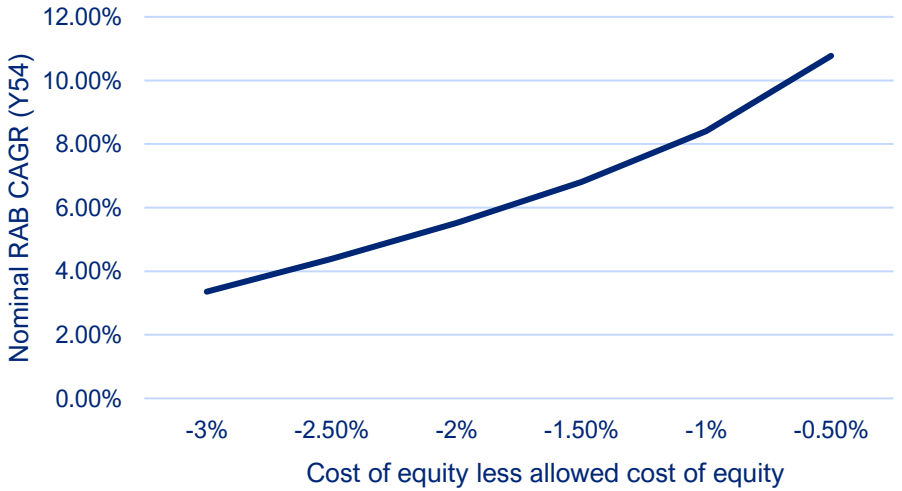
As the cost of equity converges towards the allowed cost of equity the size of the capex program required to maintain an EV/RAB ratio of 1.74 grows. At the furthest right point of the figure cost of equity is assumed to be 0.5% below the allowed cost of equity and nominal RAB CAGR is 10.78%. The figures do not provide an estimate of RAB growth required when there is no outperformance against the allowed cost of equity. This is because when there is no outperformance it is not possible to produce an EV/RAB ratio greater than 1.

Figure 4.1: Cost of equity less the allowed cost of equity vs RAB growth (AST)



Source: CEPA analysis of AER data from PTRMs

Figure 4.2: Cost of equity less the allowed cost of equity vs RAB growth (SKI)



Source: CEPA analysis of AER data from PTRMs

The second figure on the left provides the same cost of equity and RAB growth combinations for SKI, where the EV/RAB ratio is held at 1.64. At the furthest right point of the figure cost of equity is assumed to be 0.5% below the allowed cost of equity and nominal RAB CAGR is 10.77%.

Step 2 - Baseline scenario assumptions

Cost of equity outperformance is only one potential factor that can cause an EV/RAB ratio greater than one. The objective of the baseline assumptions is to consider whether factors other than cost of equity and RAB growth could explain the observed EV/RAB ratio. This means that the baseline assumptions should provide a liberal valuation of potential other sources of value that may be considered by investors. The table below provides these assumptions.

Table 4.2: Baseline scenario assumptions

Assumption	Description
Gearing	We have set gearing at 60%.
Opex outperformance	Between 5% and 12% of opex depending on entity. We have based on historical performance, see Appendix B.
Incentive schemes	Between 0% and 3% of allowed revenue depending on entity. We have based this on historical performance, see Appendix B.
Tax	No outperformance
Debt	For our purposes here, we are assuming investors expect 50bp out-performance against the debt allowance, see Appendix C.
Closing RAB multiple	1.1

The figure below shows the breakdown of the value of each of these impacts for AST. This demonstrates the steps required to move from the EV associated with the regulated assets (as estimated in Section 3) and the RAB value of these assets. This assumes that all other inputs are as provided in the AER's most recent regulatory models for the three regulated entities included within AST.

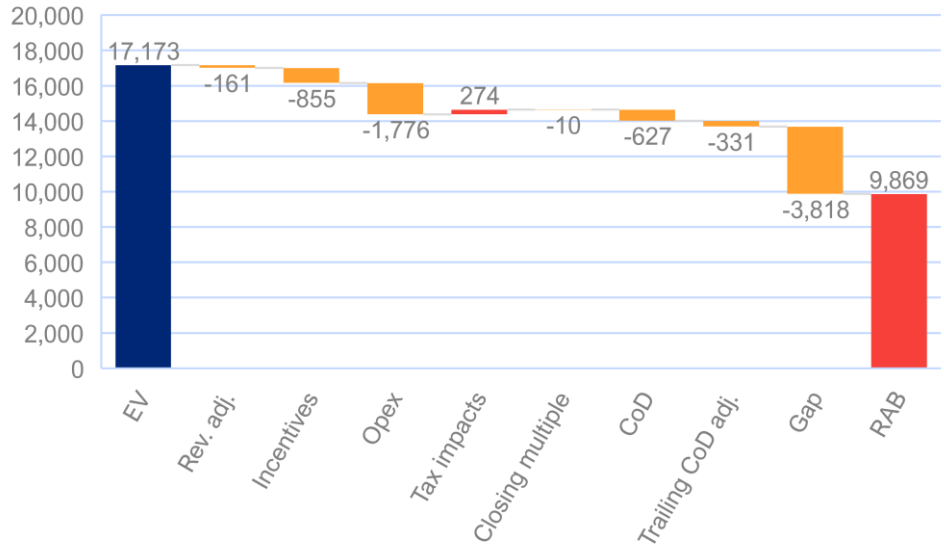
Furthermore, no capex program is assumed after the current regulatory period comes to an end.

The mid-point EV estimate for the regulated assets within AST is $17.2 bn while the RAB value is $9.9 bn. The baseline assumptions allow us to partially close the gap between these two figures:

- **Revenue adjustments ($161 million):** These are revenue adjustments that are present in the AER's PTRMs and mainly relate to incentive scheme allowances (e.g. EBSS).
- **Incentives ($855 million):** This is the impact from assumed additional revenue from incentive schemes going forward.
- **Opex ($1,776 million):** This is the additional value from assumed opex savings.
- **Tax impacts ($274 million):** Opex savings and additional revenues mean that before tax earnings are higher and by extension tax payable is also higher.
- **Closing multiple ($10 million):** The closing multiple is set at 1.1 but due to the long period of visible cash-flows in our model (54 years) this has a limited impact on EV.
- **Discount rate ($627 million):** The value of the factors above are discounted to present value using the AER's allowed cost of capital. The remaining change in value is attributed to the change in the discount rate used. In our baseline scenario this is from cost of debt outperformance.
- **Trailing average cost of debt adjustment ($331 million):** As described in Section 3, RAB can be adjusted for additional value provided the AER's trailing average approach to the cost of debt.

The resulting EV/RAB ratio is 1.35[9], demonstrating substantial value from applying historical estimates and assuming these are maintained going forward. None the less, a gap of $3.8 bn remains.

Figure 4.3: Difference between RAB and EV by driver for AST ($ million)

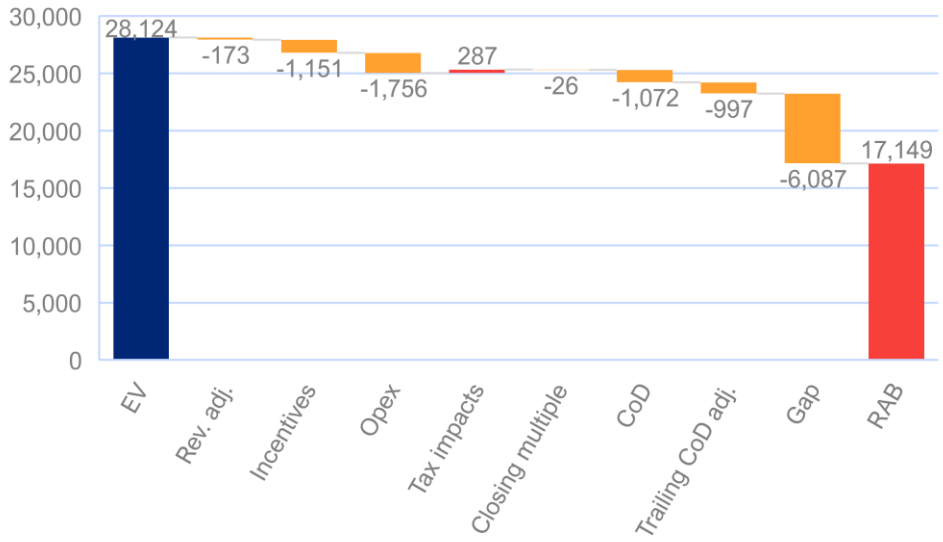


Source: CEPA analysis of AER data from PTRMs and AER RIN data

We undertook the same process for SKI. The mid-point EV estimate for the regulated assets within SKI is $28.0 bn while the RAB value $17.2 bn. The figure below shows the breakdown of the value of each of these changes for SKI. As with AST we observe that a gap of $6.1 bn remains.

[9] (17,173 – 3,818) / 9,869 = 1.35

Figure 4.4: Difference between RAB and EV by driver for SKI ($ million)



Source: CEPA analysis of AER data from PTRMs and AER RIN data

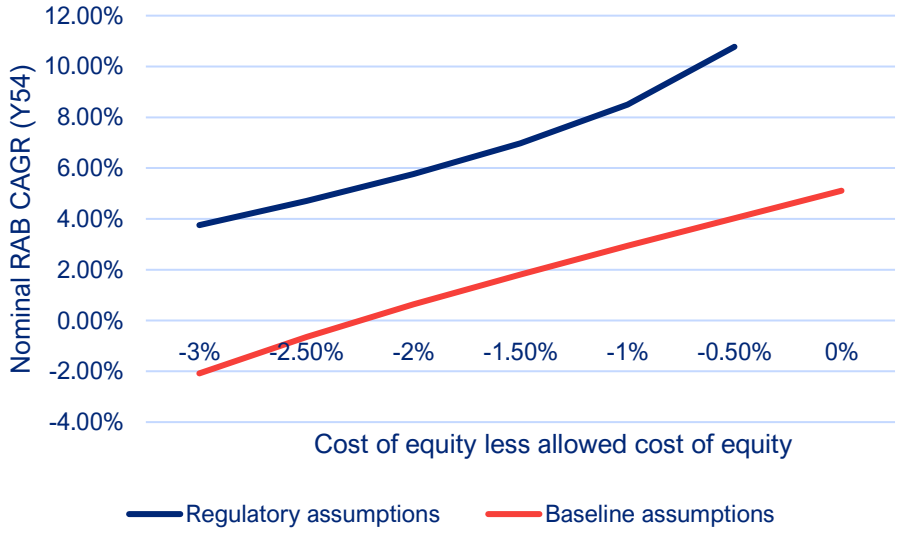
Step 3 - Closing the gap

We observe that even with the generous baseline assumptions there remains a gap between the EV/RAB ratio produced and that observed during the recent transactions. As explained above, if any component of WACC is lower than allowed a wedge can be produced by increasing the size of the expected forward capex program. It is possible to use the baseline assumptions and vary the cost of equity and rate of RAB growth to potentially fill any gap.

The two figures below demonstrate the impact of moving the cost of equity away from the allowed cost of equity and varying RAB growth while keeping the RAB:EV ratio constant. This is maintained at the centre of the range as explained in the previous section, 1.74 for AST and 1.64 for SKI.

There are two lines shown in each figure. The blue line is the same line as that presented in step 1 above, demonstrating the differences to allowed cost of equity and RAB growth combinations required without the baseline assumptions. The red line shows the shift that occurs when the baseline assumptions are introduced. The overall impact is the required RAB growth for a given difference to allowed cost of equity is lower.

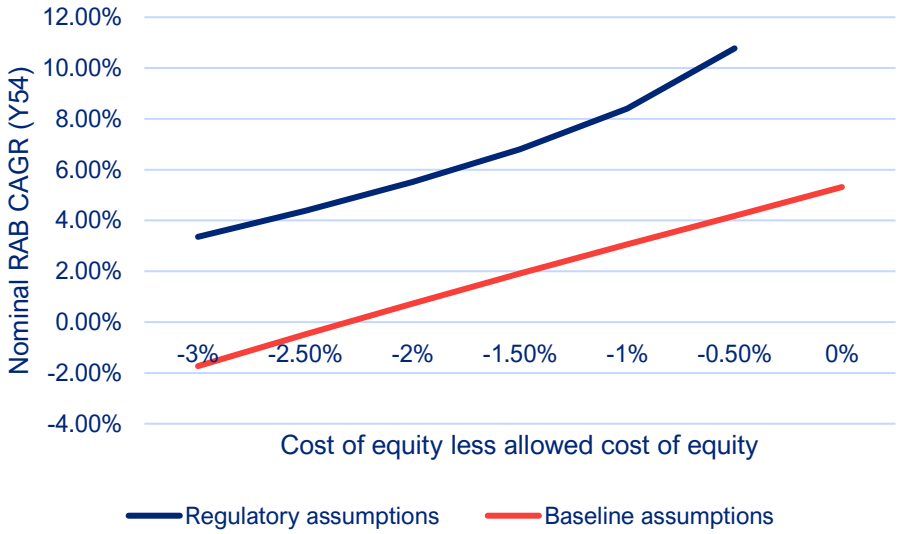
Figure 4.5: Differences to allowed cost of equity and RAB growth combinations for AST (1.74 RAB:EV)



Source: CEPA analysis of AER data from PTRMs and AER RIN data

With the baseline assumptions, when the cost of equity is substantially below the allowed cost of equity nominal RAB must contract over the forecast period to maintain the observed RAB:EV ratio. When the cost of equity substantially exceeds the allowed cost of equity it becomes impossible to find a combination of cost of equity and RAB growth that produces the required RAB:EV ratio.

Figure 4.6: Differences to allowed cost of equity and RAB combinations for SKI (1.64 RAB:EV)



Source: CEPA analysis of AER data from PTRMs and AER RIN data

If there is no difference between the allowed cost of equity and the cost of equity, then the wedge between RAB:EV ratio can still be increased from that observed under the baseline assumptions by increasing RAB growth. This is because there are benefits from cost of debt outperformance and increased incentive scheme payments which are linked to a percentage of total revenue in our model. In our model setting the difference in allowed and actual cost of equity to 0% and maintaining the RAB:EV ratio at 1.74 and 1.64 respectively results in RAB growth of:

- 5.1% CAGR to year 54 in nominal terms (2.9% real) for AST with the baseline assumptions.
- 5.3% CAGR to year 54 in nominal terms (3.0% real) for SKI with the baseline assumptions.

Table 4.3: Modelled RAB and RAB growth at year 54

Entity	Nominal CAGR (Year 54)	Real CAGR (Year 54)	Nominal RAB - $ million (Year 54)	Real RAB - $ million (Year 54)
AST	5.1%	2.9%	$145,469	$46,567
SKI	5.3%	3.0%	$281,005	$83,305

Potential impact of a tax 'step-up'

We observe that the independent expert report for AST draws attention to the potential value from a tax 'step-up' that may be possible because of the acquisition.[10] This is not something we included in our baseline scenario assumptions. Nonetheless, as the independent expert, in the case of AST, provided estimates of the potential uplift it is worth considering whether this may influence any conclusions that can be drawn from our analysis.

The independent expert provided estimates of the "step-up" in the tax base that might be possible:

- For AST (Transmission) $1.0 billion/$2.0 billion
- For AST (Distribution) $0.5 billion/$1.0 billion
- For AST (Gas Distribution) $0.15 billion/$0.3 billion

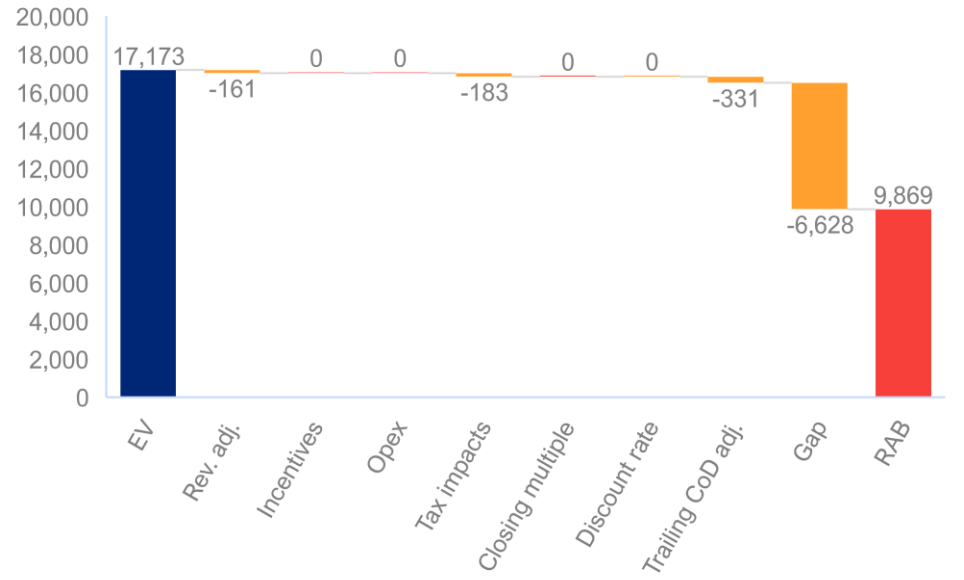
We applied the high-end estimates of the step up in the tax base in our models to explore the impact on EV. To do this we set the inputs in our model of AST to the

[10] Grant Samuel (2021), Independent Expert Report – Australian Energy Holdings Proposal.

regulatory assumed inputs, for example setting opex outperformance to zero. We model the impact of the tax step-up by increasing the value of the TAB in the first year of the modelling period by amount stated above. This in turn increases tax expenses going forward and by extension reduces tax payable. The overall value of this the tax step-up is determined by the tax rate and the size of the adjustment but also as the stream of value arrives over time the discount rate.

The figure below shows the impact of introducing this adjustment (see tax impacts). The overall value of increasing TAB by $3.3 billion is just $183 million. While the overall impact on tax cash flows over the visible forecast period is a saving of approximately $1 billion this is much lower on a discounted basis.

Figure 4.7: Difference between EV and RAB with tax step-up (AST)



Source: CEPA analysis of AER data from PTRMs

GLOSSARY

AEMC	Australian Energy Markets Commission
AER	Australian Energy Regulator
AST	ASX code for Ausnet Services
EV	Enterprise Value
NEO	National Electricity Objective
NGO	National Gas Objective
NSP	Network Service Provider
PTRM	Post Tax Revenue Model (AER's financial model)
RAB	Regulatory Asset Base
RORI	Rate of Return Instrument
SKI	ASX code for Spark Infrastructure

Appendix A SUPPORTING DATA – HISTORIC EV/RAB MULTIPLES

Spark Infrastructure breakdown of historical EV/RAB $ AUD millions

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Transaction
Equity	1,711	1,983	2,302	2,723	2,867	4,104	4,406	3,885	4,087	3,719	3,949	5,200
Cash	16	89	88	114	56	53	66	62	57	49	47	47
Value of Debt	3,405	3,415	3,579	5,169	5,177	4,727	4,822	5,745	6,034	5,798	7,185	6,304
Net Debt[11]	2,942	3,048	3,236	3,367	3,404	3,820	4,286	4,418	4,579	4,478	4,916	4,916
Value of non-regulated (low)[12]	263	237	258	258	294	313	242	295	379	498	490	490
Value of non-regulated (high)	790	711	775	774	885	939	725	886	1,136	1,615	1,591	1,591
Value of spark renewables (independent valuation low)[13]												188
Value of spark renewables (independent valuation high)												234
EV (low)	4,311	4,599	5,018	6,993	7,103	7,838	8,439	8,683	8,928	7,853	9,496	9,865
EV (high)	4,837	5,073	5,534	7,509	7,692	8,464	8,922	9,274	9,685	8,970	10,597	10,966
EV (Net debt – low)	4,781	5,152	5,536	6,918	6,956	7,994	8,964	8,417	8,535	7,876	8,325	9,576
EV (Net debt – high)	5,308	5,626	6,052	7,434	7,546	8,620	9,448	9,007	9,292	8,992	9,426	10,677
RAB Vanilla	3,368	3,611	3,868	5,084	5,186	5,485	5,698	5,874	6,093	6,244	6,251	6,251
RAB Trailing average adjusted	3,368	3,611	3,868	5,084	5,186	5,497	5,813	6,011	6,401	6,647	6,606	6,606
EV / RAB vanilla (MV of debt low)	1.28	1.27	1.30	1.38	1.37	1.43	1.48	1.48	1.47	1.26	1.52	1.58

[11] Only includes net debt of VPN, SAPN and Transgrid.

[12] Includes spark renewables estimated value $120 – 480 m from 2020 onwards and other non-regulated revenues associated with subsidiaries.

[13] Includes a valuation of development projects estimated between $35.2 – $67.2 m value.

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Transaction
EV / RAB vanilla (MV of debt high)	1.44	1.40	1.43	1.48	1.48	1.54	1.57	1.58	1.59	1.44	1.70	1.75
EV / RAB adjusted (MV of debt low)	1.28	1.27	1.30	1.38	1.37	1.43	1.46	1.44	1.39	1.18	1.44	1.49
EV / RAB adjusted (MV of debt high)	1.44	1.40	1.43	1.48	1.48	1.54	1.54	1.54	1.51	1.35	1.60	1.66
EV / RAB vanilla (net debt low)	1.42	1.43	1.43	1.36	1.34	1.46	1.57	1.43	1.40	1.26	1.33	1.53
EV / RAB vanilla (net debt high)	1.58	1.56	1.56	1.46	1.45	1.57	1.66	1.53	1.52	1.44	1.51	1.71
EV / RAB adjusted (net debt low)	1.42	1.43	1.43	1.36	1.34	1.45	1.54	1.40	1.33	1.18	1.26	1.45
EV / RAB adjusted (net debt high)	1.58	1.56	1.56	1.46	1.45	1.57	1.63	1.50	1.45	1.35	1.43	1.62
EV / RAB vanilla mid-point	1.43	1.42	1.43	1.42	1.41	1.50	1.57	1.51	1.50	1.35	1.51	1.64
EV / RAB adjusted mid-point	1.43	1.42	1.43	1.42	1.41	1.50	1.54	1.47	1.42	1.27	1.43	1.55

Ausnet Services breakdown of historical EV/RAB $ AUD millions

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Transaction
Equity	2,641	3,347	3,967	4,487	4,836	5,847	6,251	5,837	6,849	6,224	6,652	10,200
Cash	34	22	278	543	458	238	172	411	260	92	579	330
Value of Debt	4,976	5,147	5,540	6,091	6,607	5,777	5,748	6,564	6,186	7,148	9,098	8,249
Value of non-regulated (low)	266	204	125	150	123	248	308	336	331	307	300	300
Value of non-regulated (high)	798	611	638	736	709	770	967	1053	992	920	900	900
Value of Development and Futures Network (low)	164	140	52	52	44	200	232	182	163	164	185	185
Value of Development and Futures Network (high)	493	420	419	462	472	626	738	591	490	493	555	555
Development and Futures Network (independent valuation low)												3,000
Development and Futures Network (independent valuation high)												3,300
EV (low)	6,292	7,440	8,173	8,838	9,804	9,990	10,124	10,348	11,293	11,867	13,716	16,664

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Transaction
EV (high)	7,153	8,128	9,053	9,827	10,818	10,939	11,288	11,474	12,281	12,809	14,686	17,634
EV (independent valuation – low)												13,919
EV (independent valuation – high)												14,819
RAB Vanilla	5,650	6,026	6,483	7,034	7,641	7,950	8,216	8,632	9,117	9,486	9,609	9,870
RAB Trailing average adjusted	5,650	6,026	6,483	7,034	7,641	7,950	8,279	8,744	9,456	10,162	10,122	10,200
EV / RAB vanilla (low)	1.11	1.23	1.26	1.26	1.28	1.26	1.23	1.20	1.24	1.25	1.43	1.69
EV / RAB vanilla (high)	1.27	1.35	1.40	1.40	1.42	1.38	1.37	1.33	1.35	1.35	1.53	1.79
EV / RAB adjusted (low)	1.11	1.23	1.26	1.26	1.28	1.26	1.22	1.18	1.19	1.17	1.36	1.63
EV / RAB adjusted (high)	1.27	1.35	1.40	1.40	1.42	1.38	1.36	1.31	1.30	1.26	1.45	1.73
EV / RAB vanilla (Independent valuation low)												1.41
EV / RAB vanilla (Independent valuation high)												1.50
EV / RAB adjusted (Independent valuation low)												1.36
EV / RAB adjusted (Independent valuation high)												1.45
EV / RAB vanilla mid-point	1.19	1.29	1.33	1.33	1.35	1.32	1.30	1.26	1.29	1.30	1.48	1.74
EV / RAB adjusted mid-point	1.19	1.29	1.33	1.33	1.35	1.32	1.29	1.25	1.25	1.21	1.40	1.68

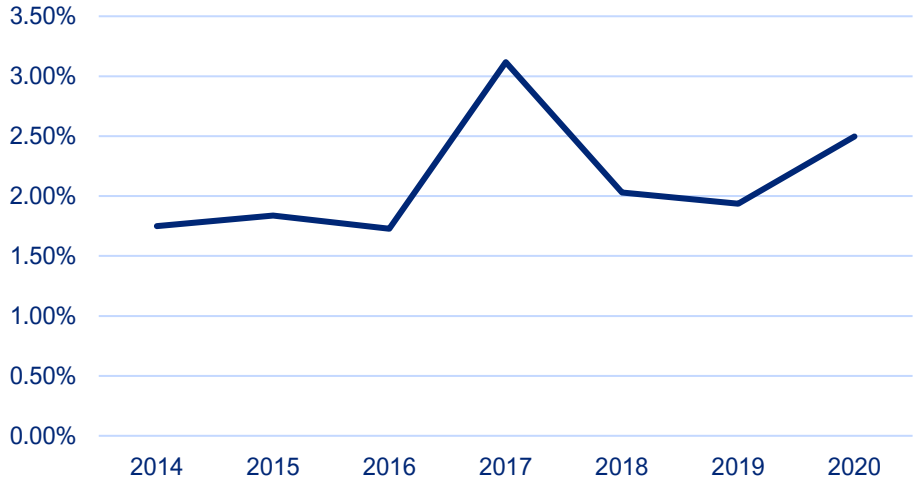
Appendix B SUPPORTING DATA – INFERENCE MODEL

Baseline scenario assumptions

For our baseline scenario we set the assumed amount of revenue from incentive schemes and assumed opex outperformance using historical data.

The figure below shows the average amount of additional allowances as a percentage of total revenue from incentive schemes for the 7 regulated entities between 2014 and 2020. Over the period the 7 entities made on average 2.1% additional revenue.

Figure 4.8: Average incentive scheme allowances as a percentage of total revenue



Source: CEPA analysis of AER RIN data

The table below shows the average amount of additional allowances for the 7 regulated entities.

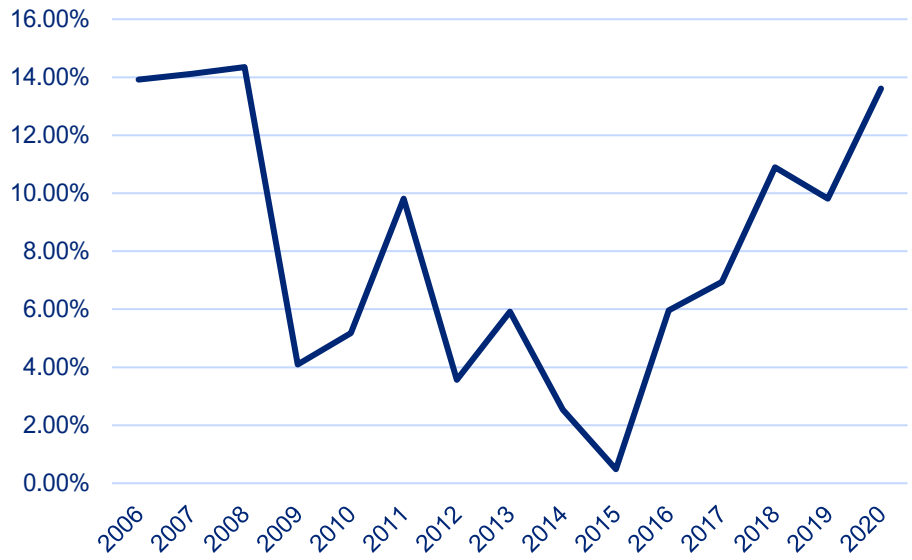
Table 4.4: Incentive scheme allowances

Entity	Incentive scheme allowances as a percentage of allowed revenue (2014-2020)
AusNet (D)	3.11%
AusNet (T)	2.91%
AusNet (Gas)	1.58%
SAPN	2.35%
CitiPower	-0.75%[14]
Powercor	2.3%
TransGrid	3.39%

The figure below shows opex outperformance as percentage of total opex allowance for the 7 entities between 2006 and 2020.

[14] Assumed 0% in our model.

Figure 4.9: Average incentive scheme allowances as a percentage of total revenue



Source: CEPA analysis of AER RIN data

The table below shows the average opex outperformance for the 7 regulated entities.

Table 4.5: Opex outperformance

Entity	Average opex outperformance (2006-2020)
AusNet (D)	8.31%
AusNet (T)	12.16%
AusNet (Gas)[15]	5.47%
SAPN	4.85%
CitiPower	8.13%
Powercor	7.87%
TransGrid	8.14%

Partial impacts of each assumption

The tables below show the partial impact on the EV/RAB ratio of changing the key assumptions in the model. The change is from a baseline using regulatory assumptions and is applied across all the regulated entities that make up AST and SKI equally. For example, for opex out-performance for AST the movement is from no out-performance to +1% out-performance applied equally across all three regulated entities of AST. The impact is the measured as the movement in the EV/RAB ratio. A movement of 0.0158 means moving the EV/RAB ratio from 1.016 to 1.032.

The partial impacts shown in the tables also assume there is no capex program beyond that already visible in the PTRMs. The impact of changes are lower than if a capex program were assumed.

Table 4.6: Partial impacts of each assumption (AST)

Assumption	Change	EV/RAB Impact
Opex out-performance	+ 1%	+0.0158
Gearing	+ 5%	+0.0152
Incentives	+ 1%	+0.0304
Cost of equity	- 0.5%	+0.0318
Closing RAB multiple	+ 0.1	+0.0011

[15] Data only available from 2011 onwards.

Assumption	Change	EV/RAB Impact
TAB uplift	+ 1bn per entity	+0.0176

Table 4.7: Partial impacts of each assumption (SKI)

Assumption	Change	EV/RAB Impact
Opex out-performance	+ 1%	+0.0135
Gearing	+ 5%	+0.0184
Incentives	+ 1%	+0.0286
Cost of equity	- 0.5%	+0.0350
Closing RAB multiple	+ 0.1	+0.0015
TAB uplift	+ 1bn per entity	+0.0132

Appendix C SUPPORTING DATA - COST OF DEBT

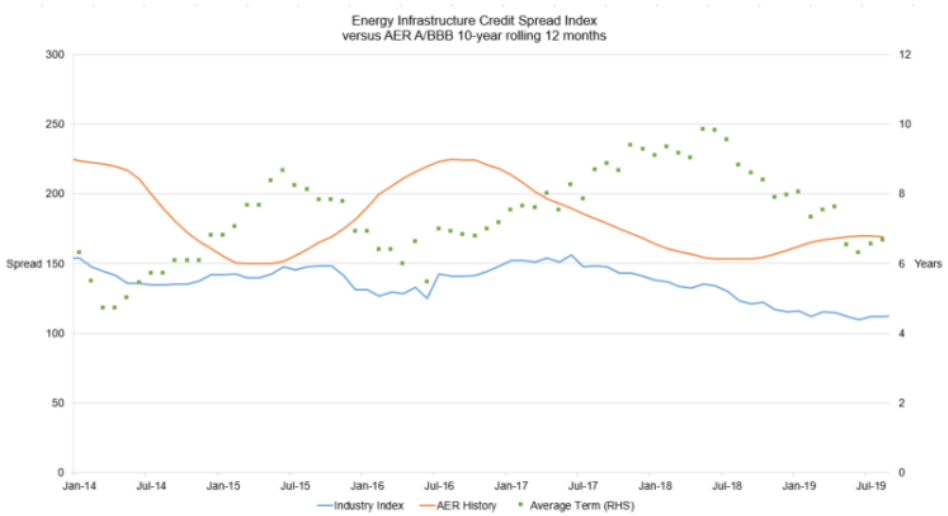
In its analysis of data on the cost of debt, the AER reports on actual credit spread data achieved by the industry and compares it to the spreads in the trailing average approach that it has adopted.[16] The chart below is extracted from that report, which shows spreads from the AER's approach to cost of debt (orange), the industry average spread (blue), and the average term of debt issued (green).

The industry credit spread in the chart is lower than that of the AER's approach to the allowance. These differences may be due to

- Differences in the term of debt issued and the AER assumption.
- Differences in the credit rating of the securities issued
- Differences in the credit spread compared to the AER rating.

AER has been considering this issue carefully, and may adjust its approach to cost of debt. However, in doing so we anticipate that it will be mindful of the incentive effects. The current approach provides a cost of debt allowance, and provides companies with an incentive to outperform that allowance. It also allows companies flexibility to determine the tenor of their debt. For these reasons, we consider it reasonable to assume that investors would anticipate a continuation of debt outperformance. In our base case inference model, we have made an assumption that investors assume ongoing outperformance of 50bps.

Figure 4.10: Unadjusted energy infrastructure credit spread index vs AER A/BBB 10 year rolling 12 month and average term.



Source: AER analysis reported in AER (2020), based on method in Chairmont, Aggregation of return on debt data, April 201

[16] AER (2020). Rate of Return. Energy network debt data. Final Working Paper November 2020.

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