AUSTRALIAN RAIL TRACK CORPORATION LTD

Ref No:

9 April 2009

Mr. James Cox
Chief Executive Officer and Full Time Member
Independent Pricing and Regulatory Tribunal
PO Box Q290,
QVB Post Office NSW 1230

NEW SOUTH WALES RAIL ACCESS UNDERTAKING (NSWRAU)
Review of Rate of Return and Remaining Mine Life of Hunter Valley Mines

ARTC Response to IPART Issues Papers

Dear Mr Cox

ARTC welcomes the opportunity to provide a response to IPART regarding two Issues Papers published by IPART in relation to proposals provided by ARTC for IPART consultation dealing with the Rate of Return and remaining mine life to apply to the Hunter Valley Coal Network for a five year period from 1 July 2009. The response also follows ARTC's, and other stakeholders', attendance at a public hearing on this matter conducted by IPART on 1 April 2009.

This response consists of a summarised position in relation to these elements provided in this letter and two more detailed submissions on each element attached to this letter.

At the public hearing, it became apparent to ARTC that the New South Wales Minerals Council (NSWMC) were intending to include, in addition to responding to the issues raised by IPART, a separate proposal in relation to the Rate of Return to apply, which was indicated to lie substantially below the Rate of Return proposed by ARTC, and substantially below the existing Rate of Return applicable under the NSWRAU. This was particularly surprising to ARTC given that it had been advised by the NSWMC in August last year[1] that,

[1] Letter from New South Wales Minerals Council Ltd, (Dr. Nicole Williams CEO) to Mr. David Marchant, ARTC CEO, dated 8 August 2008.

'Coal producers recognise that the cost of capital has increased since it was last determined under the NSW Access Undertaking.'

Even though there have been some changes in the economic climate since mid last year (to what could be argued a more volatile and pessimistic setting), ARTC finds it extremely difficult to reconcile the position seemingly now taken by the NSWMC at the hearing where a feasible WACC range of 4.7% to 6.8% was quoted, along with a view that the Rate of Return should be set at the lower end of this feasible range.

ARTC had previously made the NSWMC and other stakeholders aware (in a consultation document in relation to ARTC's proposed Hunter Valley Access Undertaking in July 2008) an initial position in relation to the Hunter Valley coal network rate of return of 9.3% real pre-tax for existing assets and 9.6% real, pre-tax for new assets. ARTC's proposed Rate of Return to IPART was 10% real, pre-tax; a figure that might be expected given deteriorating economic circumstances. ARTC's position in relation to Rate of Return has been known by stakeholders for 9 months.

As a result of the NSWMC position, ARTC has become concerned in relation to nature of the consultation process being undertaken by IPART. In particular, it was ARTC's understanding that the purpose of IPART's initial request for ARTC to prepare proposals, that these proposals would form the basis of IPART's Issues Papers and that the consultation would largely be around ARTC's proposals.

ARTC's proposal was published by IPART on 1 December 2008. As such, all stakeholders have had the opportunity to review these proposals for over four months. IPART's original timetable for the review had stakeholder submissions due by 30 January 2009, and a public hearing undertaken in February. Initial submissions were not substantial and, in the case of the NSWMC, foreshadowed a more detailed submission at a later date, without mentioning an alternative proposal being made.

The timetable was subsequently changed to allow stakeholders to make further submissions on the Issues Papers by 9 April, after the public hearing. Whilst this, on the surface, would not normally present any issues, the likelihood of an alternative proposal being made by the NSWMC ahead to IPART's consideration of its draft decision means that ARTC (and RailCorp) will have little opportunity to substantially comment on the alternative proposal ahead of the draft decision, apart from a few points raised by the NSWMC at the public hearing.

ARTC will do its best to provide some comment on the position broadly described by the NSWMC at the public hearing. ARTC would request, however, that IPART would take into account the fact that the opportunity for stakeholders to comment on

all positions presented to IPART would not appear to be balanced, particularly given the unexpectedly extreme nature of the NSWMC position, when assessing the merits of all views presented in coming to its draft determination..

ARTC acknowledges the position expressed by IPART at the public hearing that it expects any decision it made in relation to Rate of Return and Mine Life was likely to be interim only, pending ACCC approval of ARTC's Hunter Valley Access Undertaking, to be submitted to the ACCC shortly. ARTC further acknowledges that, due to the likely interim nature of the determination, IPART might be presently minded to retain the current WACC and mine life settings (set in 2004), presumably adjusted for current market circumstances, unless arguments for a change are compelling.

ARTC expresses some caution in adopting this approach for the following reasons:

- It is fair to say that, whilst there has been substantial consultation between ARTC and key Hunter Valley stakeholders, the Hunter Valley Access Undertaking that ARTC is submitting to the ACCC does not represent an entirely unified approach among stakeholders. This might be expected given the number and nature of stakeholders, including producers, and rail and port service providers involved, as well as the substantial changes to the operational and commercial circumstances that are currently being contemplated for the Hunter Valley coal chain.

  As such, it is not certain that the Hunter Valley Access Undertaking will be approved by the ACCC in the short term, if at all. ARTC's lease of its rail network in NSW requires that ARTC complies with the NSWRAU until such time as the ACCC approves an access undertaking submitted by ARTC. It is therefore possible that the Rate of Return and mine life setting determined by IPART in this review could be applicable in the medium term and up to five years before another review.

- ARTC is seeking substantial funding for an investment program in the Hunter Valley coal network in order to deliver capacity ahead of currently forecasted demand over the next five years. A large part of this funding will need to be sought in the near term, prior to ACCC approval of the Hunter Valley Access Undertaking, assuming this occurs. In this context, investors will be looking to the Rate of Return and mine life settings resulting from this review as a strong indicator of the likely return of and on capital in the longer run.

  To the extent that the existing settings (adjusted for current market circumstances), even if framed as interim, did not reflect the appropriate and

current risks in the Hunter Valley coal market, perverse investment decisions may result, to the detriment of the coal industry.

- In the case of the Rate of Return review, where ARTC has already proposed, and the NSWMC seems likely to propose alternative views, both different to the existing settings, there would seem to be a possibility that IPART may be convinced to move from existing settings depending on the relative degree of compulsion of arguments presented by stakeholders. This also is concerning for ARTC given the lack of balance of opportunity for all stakeholders to present arguments as described earlier.

Rate of Return Submission

ARTC presents its submission to IPART in response to the Issues paper prepared by IPART at Attachment 1.

In broad terms, ARTC's submission

- retains many of the settings it proposed to IPART in November 2008;
- adjusts the feasible WACC range to take into account recent changes in market based parameters;
- proposes an additional interim treatment with respect to the risk free rate, to take into account the current impact of the global financial crisis to apply only until such time as the risk free rate returns to normal levels;
- seeks to respond to the issues raised by IPART in the Issues paper and at the public hearing; and
- provides, where it is able, comments and views on some of the proposals made by the NSWMC at the public hearing.

The submission proposes a range of feasible WACC of 9.3% - 11.0% and a selection of Rate of Return at around 10.5% being towards the upper end of this range. It is also proposed that the WACC range and Rate of Return be adjusted once the impact of the global financial crisis on the risk free rate returns to normal levels.

ARTC considers that this proposal is consistent with the proposal made to IPART in November.

Remaining Mine Life Submission

ARTC presents its submission to IPART in response to the Issues paper prepared for IPART by LECG at Attachment 2.

In broad terms, ARTC's submission

- retains the remaining mine life estimate of 22.8 years proposed to IPART in November 2008;
- seeks to respond to the issues raised by IPART in the Issues paper and at the public hearing; and
- provides, where it is able, comments and views on some of the proposals made by the NSWMC at the public hearing.

In summary, ARTC largely seeks to maintain the position it proposed to IPART in November. ARTC believes that the existing setting for Rate of Return is too low and may result in ARTC not being able to attract sufficient funding for the substantial investment program being contemplated to deliver the capacity needed to meet current demand forecasts. A failure of the Hunter Valley coal chain to deliver sufficient capacity to meet currently forecasted demand will, as it has previously, result in lost opportunity and competitiveness of the Hunter Valley coal supply chain in international markets.

ARTC has some concerns with IPART taking a pragmatic position on the basis that any decision may only have a short life. It is not inconceivable that the decision may apply for an extended period, and even for its full term. Further, investment and investor decision making, even in the near future, will be substantial and will be based on the long term. As such, a pragmatic decision at this time could have significant adverse consequences for the Hunter Valley coal industry.

ARTC trusts that IPART will consider its original proposals, the attached submissions and comments made in this letter in coming to its draft determination.

If you have any queries in relation to the submission or reports please contact myself on 0882174314, sormsby@artc.com.au or Glenn Edwards 0882174292, gedwards@artc.com.au.

Yours sincerely

Simon Ormsby
General Manager Commercial

Rate of Return under the NSW Rail Access Undertaking

Response to IPART's Discussion Paper

April 2009

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Disclaimer

Synergies Economic Consulting (Synergies) has prepared this advice exclusively for the use of the party or parties specified in the report (the client) and for the purposes specified in the report. The report is supplied in good faith and reflects the knowledge, expertise and experience of the consultants involved. Synergies accepts no responsibility whatsoever for any loss suffered by any person taking action or refraining from taking action as a result of reliance on the report, other than the client.

In conducting the analysis in the report Synergies has used information available at the date of publication, noting that the intention of this work is to provide material relevant to the development of policy rather than definitive guidance as to the appropriate level of pricing to be specified for particular circumstance.

Contents

Overview

Snergies Economic Consulting (Synergies) welcomes the opportunity to respond to IPART's Discussion Paper in relation to the rate of return to be applied under the New South Wales Rail Access Undertaking (the Discussion Paper).

The case for ARTC's proposed WACC is detailed in the submission provided to IPART on 1 December 2008, including the accompanying report by Synergies, which was prepared in December 2008 (Synergies' WACC Report). It is not intended to reproduce this information in detail here. Instead, reference will be made to the relevant sections of the submission.

Responses to each of the questions posed by IPART in the Discussion Paper are provided below. Before we do this, we would like to make some overarching comments in relation to ARTC's proposal, including responding to some issues raised at IPART's Hearing on the 1st of April.

General Comments

Reference is made to the Executive Summary of Synergies' WACC Report for an overview of the approach taken in analysing ARTC's WACC, as well as the rationale for the approach in assessing each parameter.

Overall, the approach we have taken in relation to the analysis was to undertake an assessment of the most appropriate rate of return for the business today, in the current market environment, using recent market data and referencing relevant regulatory precedent. The rate of return is being reviewed in what is a highly uncertain and difficult market environment. Indeed, Synergies' WACC Report does not seek to make any adjustment for the impact of the global financial crisis as its full extent was still emerging at the time it was prepared. This issue is discussed further below in the responses to IPART's questions.

One of the most significant issues now facing this review is the uncertain outlook for the export coal industry following the global economic downturn and the fact that ARTC is looking to significantly increase the size of its RAB in this environment. There is considerable speculation regarding the outlook for the industry however even if reasonable confidence could be placed in demand forecasts, the horizon of these forecasts is much shorter than ARTC's investment horizon. The assets that ARTC is constructing now have very long economic lives and a long capital recovery period.

The capacity constraints in the Hunter Valley coal system have been well publicised. ARTC's 2008-18 Hunter Valley Strategy outlines its proposed investment program to address capacity constraints on the network and position the industry to be able to maximise growth opportunities. ARTC is expecting to undertake this investment however it is reasonable to expect that it can generate a reasonable commercial return in doing so. While having adequate incentives to invest in essential infrastructure is of fundamental importance in any economic climate, it is especially critical now.

Industry's expectations in relation to supply chain investment have been made very clear in the past. For example, in its submission to Infrastructure Australia, the NSW Minerals Council stated:

> Certainty of access to supply chain capacity is critical to the viability and investment decision of minerals exporters. In the NSW mining industry, the most urgent and high profile supply chain constraint exists in the Hunter Valley. The opportunity

> cost to the State and to Australia's reputation as a reliable provider of coal exports is significant.[1]

In relation to the planned investments in the supply chain (including ARTC's projected expansion program), it states:

> Despite these large planned investments in rail and port capacity, the system remains constrained, with an estimated 5-10Mt shortfall in 2007 representing more than $400 million in lost exports. There remains significant uncertainty about entitlement to coal chain capacity, both in the short term to 2010 and in the longer term.
>
> The costs include:
>
> - Lost export revenue, estimated at more than $2 billion between 2005 and 2010
> - Additional costs, with demurrage estimated at more than $300 million per annum
> - Decreased customer confidence and loss of export markets / market share
> - Lost employment opportunities
> - Future investments in new mining export infrastructure and growth at risk.
>
> In the light of predictions of strong, long-term demand for NSW coal resources, and the opportunity available to Australia through the required growth in global coal production to meet forecast demand, the costs to NSW and Australia are immense.[2]

A reasonable conclusion from this is that the costs of under-investment are considered to be very high.

Following the IPART Hearing, we understand that the NSW Minerals Council is proposing a range between 4.7% and 6.8% and that ARTC's WACC should be set at the low end of that range. The rationale for such low numbers is not known although presumably will be detailed in its submission. However, we do understand that it has also refuted the arguments in relation to the asymmetric consequences of error (which are that the costs of under-investment are high and exceed the economic and social costs of prices being set too high). This seems to be in direct contradiction to the statements made above.

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1 NSW Minerals Council Ltd (2008), Submission to Infrastructure Australia: Australia's Future Infrastructure Requirements, p.1.

2 ibid., p.12.

ARTC has advised that it is not prepared to invest to earn the low rate of return proposed by the NSW Minerals Council in representing coal producers. If such a low rate of return was awarded, it is therefore highly likely to lead to under-investment on the network. This in turn could give rise to the significant costs cited by the NSW Minerals Council, as quoted above.

The NSW Minerals Council has also indicated that it is seeking to rely upon the Australian Energy Regulator's (AER's) Draft Statement of Regulatory Intent (SoRI) for at least some of the parameters. We have some fundamental concerns with this.

First, it pertains to a different industry. Second, it is a draft decision. Third, not only is it in draft form, but the reaction from both the financial markets and stakeholders has been unprecedented, making the draft SoRI highly controversial. In this regard, what is particularly telling are the reactions from independent market participants. Comments submitted to the AER are provided in the following Box.

Box 1 Comments submitted to AER by independent market participants

"While we concede that the prevailing, highly uncertain environment makes benchmark setting for the next five (or more) years extremely fraught, the conclusions reached by the AER are virtually impossible to reconcile with the world as we know it today...We consider the draft determination wholly unsatisfactory and strongly advocate all parties affected by it to adopt capital strikes until a fair and reasonable allowable rate of return is established." (Brook Asset Management)

"...the draft Statement of Regulatory Intent (DSRI) on WACC parameters for electricity transmission and network service providers released by the Australian Energy Regulator (AER) in December fails to provide the degree of confidence necessary for us to continue recommending the investment of capital in this sector by our clients…The Draft Statement, if confirmed, is likely to lead to a dramatic reduction in private sector investment in the Australian utility sector at the very time when securing long term private sector investment in the sector has never been more critical. This would mark the failure of the regulatory regime." (AMP Capital Iinvestors)

"Whilst we appreciate that the AER's review is limited to the individual WACC parameters rather than a review of the overarching framework in which the WACC is applied, we are concerned, given the significant capital expenditure required in the sector and the dramatic deterioration in global capital markets in the past year, by the AER's proposal of a nominal vanilla WACC which was below what the network operators had proposed. It was also below what the markets had, in our opinion, reasonably expected considering the previous regulatory decisions...the draft WACC decision has reduced our confidence in investing in the regulated utility Australian sector." (Macquarie Funds Group)

Data source: Macquarie Research (2009), Submission to the AER: Equity Market Responses, January.

We are therefore of the view that no weight should be given to the AER's Draft SoRI in considering an appropriate WACC for ARTC.

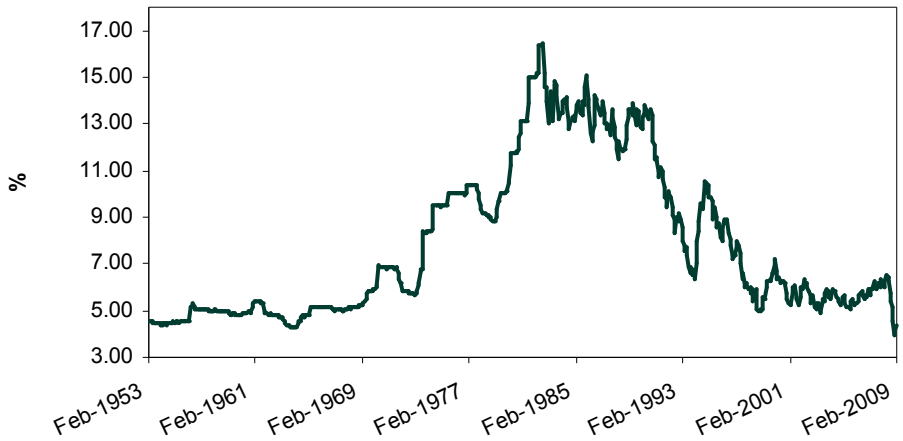
Responses to each of the questions in the Discussion Paper are now provided.

Response to Questions

1. ***Should the global financial crisis change the way regulators estimate the WACC? If so, how should this be done? Should any adjustments be temporary?***

The global financial crisis ('the crisis') is seeing conditions in financial markets that are unprecedented, which reflects the considerable uncertainty surrounding the duration of the crisis and the nature and extent of its highly pervasive impacts. For example, yields on ten year Commonwealth Government bonds have fallen to their lowest level since 1953, as shown in the following figure.

Figure 1 Ten year Commonwealth Government Bond Yields: February 1953 to February 2009



Data source: RBA, Bloomberg

There are a number of ways that the crisis could impact WACC, including:

- a significant reduction in the risk-free rate, given the compression in Commonwealth Government bond yields that has resulted from the 'flight to quality';
- increases in the debt margin, which reflects the significant premium that lenders will now require to lend to BBB rated borrowers;

- increases in the expected market risk premium. For example, a paper submitted to the AER by Officer and Bishop in January 2009 suggests that the short-term MRP is between 16% and 18%.[3]

We are not of the view that an adjustment is required to the debt margin because this is simply reflecting the required return sought by lenders as a result of the perceived increase in risk. There are issues in relation to obtaining a suitable estimate of the BBB bond yield given the lack of liquidity in the market, although this issue has existed for some time. It is currently extremely difficult for BBB-rated borrowers to source long-term debt domestically and that is likely to remain the case for at least the duration of the crisis. In the interim, however, we are proposing to retain the methodology used in the proposal, which is based on recent precedent applied by the ACCC and other Australian regulators.

We are also not proposing to seek an adjustment to the market risk premium (MRP), notwithstanding that current forward-looking estimates suggest that the proposed range of 6 to 7% is very conservative (the impact of the crisis on historical averages of the risk-free rate is addressed in the response to Question 7). Historically, long-term historical estimates have been used as a proxy for the forward-looking MRP as they are considered the most robust estimates, particularly when compared to forward-looking measures such as survey data. One of the key reasons for this is because the CAPM framework requires that a long-term forward-looking view is taken and short to medium-term estimates can be highly volatile and hence unreliable in this context.

There is considerable noise in the current market data reflecting the unprecedented effect of the crisis. As will be shown below, the fall in the sharemarket in 2008 is a 'more than three standard deviation event'. We are therefore of the view that 2008 data should not be included in the calculation of the MRP. The historical MRP is a proxy for the forward-looking MRP. Incorporating the effects of an unprecedented event 'locks in' the effect for the duration of the regulatory period. In the absence of more robust evidence we are therefore proposing to continue to place reliance on the long-term historical average, which has been between 6% and 7%. If this is considered in the context of the forward-looking estimates of the MRP and current market sentiment, this is likely to significantly understate the actual MRP, at least for the next few years.

The only adjustment we are therefore proposing is to the risk-free rate. This is different to the MRP because the long-term average value of the MRP remains fairly stable through time (unless there is a structural change, as outlined above). The risk-

[3] Professor B. Officer and Dr. S. Bishop (2009), Market Risk Premium: Further Comments, Prepared for Energy Networks Association, Australian Pipeline Industry Association and Grid Australia, January, p.7.

free rate, on the other hand, is reset at the start of each regulatory period based on current market data. This in turn is assumed to represent the best approximation of the long-term forward-looking risk-free rate at that point in time.

While Commonwealth Government bond rates have been seen as a reasonable proxy for the risk-free rate (which needs to reflect zero default and re-investment risk), since the crisis it has become a particularly poor proxy. This is because non-risk factors – primarily based on the 'flight to quality' that has occurred since the crisis began – are a key driver of the compression in yields. These non-risk factors distort the proxy value and adjustments need to be made to remove the effect of the distortion. This impact has been termed the 'convenience yield' and has always been present to some extent.

There is evidence to show that the convenience yield has spiked in recent years.[4] While it could be argued that Commonwealth Government bond yields have always underestimated the required return on the risk-free asset under the CAPM (to the extent that yields are always influenced by these other factors, at least in some way), the impact is now so significant that some adjustment should be made for the *increase* in the convenience yield (not its absolute value).

In our view, the adjustment for this compression should be made at least for the duration of the global financial crisis. As noted above, as the 'convenience yield' has always been present to some extent, an adjustment is only sought for the recent spike that has occurred in recognition of the abnormal market conditions resulting from the global financial crisis. This increase is estimated to be in the order of 60 basis points, which is added to the current estimates of the risk-free rate.[5]

There has been some debate about this issue in regulatory determinations, particularly whether the nominal Government bond yields are seen to be 'biased' as a consequence of the issues outlined above. We are not proposing that these yields are biased. The point is that at the current time, they serve as an unacceptably poor proxy for the risk-free rate under the CAPM.

It is also important to highlight that this impact is not 'offset' by the increase in the debt margin. The increase in the debt margin reflects repricing of risk and the margins that are being observed is consistent with what economic theory would predict. The key problem with the risk-free rate is that Commonwealth Government bond yields are being driven by non-risk factors that are not contemplated by CAPM. In our view,

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4 Competition Economics Group (2008), Establishing a Proxy for the Risk-free Rate, A Report for the APIA, ENA and Grid Australia, September.

5 Ibid.

applying an adjustment for these factors would result in a proxy that is more consistent that framework.

As noted above, we are only proposing that this adjustment is temporary. The adjustment should continue to be made at least for the duration of the global financial crisis, or, until the convenience yield reverts to its long-term average.

2. ***Is there any reason for IPART to depart from ARTC's proposal to use nominal CGS yields averaged over 20 days to determine the risk free rate?***

The proposed adjustment to the risk-free rate to reflect the impact of the global financial crisis on Commonwealth Government bond yields was outlined above.

The other issue we would like to address here is the term of the risk-free rate. It is noted that the NSW Minerals Council has proposed that the horizon should be adjusted to be consistent with the term of the regulatory period, based on the AER's draft SoRI.

The debate in relation to the AER's SoRI has been based on the term of the debt funding, as it is assumed that to the extent to which businesses fund themselves for terms shorter than ten years, using a ten year risk-free rate will overcompensate them for the cost of debt.

First, the Joint Industry Associations (JIA), representing the regulated energy businesses, have submitted evidence to the AER to show that they do fund themselves for longer terms. This is consistent with what economic theory and commercial practice would predict, that is, businesses with assets with long economic lives will fund themselves with long-term debt. This is similarly the case with ARTC.

Second, while this shows that the businesses are not being 'overcompensated' if a ten year rate is used, the term of the funding is an irrelevant consideration when setting the horizon for the risk-free rate under the CAPM. Notwithstanding all of the recognised limitations of the CAPM (which have been acknowledged by regulators), it is the model that we continue to apply in the absence of any superior alternatives. The question therefore becomes one of what is the most appropriate horizon for the risk-free rate within the context of the CAPM.

There are many versions of the CAPM but the one most commonly applied in regulatory practice is the Sharpe version. The Sharpe CAPM is a single period model, as are many of the more commonly used versions of the CAPM. Investors forming their return expectations under a single period model are doing so based on a long-term, forward-looking view. It is generally accepted commercial (and up until the

AER's draft SoRI) Australian regulatory practice that the most appropriate proxy for the long-term, forward-looking risk-free rate is the yield on the longest liquid sovereign government bond maturity available. That is why the ten year bond rate has been used.

Again looking at the issue from a theoretical perspective, investors buy assets having a return that they expect to make over the time horizon that they will hold the asset. The risk-free rate proxy needs to meet two basic conditions. The first is that there can be no default risk and hence Commonwealth Government securities are used. Secondly, for an investment to have an actual return equal to its expected return (the CAPM is an ex ante model), there can be no reinvestment risk. To have no reinvestment risk requires the term of the risk-free proxy to approximate the life of the investment or life of the assets. Long life assets require the risk-free proxy to be long-dated. The longest dated, liquid proxy is the 10 year Commonwealth Government bond.

No reference has ever been made to the term of the debt funding when setting for the horizon for the risk-free rate and this certainly hasn't been a consideration in the relevant literature. Indeed, it is generally recognised that there is a clear distinction between the investment and financing decision. That is, when investment decisions are being made, the way in which a business funds itself (including the maturity of the debt) is irrelevant.

When setting the horizon for the CAPM we are setting the assumed horizon over which investors' expectations are formed. Regulators tend to have a horizon limited to the term of the regulatory period (for pricing purposes). Investors in regulated businesses are making their assessment over the long-term horizon. If we are to continue to apply the CAPM model in this context, it is this horizon that is relevant. We cannot arbitrarily modify the assumptions of the CAPM to suit the constraints imposed by the regulatory framework (and if that was the case, other assumptions may need to be modified). Further, none of these assumptions reference the term of the underlying debt funding.

While investors will consider the implications of the periodic resets as part of forming their expectations in relation to expected future cash flows, their investment horizon is not truncated at the end of the current regulatory period. Similarly, investors in unregulated businesses will form their expectations over a similar horizon (noting that many unregulated businesses would review the market-sensitive parameters of their WACC on a regular basis, such as annually). If the horizon is to be limited to the term of the regulatory period, that may necessitate the use of a multi-period model. Such a move has not been seriously considered by an Australian regulator to date, nor are we proposing that it should be considered here.

For the reasons outlined at the beginning of this document, we do not view the AER's draft SoRI as relevant precedent for ARTC. In any case, in relation to the horizon of the risk-free rate, as the AER's draft SoRI focussed on the term of the debt funding, it has not fully considered the appropriate assumptions to apply within a CAPM context.

It is therefore proposed that the risk-free rate should continue to be set based on a long-term, forward looking view - which necessitates a ten year term in the Australian market - consistent with commercial and past regulatory practice.

3. *What is the most appropriate methodology to estimate the debt margin for the calculation of WACC for the Hunter Valley Coal Network?*

The rationale for the proposed debt margin is provided in Synergies' WACC Report. This is based on the methodology that has been most commonly applied by regulators, including the ACCC, since liquidity issues emerged in the long-term BBB bond market. This methodology takes a 20 day average of the published 8 year bond yield (using Bloomberg data), and then adds the difference between the 10 and 8 year A rated bond yields averaged over the same 20 day period.

The lack of liquidity is an issue. However, there are limited alternatives available. CBA Spectrum is one such data source although access to this service has now been limited to CBA customers, as noted by IPART.[6] Overseas market data may also be used (from more liquid markets such as the US, for example) however there are concerns regarding their applicability to Australia given some of the drivers underpinning current market rates might be different.

In its Discussion Paper IPART has also included some data on debt margins for specific utility bond issues in Australia (all of which are in the energy sector). We have some significant concerns with this. The main concern is that it has included non-BBB rated issues in the table – in fact most are AAA credit-wrapped issues.

AAA rated issues are of no relevance to determining the cost of debt for a BBB rated business. The only way the data on the credit-wrapped issues could be of relevance was if:

- the company's underlying credit rating is BBB (i.e. without the credit wrapping); and

[6] CBA Spectrum estimates were previously considered negatively biased because they included one estimate in their sample from the next (higher) credit rating category. It is understood that this has now been addressed by CBA however we have not confirmed this directly with them.

- the cost of the credit wrap (which should reflect the difference between a BBB and AAA credit) is added to the AAA debt margin. This is not done here. The yields quoted will be based on AAA credit. The cost of the credit wrapping is an internal cost borne by the issuer.

Apart from these problems, in our view significant caution should be exercised in placing reliance on specific issues at any point in time. This is because the yield achieved on that issue will be a function of a number of factors, including factors that are specific to the relevant business. Referencing a yield curve (from Bloomberg or CBA Spectrum) is considered a more appropriate approach.

The proposed allowance in Synergies' WACC Report was 300 basis points. This was based on a twenty day average to 28 November 2008. The twenty day average as at 31 March 2009 was 336 basis points. It is understood that this will be updated prior to the Final Decision.

It is understood that IPART is intending to release a separate Discussion Paper on this issue. We would be proposing to review this paper and consider any possible implications for ARTC's debt margin once it is released.

4. What allowance should be added to the debt margin for the cost of raising debt?

The debt margin reflects a premium for credit and liquidity risk, however does not include any allowance for the actual costs of raising debt. Issuing debt or raising funds from debt issues is not a costless transaction. In practice, an efficient benchmark firm will incur transaction and administration costs in raising and managing debt.

Unlike the debt margin, these costs are less specific to the business, although they vary depending on the volume of debt raised, the time that the debt is raised and the manner in which it is raised. Referencing previous regulatory decisions (which have sourced estimates of these costs from financial institutions) is therefore considered appropriate.

As outlined in Synergies' WACC Report an assumption of 12.5 basis points has been consistently applied in regulatory decisions. It is understood that this assumption was reflected in the debt margin that was determined by IPART in 2005.

5. Are there other feasible market methods to estimating forecast inflation? and

6. Is it appropriate to use a non-market estimate of forecast inflation for calculating the rate of return?

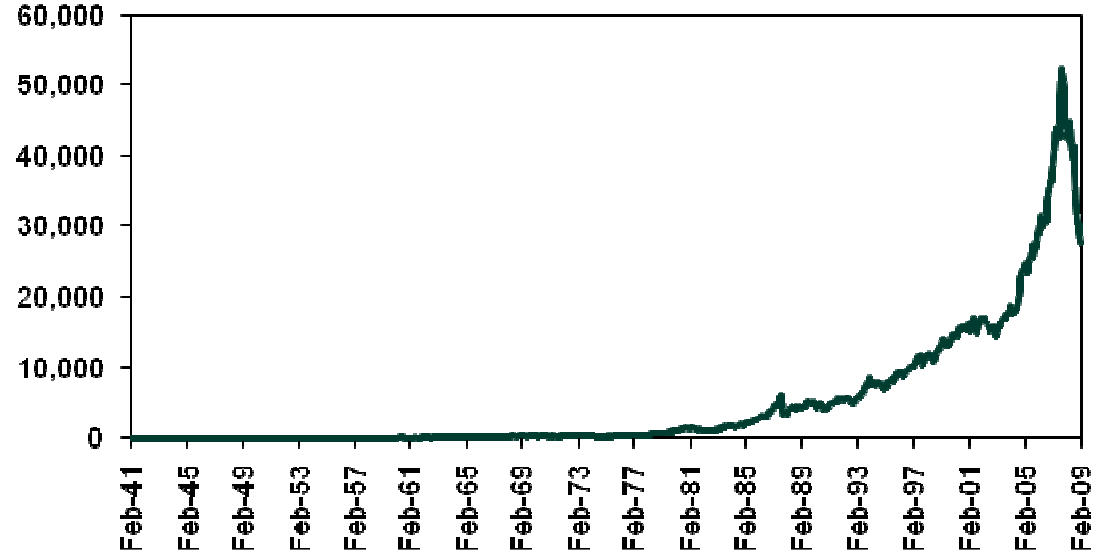
Answers to questions 5 and 6 have been addressed in detail in a separate report by Synergies entitled "Adjusting for Expected Inflation: Submission to IPART", which has been provided to IPART in response to the concurrent review it is undertaking in relation to the estimation of inflation.

7. ***Is there any reason for IPART to depart from its recent regulatory decisions to adopt a MRP of 5.5% to 6.5%?***

The rationale behind the 6% to 7% range submitted by ARTC is outlined in detail in its submission and so will not be re-presented here (refer section 4.5 of Synergies' WACC Report). The main concern with IPART's proposed range is that it excludes values in excess of 6.5% suggested by long-term studies.

IPART observes that one of the issues in using a long-term average is the impact of the recent fall in the sharemarket following the global financial crisis. The following figure tracks the value of the All Ordinaries Accumulation Index between 1941 (which is consistent with the starting point we have used for the MRP analysis we have provided below) and February 2009.

Figure 2 All Ordinaries Index: 1941 to 2008



Data source: Bloomberg, RBA

Given the ex post MRP is measured with reference to actual returns, the significant drop in returns will be reflected in a lower estimate for the MRP. This directly contradicts the forward-looking estimates of the MRP which typically follow a market crash, which is an expectation of substantially higher returns going forward. As outlined in the response to Question 1 above, the short-term outlook for the MRP is over double the recommended 6% to 7% range.

IPART's concern is therefore a valid one. However, in our view the best way to deal with this is to put the most recent data in the context of history. We have estimated the MRP over a number of different periods. Each period begins in June 1941 and ends in December in each year of the current decade. The results are shown in the following table.

Table 1 MRP: Periods commencing June 1941 and ending December 2000 to 2008

Averaging period	MRP
June 1941 to December 2000	6.5%
June 1941 to December 2001	6.4%
June 1941 to December 2002	6.1%
June 1941 to December 2003	6.1%
June 1941 to December 2004	6.3%
June 1941 to December 2005	6.5%
June 1941 to December 2006	6.6%
June 1941 to December 2007	6.7%
June 1941 to December 2008	5.8%

The fact that one year of data (being 2008) can have such a significant impact on a long-term average (sampled over at least 60 years), highlights how unique this period is. Indeed, the outcome is in excess of three standard deviations from the mean. In our view, there is a strong case for excluding 2008 from the dataset. This is particularly the case given long-term averages ending in each other year of this decade have yielded estimates of between 6.1% and 6.7%. This provides clear evidence to suggest that an estimate of between 6% and 7% remains the most appropriate long-term forward-looking estimate for the MRP.

What we may be observing is a period of structural change where investors are reassessing they way they evaluate and price risk. If this occurs, long-term estimates can no longer be used, recognising that we will only have shorter term estimates, which are likely to pose significant issues in terms of reliability. However, until such evidence clearly emerges, long-term historical averages remain the best of the available alternatives as a proxy for the forward-looking risk-free rate.

8. Is there any reason for IPART to depart from its recent regulatory decisions to adopt a gamma value of 0.3 to 0.5?

ARTC has submitted a value for gamma of 0. The rationale for this is provided in the Synergies' WACC Report.

IPART is proposing a range of 0.3 to 0.5. Its main reasoning for this is because it is of the view that there is insufficient evidence to depart from this precedent. It cites estimates from two of the most recent studies, being zero (Feuerherdt, Gray and Hall (2007)) and 0.58 (Handley and Maheswaran (2008), although we note that this estimate actually comes from the Beggs and Skeels (2006) study). It states that:

> The higher figure has received more weight by other regulators and IPART would tend to agree with this.[7]

We are not clear what IPART's reasons for agreement are, other than that it does not consider the evidence supporting a value of zero to be sufficiently persuasive. If this evidence is not considered sufficiently persuasive, we are of the view that there would be benefit in participants being able to understand why it is not.

While we have discarded the relevance of the AER's draft decision to this review, there are a number of significant concerns with its proposed gamma estimate of 0.65 (which have been set out in detail in the JIA's submission and accompanying consultants' reports).

The key study that the AER relied upon in deriving its estimate was the paper by Beggs and Skeels (2006), as cited by IPART. The main conclusion relied upon here was that the tax law changes in 2000 have seen an increase in the value of theta to 0.572. This in turn requires evidence of a structural break. Subsequent work undertaken on behalf of the JIA by SFG and Synergies showed that the supposed evidence of a structural break following this tax law change was due to sampling error.[8]

These papers concluded that there is no robust evidence to demonstrate that such a break has occurred, and accordingly, there is no robust evidence to show that the value of theta has increased since this time. Additionally, Beggs and Skeels did consider their overall results and commented that the market does not value franking credits:

> Moreover, the franking credit drop-off ratios were not significantly different from zero for much of the sample data. This indicates that marginal investors did not value the franking credit, and provides and explanation as to why gross drop-off ratios less than 1 were observed.[9]

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[7] IPART (2009), Review of Rate of Return under the New South Wales Rail Access Undertaking, Rail Access – Discussion Paper, February, p.20.

[8] Strategic Finance Group (2009), The Value of Imputation Credits as Implied by the Methodology of Beggs and Skeels (2006), Report Prepared for ENA, APIA and Grid Australia, 1 February; Synergies Economic Consulting (2009), Peer Review of SFG Consulting Reports on Gamma, A report to the ENA, APIA and Grid Australia, January.

[9] D. Beggs & C. Skeels (2006), "Market Arbitrage of Cash Dividends and Franking Credits", Economic Record, 82, p.249.

We also have significant concerns with placing reliance on the paper by Handley and Maheswaran (2008). This study attempts to estimate the value of gamma from tax statistics, rather than market data. They attempt to measure the quantum of credits as opposed to the value of the credits. While such an analysis will help provide some context as to the possible upper bound for gamma, the study does not *value* gamma.

The study attempts to ascribe a value for gamma based on the proportion of franking credits created 'on paper' but it does not measure the value that investors place upon the credits. Investors acquire shares on the expectation of earning a return. The actual return earned is often different to the expected return due to risk. Shareholders price the risk and place a *value* upon the share. The value reflects the risk to which the shareholders are exposed. The Handley and Maheswaran study quantifies the credits but says nothing about the potential *value* of these credits to shareholders. This is the key objective in attempting to value gamma and it is why primary reliance needs to be placed on market data.

What is evident from the preceding discussions is that there are a number of studies that have sought to estimate the value of gamma. A number of these have concluded that gamma has no value and others that conclude it has a positive value – the range of measures produced by the latter is wide. This certainly presents a dilemma for regulators.

IPART at least gives some recognition to this by proposing a range of 0.3 to 0.5. Our concern is that the continued adoption of a value of 0.5 gives virtually no recognition to the studies that have concluded that the value of gamma is zero. At minimum, giving appropriate recognition of the studies that have demonstrated that the value of gamma is zero would involve setting the lower bound at zero. The implication of a range of 0.3 to 0.5 is that zero is not within the range of reasonable outcomes. This therefore discards the findings of a number of recent, reputable Australian studies.

9. What is the appropriate capital structure that should be adopted in the WACC calculation for the Hunter Valley Coal Network?

ARTC has proposed a range of between 50% and 55%. The rationale for this is detailed in Synergies' report.

We acknowledge that it is extremely difficult for firms to raise debt in the current environment and that this may continue for the short- to medium-term. While we are not proposing to alter the recommended range for ARTC's gearing, in our view this confirms that a credit rating of no more than BBB could be supported in this environment.

10. At what level of gearing could ARTC obtain a BBB+ credit rating for debt?

This is an extremely difficult question to answer. A one-notch difference in rating seeks a level of precision that is not realistic given the tools and information available to regulators and businesses. In our view, this question can only be addressed with any reliability by a credit ratings agency. Overall, however as noted above, we would question how anything higher than BBB could be contemplated for ARTC given its risk profile, the difficult environment currently facing the coal industry and the (uncertain) implications of the global financial crisis.

11. What is the appropriate asset beta that should be used to derive the equity beta for estimating the cost of equity for the Hunter Valley Coal Network?

ARTC has proposed a range of between 0.5 and 0.6 for its asset beta. The rationale for this is detailed in Synergies' WACC Report. The recommended range is based on the fundamental risk profile of a business operating in this industry. Where it sits in this recommended range is influenced by the first principles analysis, the asymmetric consequences of regulatory error, and the treatment of stranding risk. The latter is the subject of separate questions so will not be addressed here.

There are a couple of comments made in the Discussion Paper that we would like to address, as well as some other issues that were discussed at the hearing between IPART and stakeholders held on the 1st of April.

IPART's equity beta estimates

IPART has published its own beta estimates for North American rail firms in Table 4.6 in the Issues Paper. This was the same sample that has been used by ARTC. The estimated equity betas are different. While it is not unusual to observe changes in beta estimates taken at different points in time (as will be discussed below), it is not clear that we are looking at 'like for like' comparisons, mainly in terms of the methodology used by IPART, and in particular, whether it is based on five years of monthly data.

IPART has not reported any tests of statistical significance. Beta estimation is an inherently uncertain process and is prone to measurement error. Reporting the quality of the estimates is considered essential for interpretation. Instead, IPART has effectively dismissed the use of these statistics and has suggested that instead of providing users of the data with information regarding their reliability (which is their

generally accepted purpose), it is based on selecting estimates with an upward bias. This will be explored further below.

Time variation of beta

IPART has indicated that in assessing beta, it needs to give consideration to how ARTC's risk profile has changed since the previous review. However, this assumes that if the risk profile has not changed, the beta estimate remains constant through time. Whether or not the risk profile has changed is a separate question and the key issues we have raised in this context are the change in the market environment and the size of the investment program that is currently faced by ARTC.

Beta estimates do not remain constant through time. First, this could be due to noise in the data and measurement error. Second, beta is measured by regressing the firm's returns against the returns of the market. Beta is a measure of relative risk. Beta will change if the systematic risk of the firm changes and/or the base against which it is measured (being the systematic risk of the market) disproportionately changes.

Through time, the firm's asset beta can change not only due to a change in the risk profile of the firm, but also due to:

- a change in the risk profile of another firm that is represented in the market index;
- a change in the proportionate value of the sector that the firm operates in;
- a change in the value of another sector in the market; and/or
- a change in the risk profile of the market as a whole.

There exists a multiplicity of reasons for why beta will change through time. It is impossible to attribute the cause of that change and isolate the potential impact on the firm's beta.

To demonstrate this point, portfolio asset betas have been constructed for the sample of US rail firms, using rolling windows (all based on five years of monthly data). The first of these betas is calculated (using five years of monthly data) as at the end of December 2003. These rolling betas are done on a monthly basis up until March 2009, with a new months' observation added and the oldest observation dropped from the regression. The results are shown in Figure 3 below.

The portfolio betas have been estimated with and without Genesee & Wyoming. This is because IPART has suggested it might be an outlier. The rationale for this is not stated but would appear to be because its asset beta is higher than the others. We do

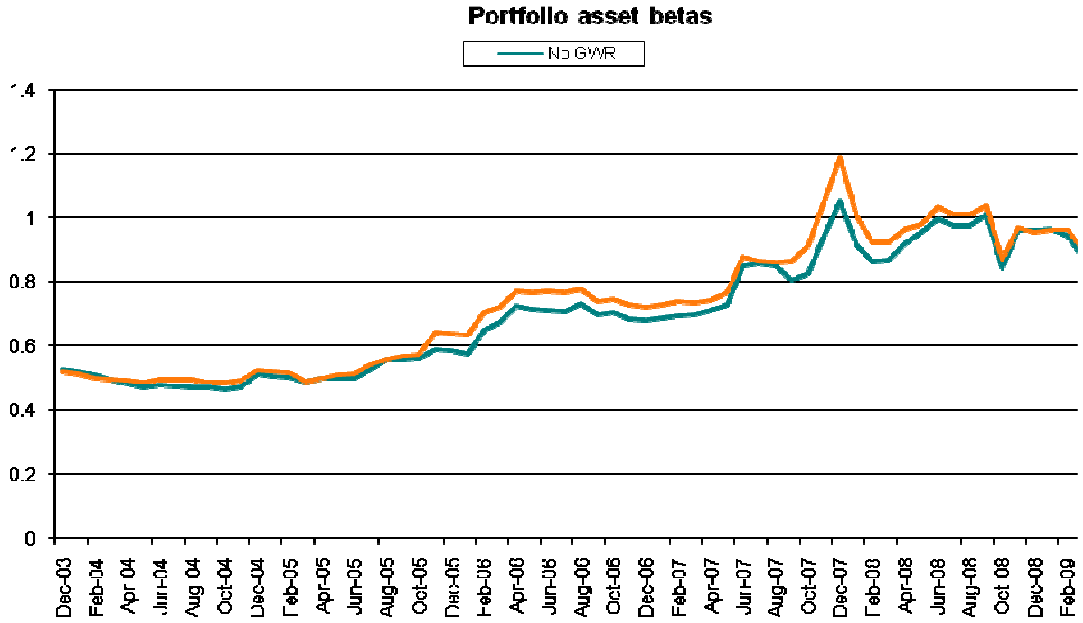
not agree that this necessarily means this estimate is an outlier, and discarding it risks excluding a relevant piece of information to inform the beta assessment. The key reasons that an individual beta estimate might be excluded are:

- it is not considered a valid comparator (relative to the other firms, noting that none of these firms are purported to be 'like with like' for ARTC);
- the estimate is more than two standard deviations from the mean. Based on our analysis, Genesee & Wyoming's estimate is more than one standard deviation from the mean but is less than two;
- it is more than 1.5 times the interquartile range from the upper or lower quartiles; or
- it has been influenced by one-off, firm-specific events that are unlikely to be repeated[10].

In any case, Figure 3 shows that whether or not this estimate is excluded has little impact on the portfolio betas.

[10] Gray et al examine the treatment of outliers in a report on beta estimation techniques. In this context, they consider whether individual return observations should be excluded from a series when estimating beta. They recommend that an outlier should be excluded if they are one-off, firm-specific factors rather than systematic risk factors. If the events may reoccur in future at regular intervals, the observations should be included. Refer: S. Gray, J. Hall, R. Bowman, T. Brailsford, R. Faff, R.Officer (2005), The Performance of Alternative Techniques for Estimating Equity Betas of Australian Firms, Report Prepared for the Energy Networks Association.

Figure 3 Rolling asset betas: portfolio of North American Rail Companies – December 2003 to March 2009



Data source: Bloomberg

This shows that asset betas have increased since IPART undertook its last review. The reasons for this are not known. However, this is not a reason to give priority to an estimate taken at one point in time in the past, which is effectively assuming it is a more robust or reliable estimate than the betas estimated using more recent market data.

It is for this reason that beta analysis needs to be done at the current point in time using recent market data. This is the approach that has been taken in the Synergies' WACC report. It has sought to assess an appropriate beta for ARTC based on recent market data. It has not reviewed the appropriateness of the estimate determined by IPART in 2005, although it is noted that this is the lowest asset beta that has been determined for a regulated rail business in Australia.

Constrained versus unconstrained

IPART has sought to consider the constrained versus unconstrained parts of the network. It has observed that in those parts of the network where the full economic costs are not being recovered, ARTC has less market power.

The analysis in Synergies' WACC Report did not focus on the differential impacts of the constrained versus unconstrained parts of the network. Instead, the implicit assumption is that ARTC is able to price at the ceiling. In other words, it has not

sought to make any adjustment or allowance for the unconstrained parts of the network. It could be argued that these parts of the network have higher systematic risk (via the reduction in market power). As this is not reflected in the beta assessment, it could be regarded as conservative.

A key reason this was not considered is because it is difficult to account for these differences given the proportion of constrained versus unconstrained varies through time. Also, delineating the impact of each on beta with any degree of accuracy is not possible and beta adjustments could only be made subjectively. However, if any proportions are to be used, they should be the best forward-looking estimates, consistent with the approach taken to other CAPM parameters.

ARTC has estimated, based on the quantum and location of present investment projects over the next 5 years that around 63% of the Hunter Valley coal network RAB will be constrained in 2013-14. This assumes the following:

- The network between Dartbrook and Werris Creek is included in the RAB (at a value of $140m in 2008 resulting from a valuation undertaken by ARTC at that time to be included in ARTC's upcoming application to the ACCC for its Hunter Valley Access Undertaking). The size of the investment north of Muswellbrook means that there is no certainty that this part of the Hunter Valley coal network will become constrained over the next five years.
- The Ulan Line is constrained. ARTC has proposed to IPART that this line could become constrained in its 2007-08 ceiling test submission, but this position is yet to be approved by IPART. In any event, the revenue from this line presently comes from only two mines on the line. Should either mine cease or reduce production level, present conditions are such that the line may become unconstrained again.
- ARTC's investments on the unconstrained North Coast line servicing some coal mines are not included. Inclusion would further reduce the extent of RAB that was constrained.

The coal traffic using a part of the Hunter Valley coal network also operates over a significant portion of the Rail Infrastructure Corporation network north of the Gap, where ARTC has no control over access pricing and investment.

Overall, we have not sought to make an explicit adjustment to the WACC here given the practical difficulties of doing so and the uncertainties as to the long-term split between constrained and unconstrained parts of the network. Because the analysis implicitly assumes that ARTC is able to price at the ceiling, it should be regarded as conservative. If anything, overlaying the possibility that a reasonable proportion of the

network could be unconstrained (although this remains uncertain) provides further support for selecting an estimate from the upper bound of the range.

Use of descriptive statistics

As noted above, IPART has suggested that the use of t-statistics and R^2 statistics results in an upward bias in the estimates. Regression analysis is a statistical procedure that is commonly used to estimate beta in the absence of being able to observe the 'true' value of that beta. The explanatory power of the resulting estimate is of fundamental importance. If the resulting estimate has relatively low explanatory power, we cannot be confident that the estimate provides any valuable information regarding the true value of that firm's beta. In other words, the estimate is essentially meaningless.

t-statistic

The t-statistic is used to test statistical significance. It is calculated by dividing the standard error of the estimate by the beta coefficient. The standard error measures the sampling variability or precision of an estimate. That is, as the estimate is derived from a sample distribution, it measures the precision of the model parameter. A high standard error indicates that the underlying distribution is large. A lower standard error is preferred as it indicates a more precise measure. This is done within a specified confidence interval (usually 95%). We have applied a threshold value of two in testing the statistical significance of our estimates as this is the standard rule of thumb applied in regression analysis.

A low t-statistic will be due to one of two things – a high standard error or a low beta. IPART is suggesting that if it is due to the former, firms will be discarded if they have low asset betas. However, this in turn implies that firms with low betas will always have low t-statistics. That is not the case.

For example, our original sample of rail firms included a number of Japanese companies which were discarded primarily because they are mainly engaged in passenger transport (it is also questionable whether the regulatory, commercial and economic environment is sufficiently compatible with Australia). Most of these firms have low betas, which is not unexpected given they are engaged in passenger transport, which will be less sensitive to domestic economic activity (the lowest equity beta was 0.24). Despite having low equity betas, all of these firms had t-statistics greater than two. For example, the firm that had an equity beta of 0.24 had a t-statistic of 2.66 (and hence would have survived our filters if that firm was considered a relevant comparator).

IPART have therefore suggested that removing firms with a high standard error is a more appropriate filter. While we agree with IPART's point regarding high standard errors (which is why we apply a filter such as a t-statistic to our estimates), the difficulty is that standard errors are an absolute measure and cannot be meaningfully interpreted on their own. There is no generally accepted rule of thumb as to what the threshold for a "high" standard error should be, which opens up a whole other area of regulatory debate. The t-statistic is used because it is a relative measure and can be interpreted in its own right. The threshold of two for the t-statistic is a generally accepted rule of thumb that is widely applied in statistical analysis.

R^2

The R^2, or coefficient of determination, measures the explanatory power of the regression equation (that is, how much of the variability in the dependent variable can be explained by the independent variable). A low R^2 indicates that little of the variability in the returns on the relevant share can be explained by returns on the market. For a given level of 'noise' in the data, a beta estimate approaching zero will normally be accompanied by a very low R^2.

We note that a low R^2 could legitimately reflect circumstances where the independent variable explains little of the variability in the dependent variable (that is, the returns of the market have limited bearing on the returns of the firm). We would still maintain that an R^2 of less than 0.1 (or 10%) should still be viewed with caution, as this suggests that less than 10% of the variability in the firm's returns is explained by the returns on the market. However, of the two tests presented here, we view the t-statistic as more important and this is consistent with the approach taken in our review.

Debt beta

IPART notes that a debt beta of zero is now applied by most regulators and we have presumed that this assumption has been applied in its analysis. What we do not agree with is that the debt beta assumption has a non-trivial impact, particularly if it is derived via the CAPM framework (that is, the debt risk premium divided by the MRP). If measured in this way, the increase in the debt premium that has been observed since the crisis will result in a significant increase in the debt beta.

The fundamental deficiency of using the CAPM-based approach to derive the debt beta is that it will always overstate the debt beta given the debt margin is largely driven by non-systematic risk factors. This situation is exacerbated at the current time given the blow-out in credit spreads that has occurred due to conditions in global financial markets.

For example, if the estimated debt margin of 300 basis points (from the December 2008 report) is applied to a MRP of 6%, the resulting debt beta is 0.5. If this value was included in the regearing formula, the resulting equity beta range of 0.99 to 1.32 (from the December 2008 report) would fall to 0.5 to 0.72. If this is updated for the prevailing debt margin as at 31 March (336 basis points), the equity beta range changes again, to 0.45 to 0.65. This impact is dramatic.

The increase in credit spreads implies a higher value for debt beta, which in turn implies that the systematic risk of debt has increased. Given it results in a lower value for the equity beta, this also implies that the systematic risk borne by equity holders has fallen, or, there has been a transfer of risk to debtholders from equityholders. Such an argument does not make economic or commercial sense, particularly in the current environment. The more realistic scenario is that the systematic risk of debt has not changed and the movements in credit spreads are based on changes in perceived default risk (worsened by signalling problems associated with trading in the market for debt)[11].

What this highlights is the significant issues associated with deriving a reliable value for the debt beta, particularly using the CAPM (which was not designed for application to debt markets). The sensitivity of the debt beta estimate to changes in the debt margin assumes that these changes are solely driven by systematic risk. However, given debt margins are largely driven by (non-systematic) default risk, any such assumption is fallacious and can actually produce an outcome which has no theoretical support and in fact may contradict what is more likely to be the case in practice.

Hence, as there is currently no robust, accepted methodology of deriving a reliable estimate for the debt beta, its value should be set at zero. This is consistent with regulatory and commercial practice.

12. Where does a rail operator with a revenue cap and mechanism for unders and overs sit within the spectrum of risks?

Reference is made to section 4.5.4 of the Synergies' WACC report for a detailed qualitative review of ARTC's risk profile, based on a first principles analysis. This includes a discussion on the implications of form of regulation for beta.

[11] That is, given the heightened uncertainty associated with corporate debt investors perceive the desire of a debt holder to sell that debt as a 'signal' that the debt holder has inside information about the negative quality of the debt.

In theory, a revenue cap should reduce a regulated entity's exposure to systematic volume risk, if all other factors are held equal. However, any protection afforded by a revenue cap mechanism only extends for the duration of the regulatory period and in the longer term, it does not prevent assets from becoming stranded if there is a significant deterioration in demand.

In regulatory practice, the implications of the form of regulation for beta remain very unclear. A key reason for this is because it is extremely difficult to quantify the impact of this on beta.

The energy industry is provides example of this. While this is quite a different industry to ARTC's, it provides a useful case study because businesses with similar risk profiles but subject to different forms of regulation can be compared.

Prior to the AER's recent draft SoRI, electricity transmission network service providers, which are subject to revenue caps, have received an equity beta of 1. Decisions with respect to gas, which tend to have been subject to some form of price cap, have been more variable, ranging between 0.9 and 1.1[12]. All other things being equal, if the form of regulation was being taken into account by regulators, then in theory, the beta outcomes observed for gas businesses should be higher than the precedent beta of 1 for electricity transmission, although this has not necessarily always been the case. In its recent draft SoRI in relation to electricity transmission and distribution businesses, the AER indicated that there was no persuasive evidence to suggest that a firm's systematic risk changes under different forms of regulation.[13]

This was also highlighted in the Envestra decision in relation to gas, where ESCOSA accepted the advice of its consultant, the ACG, which was that:[14]

> …it is difficult to make fine distinctions in the equity beta for matters like the form of price control that is applied to a particular regulated entity, noting ACG's view that:
>
> - there is no empirical evidence concerning the impact on beta of price cap and revenue cap form of regulation and so any adjustment applied is speculative;

[12] The ESC's recent Decision in relation to gas access arrangements in Victoria determined a value of 0.7. This is currently considered an outlier relative to these other decisions. It is noted that these businesses are subject to a price cap form of regulation.

[13] Australian Energy Regulator (2008), Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters, December, p.194.

[14] ESCOSA (2006), Proposed Revisions to the Access Arrangement for the South Australian Gas Distribution System, p. 70.

- the form of price control is one of the factors that may differ between Envestra's South Australian gas distribution business and other regulated energy distributors, and it cannot be known whether adjusting for one factor may improve the estimate; and
- it has not been the practice of Australian regulators to adopt different betas depending on the form of price control…

In its final decision with respect to GasNet in 2002 the ACCC cited comments from its consultant, also ACG:[15]

> …we would caution against attempting to make ad hoc adjustments to proxy betas on account of perceptions of differences in non-diversifiable risk given the absence of empirical evidence on the size of the required adjustment (and whether any adjustment may be warranted at all).

Our other concern here is that there are a number of other factors that will impact systematic risk that also need to be considered here. These other factors, which are examined as part of the first principles analysis in Synergies' WACC report, include the nature of the product or service, the contracting framework, market power and operating leverage. We are of the view that it is not appropriate to seek to make a specific adjustment for the form of regulation but ignore these other factors.

13. What has happened or is expected to happen to the amount of coal transported through the Hunter Valley Coal Network since the global financial crisis?

There is much conjecture about the outlook for Hunter Valley coal exports in the short-, medium- and long-term. Some of the evidence could be seen to confirm the expected downturn (including the shedding of staff by mining companies), while other evidence contradicts it. We are not experts in forecasting world coal trade and hence will not seek to provide our own views on this here.

The key implication of the crisis for ARTC and its investment program is uncertainty. The duration and extent of any downturn in demand is not known. Similarly, there are a number of scenarios for long-term demand growth even if the impact of the crisis is put aside, due to uncertainties in relation to the impacts of climate change as well as

[15] Australian Competition and Consumer Commission (2002), Final Decision: GasNet Australia Access Arrangement Revisions for the Principal Transmission System, p.111.

the outlook for supply and demand growth in other countries (reference is made to ABARE's 2005 report[16], which was cited in the Synergies' WACC report).

Even if the uncertainty created by the current crisis was ignored, only limited reliance can be placed on forecasts that have a horizon greater than five years. ARTC's investment horizon is very long term, reflecting the economic life of the network infrastructure. This infrastructure has no alternative use. The uncertainties underpinning the long-term demand for these assets are only exacerbated in the current environment. However, notwithstanding this uncertainty, there is a clear expectation on behalf of the market that ARTC will invest. This was highlighted at the beginning of this document based on the comments that have been made by the NSW Minerals Council.

14. What is an appropriate equity beta to meet customer demands for new investment and enhanced service?

ARTC's proposed parameters have already been summarised by IPART in the Issues Paper (being an equity beta of between 0.99 and 1.32) and the rationale for this is detailed in the Synergies' WACC report.

We have concluded that this beta range is appropriate for a firm with ARTC's systematic risk profile. The key implication of ARTC's investment program (and the uncertain environment) is where the beta should be selected from within that range.

If the situation in relation to investment were ignored, we are of the view that the mid-point is a reasonable starting point for that estimate. When we overlay the magnitude and risks associated with the investment program, this supports a value from the upper bound of that range. This is further supported if consideration is given to the asymmetric consequences of error, which is discussed below in response to Question 19.

As a final point on this, we note that IPART has made reference to the equity funding that has been secured by ARTC from its shareholder (the Government) as part of its capital expenditure program. We question the relevance of this.

The WACC analysis is done with reference to the 'efficient benchmark firm' and no consideration is made of Government ownership, which is consistent with the underlying National Competition Policy principles. A number of regulated businesses

[16] Australian Bureau of Agricultural and Resource Economics (2006), Australian Coal Exports: Outlook to 2025 and the Role of Infrastructure, ABARE Research Report 06.15, October.

in Australia are Government owned and we are not aware that this has in any way influenced the decisions made by regulators in relation to rate of return. We are therefore not clear as to IPART's intention in making this comment.

15. Should asymmetric risk be considered in choosing the WACC for the Hunter Valley Coal Network?

As outlined in the detailed report, there are three possible ways of compensating a business for stranding risk, being:

1. determining a methodology to value asymmetric risk, with a view to providing compensation via the cashflows, rather than the WACC;
2. applying a subjective adjustment to the beta (or the WACC); or
3. selecting the beta estimate from towards the upper bound of a reasonable range.

The first method is the preferred approach. ARTC has confirmed that no such compensation is currently provided in the cashflows. For example, insurance premiums reflect the cost of specific events however do not contemplate the situation where the business can no longer obtain revenue because the demand for that firm's service has declined. Because no robust methodology for valuing asymmetric risk has been accepted by regulators, we have not proposed that here. The second method is inconsistent with the CAPM, although it is probable that this is what a number of unregulated businesses do in practice.

This leaves the third option. While an imperfect solution, it ensures that sufficient incentive is provided to ARTC to invest, recognising that investment in essential infrastructure to support Australia's export capability is in the public interest. It should not result in over-compensation provided the beta is selected from within the bounds of a reasonable range.

We note that there are other ways of mitigating stranding risk, such as seeking capital contributions from producers (as noted by IPART and suggested by the NSW Minerals Council). This is provided for in the NSW Rail Access Undertaking (and hence ARTC's access undertaking). However, the key issue is whether or not this actually occurs in practice and hence whether or not ARTC's stranding risk is actually being mitigated.

ARTC has indicated that in practice, capital contributions have not yet been contemplated anywhere on the network since it assumed responsibility for it (that is, in neither constrained nor unconstrained parts of the network, noting that it is more likely

to be sought in the latter). There are no indications that this will change going forward and this is indeed less likely in the current financial environment, particularly given producers' cost of capital will be higher than ARTC's. Indeed, ARTC has advised that industry has expressed a preference for ARTC to fund the new investment.

Unless such evidence emerges, it must therefore be assumed that these mitigants are not in place for the purpose of assessing ARTC's actual exposure to stranding risk.

As noted in the response to question 14, ignoring asymmetric risk or alternatively assuming asymmetric risk is zero means that the appropriate beta estimate is the mid point of the range. Low asymmetric risk does not mean a beta from the low end of the range. The mid point is the appropriate estimate (in the absence of asymmetric risk) as the range was estimated ignoring any of the consequences of asymmetric risk. ARTC is clearly faced with some level of asymmetric risk so a beta estimate higher than the mid point is warranted to compensate for necessarily bearing the risk.

16. What is the likelihood of sectors being stranded or under-utilised?

We are not in a position to comment on this. In any case, any such likelihood can only be assessed in the short- to medium-term, not the long-term (which is ARTC's investment horizon). Stranding risk is a long-term issue. One thing we would caution against is waiting for such evidence to clearly emerge before recognising stranding risk and providing compensation for it. If we wait until this occurs, in all likelihood there will have been (or is about to be) a decline in industry's capacity to pay, and imposing an additional premium for stranding risk at this point will only exacerbate that situation.

The other point to note here is the interdependence between above-rail, below-rail and port capacity in delivering supply chain capacity. In other words, if one part of the supply chain expands and another does not, the deliverable capacity of the supply chain will be constrained by the infrastructure with the lowest capacity. While it is understood that initiatives have now been taken to better coordinate this investment across the supply chain, and ARTC has been participating in this, the implications of coordinated master planning for investment are yet to be confirmed.

For example, ARTC has indicated that it is currently looking at investments that exceed the longer term planned capacity of the port. If ARTC proceeded with this investment and the port capacity was not expanded, the capacity that ARTC has installed above the deliverable port capacity could be stranded. As noted above, while the intent of improved coordination is to avoid this situation, in practical terms ARTC has no control over actual investments made in other parts of the supply chain.

17. Is there scope to use long-term contracts or other mechanisms to remove asymmetric risk?

We would make a number of observations in relation to this question. First, ARTC's WACC should be assessed based on its risk profile as it is currently exists, and as it is expected to remain in the future. To the extent that long-term contracts are entered into, while we can consider the possible implications of this they should not impact the rate of return unless this becomes a reality.

Second, we need to consider what the impact of this might be on ARTC's risk profile. In our view, long-term contracts should mitigate exposure to systematic volume risk for the duration of these contracts. However, this protection is only as good as the creditworthiness of the counterparty who is entering into the contract. This includes not being able to walk away from its obligations if there is a downturn in demand, for example, a mine is placed into 'care and maintenance' or closed permanently. Examples of both are already emerging in other commodity industries.

Long-term contracts will not remove ARTC's exposure to asymmetric risk. First, the return on capital is only recovered over the life of the contract, so ARTC remains exposed to stranding risk if all of the payments under the contract are not made. Second, the life of a 'long term' contract is still shorter than ARTC's investment horizon (and capital recovery period), presuming that the likely term is say, ten years.

Hence, in response to the question, long term contracts will not remove stranding risk. The only way that stranding risk can be removed is upfront capital contributions (for the full value of the relevant expenditure).

18. What is the WACC that is acceptable to stakeholders?

ARTC's proposed WACC is summarised in IPART's Issues Paper and detailed in Synergies' WACC report. ARTC's WACC has been updated to 31 March 2009 to reflect changes in the risk free rate and debt margin as well as the inclusion of a 60bp increase to the risk free rate to reflect the impact of the global financial crisis as described earlier. The recommended parameter estimates for the WACC for ARTC's Hunter Valley coal network are summarised in the following table:

Parameter	Lower bound	Upper bound
Risk-free rate[a]	4.95%	4.95%
Debt to total value	50%	55%
Equity to total value	50%	45%
Debt margin[b]	3.36%	3.36%
Debt raising costs	0.125%	0.125%
Market risk premium	6%	7%
Gamma	0	0
Tax rate	30%	30%
Asset beta	0.5	0.6
Debt beta	0	0
Equity beta[c]	0.99	1.32
Cost of equity	10.88%	14.16%
Cost of debt	8.44%	8.44%
Post-tax nominal WACC	9.66%	11.01%
Inflation	2.4%	2.4%
Pre-tax real WACC	9.27%	10.99%

a Based on a 20 day average for the period ending 31 March 2009, plus 60 basis points..

b Based on a 20 day average for 8 year BBB bonds plus the margin between and A-rated 8 and 10 year bond, for the period ending 31 March 2009. Before debt-raising costs.

c Based on the Monkhouse formula.

19. Are the costs of setting a WACC too low greater than setting a WACC too high, taking into account ARTC's proposed capital program over the coming years?

As outlined in the detailed submission, it is accepted that regulatory error tends to have asymmetric consequences. The Productivity Commission stated:[17]

- Over-compensation may sometimes result in inefficiencies in timing of new investment in essential infrastructure (with flow-ons to investment in related markets), and occasionally lead to inefficient investment to by-pass parts of the network. However, it will never preclude socially worthwhile investments from proceeding.

- On the other hand, if the truncation of balancing upside profits is expected to be substantial, major investments of considerable benefit to the community could be forgone, again with flow-on effects for investment in related markets.

[17] Productivity Commission (2001), Review of the National Access Regime, Report no. 17, AusInfo, Canberra, p.83.

> In the Commission's view, the latter is likely to be a worse outcome.

In other words, the consequences of setting WACC too low, and discouraging efficient investment in essential infrastructure, are considered worse than setting it too high. This point was also noted by ACG in an analysis it undertook in relation to QR's central Queensland coal network for the QCA:

> …regulatory conservatism should be exercised (by taking a higher value for the equity beta than may otherwise be supportable by empirical evidence), particularly in the presence of few close market comparators to QR-Coal, and the fact that the long term negative consequences of under-investment in infrastructure are greater than those of over-investment.[18]

The consequences of under-investment may be subtle and take some time to become apparent, although this has not necessarily been the case in the export coal industry, with visible queues of ships off the Port of Newcastle attracting worldwide attention (including from customers). While this has primarily been driven by constraints in port capacity, these queues could emerge as a result of constraints anywhere in the supply chain, including the below-rail network. Indeed, with additional capacity now being installed at the ports the focus has now shifted to ensuring that there will be sufficient network capacity to deliver the increased tonnes to the port. Comments that have been made by the NSW Minerals Council to Infrastructure Australia have been cited at the beginning of this document.

If the export coal industry is to be able to maximise opportunities that are available in the world markets, this is dependent upon the necessary capacity being installed at the right time and in the right sequence.

In order for the balance of consequences to be shifted the other way (that is, for over-compensation to be worse than under-compensation), the extent of overcompensation would need to be significant. In other words, prices would have to be set at a level that encourages excessive investment in network infrastructure (or gold plating). However, one of the key features of most regulatory frameworks is the threat of optimisation if demand falls to a point where all or part of an asset is no longer required (in other words, the assets are stranded). If an asset is optimised out of the RAB, the infrastructure provider will be unable to earn a return on, or return of, capital on that asset. This provides a strong disincentive for regulated businesses not to overinvest in infrastructure.

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[18] The Allen Consulting Group (2005), Queensland Rail – Coal: Response to Comments on QR-Coal Proxy Beta Analysis, December, p.viii.

The estimation of WACC is inherently imprecise and hence the probability of specifying a WACC other than the 'true' value is high. As is evident from the preceding discussion, for key parameters such as beta and the market risk premium, there is likely to be a range of reasonable estimates rather than a precise value. The Australian Competition Tribunal ('the Tribunal') recognised the range of reasonable outcomes within which a Reference Tariff determination could fall:

> …there is no single correct figure involved in determining the values of the parameters to be applied in developing an applicable Reference Tariff. The application of the Reference Tariff Principles involves issues of judgement and degree. Different minds, acting reasonably, can be expected to make different choices within a range of possible choices which nonetheless remain consistent with the Reference Tariff Principles.[19]

As noted above, the Tribunal therefore highlighted that the focus of regulatory decision-making should be on the reasonableness of the proposal submitted by the regulated entity. With respect to WACC, this requires an assessment of the extent to which the proposal is within a range of reasonable outcomes.

The possibility that a regulator will reject a reasonable proposal submitted by a regulated entity in favour of its own determination is a key source of risk. Further, as noted above, there is a high probability that the true value is higher or lower than the estimated value.

Typically, based on our best estimate for WACC we would expect the balance of consequences to be approximately equal (that is, if the consequences of too high a WACC are the same as the consequences of too low a WACC, and the probability of either consequence is the same, the expected value will be zero). However, if the consequences are asymmetric (in this case, the consequence of an under-estimate is worse than the consequences of an over-estimate), then if the probability of either outcome was equal, the expected value will be negative. We therefore need to adjust the probabilities in order to achieve an expected value of zero, which necessitates ensuring that the probability of the worse outcome is lower.

Given the asymmetric consequences of regulatory error, it is therefore important to lower the risk that the true value is higher than the estimated value as this is considered to have more severe social and economic implications. Given the adverse consequence is under-investment in essential infrastructure, this issue is particularly important where a business is facing a sizeable capital investment program.

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[19] Application by GasNet (Australia) Operations Pty Ltd [2003] AcompT 6, para 29.

One possible approach that has been applied to deal with this issue is to specify parameters such as beta, gamma and the market risk premium in terms of a range and then select a point estimate from the upper bound of this range in recognition of the asymmetric consequences of regulatory error. Lally states:[20]

> Given that there is some uncertainty as to the correct parameter estimates, and that the consequences of judging excess profits to exist when they do not is more severe than the contrary error, my view is that one should choose a WACC value from the higher end of the distribution…

This range can be set with reference to empirical evidence. Alternatively, a probability distribution of estimates can be determined. This involves assigning a standard deviation to the estimate and then selecting a value from a specified percentile of the distribution. For example, if a value from the 75th percentile is selected, this implies that there is only a 25% probability that the true WACC is higher than this selected value. This approach has been applied by the New Zealand Commerce Commission in the regulation of gas.[21] It has also been applied by IPART in its previous determination in relation to the Hunter Valley coal network.

We are of the view that this is particularly critical where a business is contemplating such a significant capital investment program. For a mature business with little or no capital investment plans, we may be able to be satisfied with a value that implies a 50% probability that the true WACC is higher than this value, given the consequences of "getting it wrong" are less severe. However, where a business is in the midst of a significant capital investment program, there is a compelling case for minimising the probability of under-stating the true WACC.

[20] M. Lally, (2004), The Weighted Average Cost of Capital for Gas Pipeline Businesses, Report Prepared for the New Zealand Commerce Commission, University of Wellington.

[21] New Zealand Commerce Commission (2004), Gas Control Inquiry Final Report.

AUSTRALIAN RAIL TRACK CORPORATION LTD

IPART 2009 REVIEW OF REMAINING MINE LIFE ON THE HUNTER VALLEY COAL NETWORK

ARTC SUBMISSION TO IPART ISSUES PAPER

ATTACHMENTS

1. Introduction

In accordance with the NSW Rail Access Undertaking ("NSWRAU"), the Independent Pricing and Regulatory Tribunal ("IPART") is required to undertaking a review of remaining mine life of Hunter Valley coal mines utilising Sector of the Hunter Valley Coal Network.

Under the NSWRAU, the initial estimate of mine life is 40 years from 1 July 1999. IPART reviewed the estimate in 2004 and determined that a mine life of 35 years would apply from 1 July 2004. Both estimates were determined based on recommendations of reports by consultants (33 years and 27.5 years respectively), Booz Allen Hamilton, as well as consideration of stakeholder views on those recommendations.

In undertaking its current review, IPART sought ARTC to provide a submission to it detailing a proposal in relation to the remaining life of Hunter Valley coal mines utilising the Hunter Valley Coal Network managed by ARTC (as required by the NSWRAU) to apply for five years from 1 July 2009. ARTC provided its proposal to IPART for consultation on 1 December 2008, recommending a remaining mine life of 22.8 years.

2. Estimate proposed in November 2008

Booz Methodology and Assumptions

In developing its proposal (prepared by Booz & Co.), ARTC sought to adopt broadly the same methodology used in previous reviews, but improve on previous estimates by recognising and addressing valid concerns expressed by some stakeholders in relation to previous assessments. Key similarities with the previous methodology included:

- Adoption of a similar preferred approach to incorporate in the assessment those mines currently in existence or expected to be in operation over the 2009-14 time frame as a reasonable representation of the of Hunter Valley coal mines utilising the Hunter Valley Coal Network managed by ARTC (as required by the NSWRAU). ARTC considers it reasonable to include all mines expected to utilise the network during the period for which the determination would apply rather than existing mines only (which could argued under the strict wording in the NSWRAU).

- Testing of the impact of 'prospective' mines (mines that do not currently utilise the Hunter Valley Coal Network, nor will utilise it over the period to which the estimate would apply, but are currently in early stages of development by coal producers and may come into existence at some point after the relevant five year period). The inclusion of prospective mines had the effect of adding around 2.5 – 3 years to the estimate. As was the case in previous assessments, such mines were excluded from the preferred options given the current uncertainty around their development, forecasted volumes and production.

- Production weighted averaging of mine life over the region.

Key improvements in the methodology, which ARTC believes has resulted in a more reliable estimate than previously may have been the case, were:

- Consideration and incorporation of forecasted start dates and production levels over the life of a mine. Previous assessments adopted, for a mine, only a single estimate of start date and production at a point in time (current or maximum). ARTC recognised stakeholder concerns at the time that such an approach failed to recognise realistic start dates of mines, ramp up of mines to full production, and capacity of the supply chain to handle estimated production. All of these would have the effect of extending mine life and increasing potential of an under-estimate, and recognition of this in the current assessment removes these effects and this potential. Start up dates and yearly production forecasts have, in the vast majority of cases, been provided by coal producers. These forecasts form the basis of ARTC's annual Hunter Valley Corridor Capacity Strategy (10 year capacity investment plan) developed in consultation with the coal industry. To assist understanding of the production forecasts assumed and impact of assumed capacity constrains, ARTC has provided graphs of production and capacity impact assumptions for each of the options used at Attachment 1.

- To further mitigate the potential for under-estimation, ARTC has considered production forecasts in the context of any coal chain capacity constraints that either currently exist of could be expected to exist. To this end, ARTC modelled the impact of coal supply chain constraints during the period 2009-14. ARTC assumed that, because the exact nature of any coal chain capacity expansion beyond 2014 was uncertain and subject to industry endorsement, delivery of supply chain capacity was aligned to forecasted production beyond five years. This is consistent with stated industry expectation to ensure sufficient supply chain capacity was in place to meet demand, and underpins current coal chain planning and commercial strategies.

ARTC is of the strong view that the methodology and assumptions adopted in its assessment, resulting in a preferred option, as the basis for assessment, that incorporates mines in existence currently and those expected to commence in the next five years and incorporates known supply chain constraints, substantially addresses many stakeholder concerns from previous assessments and largely mitigates the potential for under-estimation that may result.

ARTC recognised these concerns with the previous assessment, and the potential for under-estimation at that time. This is one of the reasons why ARTC did not object to prescription of remaining mine life of up to 35 years at the time, a range of up to 8 years in excess of the Booz Allen Hamilton estimate at the time.

ARTC believes that the methodology and assumptions used in its assessment result in a much more robust and reliable estimate of the remaining mine life of coal mines utilising the Hunter Valley Coal Network managed by ARTC, and results in a strong case for moving from the 2004 estimate. As such, ARTC is confident that the estimate proposed in November 2008 of 22.8 years is reasonable. On this basis, ARTC has little cause to consider the approach it took in 2004.

3. Response to Issues raised in IPART Issues Paper

IPART released an Issues Paper, prepared by LECG, to assist stakeholders and itself in this review. ARTC provides the following responses in relation to the issues and questions raised by IPART in the Issues Paper.

Firstly, in relation to a comment made in the Issues Paper suggesting that Booz 'has applied its industry expertise to arrive at estimates of extraction rates for specific mines'[1], ARTC wishes to confirm that, in the vast majority of cases, production forecasts were sourced from producer forecasts of production. In only a few cases, where forecasts were not provided, did ARTC or Booz undertake separate analysis to develop forecasts.

Change to current terminal year (2039)

Why would a change to the mine life be useful?

The NSWRAU provides for a review of Rate of Return and remaining mine life every five years. It is assumed that the intention of providing for this review would have been to contemplate any changes to the initial 1999 settings (hard coded into the then NSW Rail Regime) that might be appropriate given either changes in the economic, commercial or operational circumstances at the time, or any improvements in estimating these parameters that may have arisen since that time. That is, ARTC would have considered it unlikely that the intention in 1999 would be to lock in the initial parameters forever.

[1] Issues Paper – Remaining Mine Life Hunter Valley coal network, LECG, p6.

The initial estimate (in 1999) of remaining mine life resulted in the IPART seeking a 'balance, and with the limited information presented to it'[2] between estimates provided by the then track owner of 30 years, and the NSW Minerals Council (NSWMC) of 50 years. At the time, the NSWMC estimate was said to cite a NSW Department of Minerals Resources estimate that there 'are 5.7b tonnes of proven reserves in the region serviced by the Hunter rail network.'[3] At the time, IPART suggested that at production rates at the time (80mtpa), the remaining mine life would be around 70 years, and that annual production of around 195mtpa would be needed to deplete mine reserves in 30 years (by 2028).

In its submission in 2004, the NSWMC indicated that there was currently over 5,000 million tonnes of coal reserves, plus a further 12,200 million tonnes of coal resources not presently included in reserves, in the region served by the Hunter rail network. The NSW Minerals Council also cited a consultant's opinion that around 3,700 million tonnes of coal resources could be reasonably expected to be upgraded to reserves status at some time in the future.

ARTC considers that there are a range of unknowns that would place substantial uncertainty around whether existing 'resources' will ever actually be extracted at some point in the future, and it would be inappropriate to assume eventual extraction in any estimate of remaining mine life, as well as being inconsistent with the provisions of the NSWRAU.

In 2004, the NSWMC concluded:

'When these factors are considered, the useful life if the Hunter rail network in transporting coal can confidently be said to exceed 45 years from 2004. The NSWMC is mindful however of the need for a balance between short-term and long-term capital-related charges. Accordingly, notwithstanding the overwhelming arguments for no depreciation or longer

[2] IPART, Aspects of the NSW Rail Access Regime – Final Report, 28 April 1999, p45.
[3] Ibid, p45.

remaining mine life, it is prepared to accept a continuation of the current remaining useful life of the Hunter rail network for coal haulage of 35 years from July 2004.'[4]

In its 2004 submission, ARTC indicated that it already had investment plans in place, which if complemented by other investments in the supply chain (port, above-rail) would increase capacity to 120mTpa. As such, basing the remaining mine life of 2002-03 production levels (as done by Booz Allen Hamilton in 2004) was likely significantly over-estimate remaining mine life at the time. On the other hand, ARTC recognised:

'that the estimate provided by the consultant [Booz Allen Hamilton] should only be considered as a broad indicator in the absence of better available information, and considers that there are a range of factors applying that could mean the estimate overstates or understates 'reality', possibly to an extent supporting IPART's [40 years] deviation from the consultant's estimate [33 years] in 1999. ARTC does not believe that there is a strong imbalance in the upwards or downwards pressure that these factors may place on the true economic life of the Hunter Valley coal mines. Nevertheless, given the degree of uncertainty surrounding the estimate and the lack of better information, ARTC recognises that a degree of pragmatism may be warranted in order to move forward with investment and growth in the Hunter Valley and, thus, would not object to prescription of a higher remaining mine life up to 35 years.'[5]

Whilst, in 2004, IPART determined a remaining mine life of 35 years, the above statements suggest that neither the NSWMC, nor ARTC, considered this estimate to be 'correct', but merely within an acceptable range given uncertainty in relation to a range of factors involved.

ARTC, and the industry, are currently planning for significant expansion of rail infrastructure (in the order of $2bn over the next five years in order to increase capacity to in excess of 200mTpa. ARTC's estimate is based on assumptions aligned to these plans.

[4] NSWMC Submission to IPART on Review of Remaining Mine Life, 20 December 2004, p13.
[5] ARTC Submission to IPART on Review of Remaining Mine Life, 17 December 2004, p

As such, ARTC does not consider that a continuation of depreciation based on the 2004 estimate as necessarily delivering the most appropriate outcome, even in the context of a short term application. *ARTC believes that a change in mine life is useful to the extent that the existing estimate may not be correct, and where the change is to a more robust and reliable estimate.* This would be the case even if application were for a short period, given that investors in long life infrastructure make decisions based on long term forecasts and assumptions.

As ARTC has stated earlier in this submission, it believes that the improvements it has incorporated in its methodology and assumptions used in this assessment result in a much more robust and reliable estimate of the remaining mine life of coal mines utilising the Hunter Valley Coal Network managed by ARTC. The improvements mitigate a number of factors that could have led to under or over-estimation of remaining mine life in 2004. As such, ARTC believes that there is a strong case for moving to the current estimate, as opposed to retaining the 1999 and 2004 estimate as a basis for determining remaining mine life to apply from 1 July 2009 for a period up to 5 years.

What would be the advantages of any such change? What would be the disadvantages?

ARTC would consider that as long as the change resulted from a better estimate of remaining mine life to better address the balance sought between the potential for over-investment and under-investment in infrastructure, then the infrastructure owner, users of the infrastructure and the community should benefit. ARTC would not see any disadvantages from such an outcome.

Who would gain and lose from any such change?

In line with the previous response, all parties should gain from such a change.

ARTC would expect that this would have been the objective of the NSWRAU provision for 5 yearly reviews.

Are there other consequences of a change to mine life that IPART should consider in making a decision?

An improvement in the estimate would result in a more appropriate incentive to invest efficiently in the Hunter Valley coal network. This is particularly important in the context of:

- The significant and expensive capacity enhancement strategy being considered by the industry to increase capacity to in excess of 200mT in line with industry demand; and

- The impact that the global financial crisis is having where funding for investment has become more difficult to obtain.

Appropriateness of Booz-ARTC methodology

Whether Booz and ARTC are right not to consider possible impacts of coal price changes on reserves?

ARTC recognises that coal prices have an impact on marketability of reserves and resultant production levels. ARTC would also expect that the industry is in a better position to withstand fluctuations coal prices than may have been the case previously.

Until recently, international prices for Hunter Valley coal have been very high, and substantially higher than in previous years. The current decline in prices back to around $70/tonne results from the current economic downturn. However, this level is considerably higher than pricing around 2004. ARTC considers it unlikely that prices will fall significant below current levels, and certainly not to levels existing around 2004.

The industry commitment to investment and strong volume growth in the short to medium term has not substantially deteriorated in recent times. This would suggest that the current level of pricing is still significantly above what might be considered a break-even point for most mines, particularly those in the central Hunter Valley region. As such, ARTC considers that Hunter Valley coal mines are, overall, in a better position to withstand likely fluctuation in coal pricing going forward.

Whilst ARTC accepts that coal prices may have an impact on remaining mine life, it does not believe that the impact is as significant as it may have been in 2004.

It is however possible that other global and local factors such as climate change, carbon pricing policy and the development of clean alternative base energy supplies may now be considered to have a greater impact on estimated mine life that may have been thought in 2004. This was not specifically considered in ARTC's estimate given that the extent of any impact is very uncertain, but it could be expected to reduce rather than increase remaining mine life.

Whether the current global financial situation should be reflected into the forecasts and how this might be done?

As stated earlier, production forecasts were, in the vast majority of cases, sourced from producer forecasts of production. These forecasts were current as at mid-2008, followed the Greiner Review, and were intended to be used to develop realistic Hunter Valley investment

strategies both by ARTC and, as ARTC understands, the Hunter Valley Coal Chain Logistics Team (HVCCLT). ARTC expects that these production forecasts may already reflect reduced expectations in early years due to the impact of global economic downturn on markets for Hunter Valley coal. Coal chain capacity constraints would also dampen forecasts in the early years during the global downturn.

ARTC does not consider that the global economic crisis would have a substantial impact on remaining mine life, which is a longer run estimate. ARTC would expect the industry to continue its desire to grow and invest following global recovery offsetting any short term reduced production.

Effect of infrastructure capacity constraints

How realistic are the Booz forecasts of coal chain capacity from 2009 to 2024?

As stated in their report, the Booz forecasts of coal chain capacity were predicated upon identified upgrades to coal chain capacity to 185mTpa in 2012 (that is, by the end of 2012). This was sourced from coal chain capacity data from the HVCCLT. Booz estimates (consistent with ARTC investment strategy) average (over each year) capacity of around:

2009	108mTpa
2010	128mTpa
2011	155mTpa
2012	166mTpa

These figures are shown in the graph in the Booz report. Modelling shows that, over this period, apart from one quarter in 2010, port capacity forms the constraining element to coal throughput. As such, the above estimates are, by and large, aligned with known port

capacity increments over the period (averaged over each year). Additional port capacity is assumed to be brought on-line as follows based on advice from the HVCCLT:

- Q1 2009 – KTC Dump Station 2 upgrade, lifting capacity by 2.5 mtpa, from 97 mtpa to 99.5 mtpa.
- Q2 2009 – KCT Project 3Exp, lifting capacity by 13.5 mtpa from 99.5 mtpa to 113 mtpa.
- Q1 2010 – Start-up of NCIG stage 1 with 2 mtpa moved in the quarter. Throughput is assumed to ramp up progressively with 10 mtpa moved in Q2, 20 mtpa in Q3 and 30 mtpa in Q4.
- Q4 2010 – KCT Dump Station 1 upgrade, Full Pads C & D and K7 berth – Lifts capacity at PWCS progressively over 9 months from 113 mtpa to 128 mtpa. Ramp up is assumed to be 4 mtpa in Q4 2010, 10 mtpa in Q1 2011 and 15 mtpa in Q2 2011.
- The combination of the NCIG and PWCS works gives total port capacity of 115 mtpa in Q1 2010, 123 mtpa in Q2 2010, 133 mtpa in Q3 2010, 147 mtpa in Q4 2010, 153 mtpa in Q1 2011 and 158 mtpa in Q2 2011.
- Q3 2012 – NCIG Stage 2 assumed to lift capacity by a further 15 mtpa in a single step, bringing NCIG to 45 mtpa and total port capacity to 173 mtpa.
- Q4 2012 - KCT 4th dump station and 4th ship loader. This is assumed to lift PWCS capacity by 12 mtpa, from 128 mtpa to 140 mtpa, for a total port capacity of 185 mtpa.

Current expectations are also that in the 3rd quarter of 2013, NCIG Stage 3 (assumed to lift capacity by a further 15 mtpa in a single step, bringing NCIG to over 60 mtpa and total port capacity to over 200 mtpa) is assumed to come on line.

Despite this and the increased uncertainty surround coal chain investments beyond 2012, Booz has assumed that coal chain capacity will be sufficient to meet forecasted demand. This is consistent with current industry investment planning to ensure coal chain capacity is sufficient to meet demand, and is aligned to the current development of the supply chain and commercial arrangements in the Hunter Valley.

ARTC accepts that coal chain capacity is contingent upon elements other than port capacity, such as above and below rail investment, and investment in mine infrastructure. The industry is however committed to investment planning for the whole of the coal chain to meet demand irrespective of where optimal investments may lie.

This issue was also raised by IPART at the public hearing on 1 April 2009. A response is provided later in this submission.

What difference might it make to the mine life estimates if a more conservative forecast of coal chain capacity expansions were to be adopted instead?

ARTC estimates in 2009-2012 are based on known plans for investment in port capacity. Beyond 2012, an assumption that there will be any constraint from coal chain capacity would not be aligned to the current industry expectations, development of the supply chain and commercial arrangements in the Hunter Valley.

Industry's expectations in relation to supply chain investment have been made very clear in the past. For example, in its submission to Infrastructure Australia, the NSW Minerals Council stated:

'Certainty of access to supply chain capacity is critical to the viability and investment decision of minerals exporters. In the NSW mining industry, the most urgent and high profile supply chain constraint exists in the Hunter Valley. The opportunity cost to the State and to Australia's reputation as a reliable provider of coal exports is significant.'[6]

In relation to the planned investments in the supply chain (including ARTC's projected expansion program), the NSWMC states:

[6] NSW Minerals Council Ltd (2008), Submission to Infrastructure Australia: Australia's Future Infrastructure Requirements, p.1.

'Despite these large planned investments in rail and port capacity, the system remains constrained, with an estimated 5-10Mt shortfall in 2007 representing more than $400 million in lost exports. There remains significant uncertainty about entitlement to coal chain capacity, both in the short term to 2010 and in the longer term.

The costs include:

- *Lost export revenue, estimated at more than $2 billion between 2005 and 2010*
- *Additional costs, with demurrage estimated at more than $300 million per annum*
- *Decreased customer confidence and loss of export markets / market share*
- *Lost employment opportunities*
- *Future investments in new mining export infrastructure and growth at risk.*

In the light of predictions of strong, long-term demand for NSW coal resources, and the opportunity available to Australia through the required growth in global coal production to meet forecast demand, the costs to NSW and Australia are immense."[7]

Inclusion of mines not yet in operation

What alternative approaches should be considered to quantify future coal production from mines that are not yet in production but which are likely to make a material difference to the mine life estimate?

As stated earlier, the methodology used adopted a similar preferred approach to previous reviews to incorporate in the assessment those mines currently in existence or expected to be in operation over the 2009-14 time frame as a reasonable representation of the of Hunter Valley coal mines utilising the Hunter Valley Coal Network managed by ARTC. This is taken

[7] ibid., p.12.

to be the basis, under the NSWRAU, upon which depreciation should be determined. ARTC considers it reasonable to include all mines expected to utilise the network over the period for which the estimate would apply rather than existing mines only (which could be argued under the strict wording in the NSWRAU). The wording in the NSWRAU would not appear to explicitly seek consideration of what might happen in the distant future (beyond five years) in relation to speculative developments where there is no certainty that they would proceed, when they may proceed and how they would operate. The NSWRAU also does not appear to seek consideration of what might happen in relation to resources in the Hunter Valley region.

Essentially, ARTC has identified what could reasonably be considered a representation of coal mines utilising the Hunter Valley Coal Network, being to incorporate mines reasonably expected to commence production in the 2009-14 period to which the remaining mine life determination could apply. This is consistent with the approach taken in previous years.

Beyond this period, ARTC considers that the speculative nature of mining developments is such that it is not reasonable, nor realistic, to base an element of the current ceiling test determination on. Should speculative developments become more certain in the future, then the NSWRAU provides for periodic reviews of remaining mine life going forward.

The three developments beyond the 2009-14 period considered by Booz as an option in this assessment all occur in the Gunnedah region. This included the BHP Billiton Caroona development, Maules Creek where resources have been measured and indicated, but not identified as reserves, and the Watermark coal exploration area where tendering to undertake exploration was completed last year.

In relation to the Caroona development:

- The latest on this project that commenced 2006 with regional exploration activities is that the proponent is currently in the pre-feasibility phase of targeted exploration. This phase requires further drilling and other exploration activity to gain more certainty on potentially developing a mine proposal for full environmental and planning assessment. The conclusion of the pre-feasibility is phase is anticipated to be late 2009.

- If approved by stakeholders, the project will move into feasibility Ppase [ie full environmental and planning assessment] for the duration of the 2010-2011-2012 financial years.

In relation to the Maule's Creek

- Booz indicated, in its report, that Maules Creek had measured and indicated resources of 680Mt of coal but no reserves had been identified. This was sourced from Rio Tinto's 2007 Annual Report.

  ARTC notes from the Coal & Allied (managed by Rio Tinto Coal Australia) 2008 Annual Report (as at 31 December 2008) the following resource classification[8] at Maules Creek.

  - 56.6mT – measured resources
  - 218.0mT – indicated resources
  - 123.1mT – inferred resources

  Total resources 397.8mTpa

  The report indicated a decrease of 282.2mt of resources [from 2007] due to a complete review of resources, which included a reassessment of the economic assumptions applied to the deposit[9]. This 40% reduction alone would impact any estimate of reserves that could made in relation to Maules Creek. The report shows Booz have assumed

[8] Coal & Allied, Full Financial Report 2008, Reserves & Resources, p33
[9] ibid, p33.

300mT of reserves in its estimates based on 680mT resources reported in 2007. This provides an example of the risk of error associated with inclusion of uncertain prospective developments in the remaining mine life estimate.

Further, the Coal & Allied annual report includes in its description of Coal resources:

'The following table contains details of the other mineralisation that has the potential to be extracted in the future but which is not yet classified as proved or probable reserves. This material is defined as mineral resources under the JORC Code. Estimates of such material are based largely on geological information with only preliminary consideration of mining, economic and other factors. While in the judgement of the competent persons there are reasonable expectations that some of the mineral resources will eventually become proved or probable reserves and subsequently be mined, there is no guarantee that this will occur as the result depends on further technical and economic studies and prevailing economic conditions in the future.'[10]

- In relation to the Watermark coal exploration area, Shenhua Energy Co. Ltd. was given a coal exploration licence in November 2008. The company has initially estimated thermal coal resources exceeding one billion tonnes.[11]

Given this, ARTC considers that it would be difficult to conclude that these developments will crystallise to become mines utilising the Hunter Valley coal network with any reasonable certainty at this time. Indeed, Maules Creek provides an example of the risk of error associated with inclusion of uncertain prospective developments in the remaining mine life estimate.

A further complication with the inclusion of speculative developments such as these is that, in many cases, there is very little reliable information available at this stage in relation to mine

[10] ibid, p33.
[11] Shenhua Energy Company Limited, Annual Report 2008, p10.

reserves and production estimates. In the Maules Creek case, a mine reserve of 300mT and production rate of 5mTpa was assumed (based on best available information). Uncertainty around these predictions, and the resulting impact, where predicted reserves are high and production low (such that there is a very long life), has the potential to distort a production weighted average as has been used.

It should also be noted that there are other factors that could also be considered 'speculative' at this time such as the impact of climate change, carbon pricing and alternative fuel development, which are all like to have the effect of reducing remaining mine life. Like speculative mining developments, these factors have not been incorporated in the assessment.

Treatment of lines recently joining the Constrained Group

The Issues paper proposed an alternative depreciation treatment for different parts of the Hunter Valley coal network broadly described as follows. [paraphrased]

- There is potential for different depreciation treatment of different parts of the Hunter coal network, focusing on a group of mines and the associated line sectors that form what is known as the "constrained group".

- The remainder of the Hunter Valley is unconstrained as to price, meaning that the regulatory ceiling is effectively far above the limit of the unconstrained mines' ability to pay. One consequence of this fact is that the rail infrastructure owner does not recover the full economic costs on track sectors that form part of the unconstrained group.

- In this iteration of the mine life estimates, a different version of this separate life question arises. It is possible that for the 2008 year the Ulan mine will become part of the constrained network, owing to increased tonnages from mines in that area.

- For the rail infrastructure from Bengalla to Ulan, which has not previously formed part of the constrained group, ARTC and the previous infrastructure owner would not have recovered the full economic costs through access charges to date. Now that this line appears likely to become part of the constrained group (because tonnages have improved markedly relative to the costs of the line) the regulatory ceiling will start to restrict access prices for these sectors.

- This raises the issue of whether the ceiling test should be based on current DORC values or whether allowance should be made for past under recovery (for example via an unders and overs account).

- Putting this question in another way, should bygones be bygones, or should the track owner be permitted to apply some of the forward-looking access revenues towards past under-recoveries?

- IPART is aware that such an approach may not be allowed under the present Undertaking as it may imply access revenue exceeding the Full Economic Costs.

- Depending on stakeholder's response to this issue, IPART could further investigate whether such an approach is possible under the Undertaking.

- The depreciation policy becomes relevant in this context. To the extent that past access prices on the Ulan line did under-recover full economic costs, the expected return of capital did not fully materialise. That being the case, the mechanical application of a time-

based depreciation schedule to the regulatory asset base would be inappropriate—the invested capital was not fully returned to the asset owner.

- One way to address this problem would be to delay depreciation of the RAB for the non-constrained sectors until the access revenue was sufficient to recover the depreciation charge. That approach would ensure financial capital maintenance for the asset owner. In practical terms, what that means is that the DORC valuation for sectors newly added to the constrained group would be calculated by applying essentially near zero depreciation to the optimised replacement cost until the year in which the sectors joined the constrained group. From that point onward, the DORC valuation would decline so as to reach a value of zero in the same terminal year as applies to the rest of the constrained group.

Is it of interest to stakeholders to explore this approach further?

In principle, ARTC considers that the approach has some merit. The approach is not indifferent to the 'loss capitalisation approach' proposed by ARTC in its interstate Access Undertaking and Hunter Valley Access Undertaking. A description of the approach proposed by ARTC (excerpt from ARTC Hunter Valley Access Undertaking Consultation Documents) is provided at Attachment 2.

ARTC considers that the primary benefit of the approach is to encourage investment ahead of demand by permitting investors to earn a regulated rate of return on an investment in the long run, by permitting recovery of early year losses (as market builds up) in later years. Whilst ARTC believes that recovery of past losses (such as on the Ulan line) is reasonable, it has not proposed recovery of past losses in the HVAU.

This approach proposed in the Issues Paper only addresses one cost element (depreciation) not all cost elements, as such ARTC prefers the loss capitalisation approach. On the Ulan

line in 2005-06 and 2006-07, ARTC endeavoured to price access such that full economic cost would be recovered. However, in both years, forecasted volumes did not eventuate, and full economic cost was not recovered. As such, the relevant mines could have afforded full economic cost, and the line could have been constrained, but in each year, ARTC was not able to recover full economic cost, and will not be able to recover this in the future.

Given that a key benefit of such an approach might be to encourage investment ahead of demand (a decision in the future), allowing recovery of monies invested in the past by an ex-post change to the NSWRAU (after the investment decision not contemplating such an approach) may be arguable.

On the other hand, a change to the NSWRAU to contemplate such an approach for future investment decisions would promote this objective. As such, and in the absence of a more comprehensive approach designed to encourage investment ahead of demand, ARTC would support consideration of this approach applying to investment from 1 July 2009. This would have implications for investment on the network north of Muswellbrook.

Would the complexities of implementing the approach outweigh any benefits that might be achieved?

ARTC does not see the complexities as being that great where applied to future investment, with significant benefits.

Would this approach be consistent with the perceived objectives of the Undertaking?

In the absence of a more comprehensive approach designed to encourage investment ahead of demand, ARTC would see this approach as being consistent with both the perceived objectives of the NSWRAU (encourage investment and growth of the Hunter Valley network

and the Hunter Valley coal industry), and with the stated industry desire for certainty of capacity in the network in the future.

Additional matters raised by IPART at the public hearing on 1 April 2009.

Impact of Coal Chain Capacity Constraint

At the hearing, IPART raised a question as to why the assumptions around coal chain constraint made such a small difference to remaining mine life. This seemed surprising 'given the current high priority placed at the moment on putting new investment into expanding the rail capacity'.[12]

In response to this, ARTC makes the following comments:

- There is a high priority for investment in expanding the capacity of the Hunter Valley coal chain generally. This includes mine production capacity. The current high priority for investment is likely to arise from coal chain constraint to meet current *demand*.

- It is likely that producer forecasts of production that have been used by Booz were largely tempered by what is known about constraints on coal chain capacity in the early years. As such, production forecasts in the early years should not be assumed to reflect producer demand. It is likely that if coal chain capacity was much higher currently, then demand and production estimates would be higher to the extent they could be.

[12] IPART Hearing, 1 April 2009, Transcript, col 28.

- As such, it could be expected that the application of the supply chain capacity assumptions by Booz would not have had a significant impact on remaining mine life in the early years (2009-12).

- Beyond 2012, as stated earlier, Booz assumed that there would be no coal chain constraint.

- The underlying principle of ARTC's capacity planning strategy, and the Hunter Valley master planning process is to deliver infrastructure ahead of demand, and ultimately deliver a system that is not restricted by supply side constraints.

- These comments are supported by the production assumptions used in each of the options provided at Attachment 1.

Thus, while the small difference made by the application of coal chain constraint may be surprising in the context of public awareness of supply chain bottlenecks, it is not surprising in the context of this estimate of remaining mine life and the assumptions underpinning it.

Inconsistency between forecast production levels underpinning shortened mine life, and stranding risk sought to increase Rate of Return determination

At the hearing, IPART raised a question in relation to what was seen as a fundamental inconsistency between the higher production levels which was assumed and which underpins the shortened mine life on the one hand and, on the other hand, the risk of underutilisation, or stranding risk, which has been used to support the determination of a Rate of Return towards the upper end of a feasible WACC range.

In response to this, ARTC makes the following comments:

- ARTC has proposed a remaining mine life of 22.8 years. The current setting, and the setting seemingly favoured by the NSWMC is 30 years.

- ARTC's proposed remaining mine life is based on production forecasts made by producers in mid 2008 and covered the period 2008-18. It has been assumed that production levels of mines assumed to be in operation at that time continue at that the 2018 level until reserve depletion for that mine. ARTC is confident that the production forecasts over the next 5 – 10 years are achievable, and has developed its 10 year investment strategy around delivering capacity to meet the production forecasts.

- The Hunter Valley coal industry has sought ARTC to invest a substantial sum of money over the next five years, so that the industry will have all of the rail and coal chain capacity it needs to meet demand for coal. This is reflected in the high production forecasts over the next 10 years. In this circumstance, production could be assumed to be operating at high capacity, and if some part of the market or network were to decline (for whatever reason), it would be difficult to replace that production elsewhere. Higher production expectations can increase stranding risk.

- An alternative resulting in less (stranding) risk for ARTC, might be where the industry adopted a lower expectation of demand, requiring infrastructure with less capacity which could be delivered at lower cost, and where mines may be operating well below capacity (compared to the previous scenario). In this circumstance, in some part of the market or network were to decline, it would be less difficult to replace that production elsewhere. Lower production expectations can reduce stranding risk.

- The former approach is more closely aligned to current industry expectation (2009) than the industry expectation in 2004.

- ARTC considers however that beyond ten years whatever production levels might be forecast or assumed are at much greater risk from the effects of known factors such as climate change, carbon tax and alternative energy development that may have a substantial impact on the economics of the Hunter Valley coal network in the long term.

- Investors in Hunter Valley rail infrastructure will contemplate returns over the long term in line with the life of the infrastructure.

- Over the next five years, unlike previous investment in the Hunter Valley, a substantial part of the investment will be in network supporting the Gunnedah basin and the Ulan region. Future mining around this part of the network is largely undeveloped, and subject to greater risk of stranding than other parts of the Hunter Valley coal network.

- As such, ARTC does not consider it inconsistent to take a view that in the short to medium term, production levels are likely to be high in line with industry forecasts, and see, in the long term, the presence of stranding risk particularly around those parts of the network where there is an increased focus of investment over the next 5 years.

- As such, ARTC contends that the increased focus of investment on the upper Hunter Valley over the next 5 years, and the approach to network development sought by the industry (compared to 5 years ago) increases the level of stranding risk from what it might have been 5 years ago.

4. Response to Matters raised by the NSWMC at the public hearing on 1 April 2009.

From the public hearing, ARTC understands that the NSWMC supports a determination of 30 years as the remaining mine life. Unfortunately the NSWMC did not provide any substantial basis supporting its position at the hearing, except for the following:

- ARTC's proposed remaining mine life (22.8 years) did not include speculative developments out beyond the period 2009-14 which would have the effect of increasing remaining mine life to 25.6 years; and

- ARTC (Booz) have assumed production rates beyond the maximum capacity at the current port terminals at PWCS and NCIG. It asserted that Booz had used production levels around 240 – 260mTpa from 2013 and on, compared to potential port capacity of 211 million tonnes onwards. It indicated that the difference between 211mTpa and 240-260mTpa would add another 5 years to the average remaining mining life and take it to up to around 30 years.

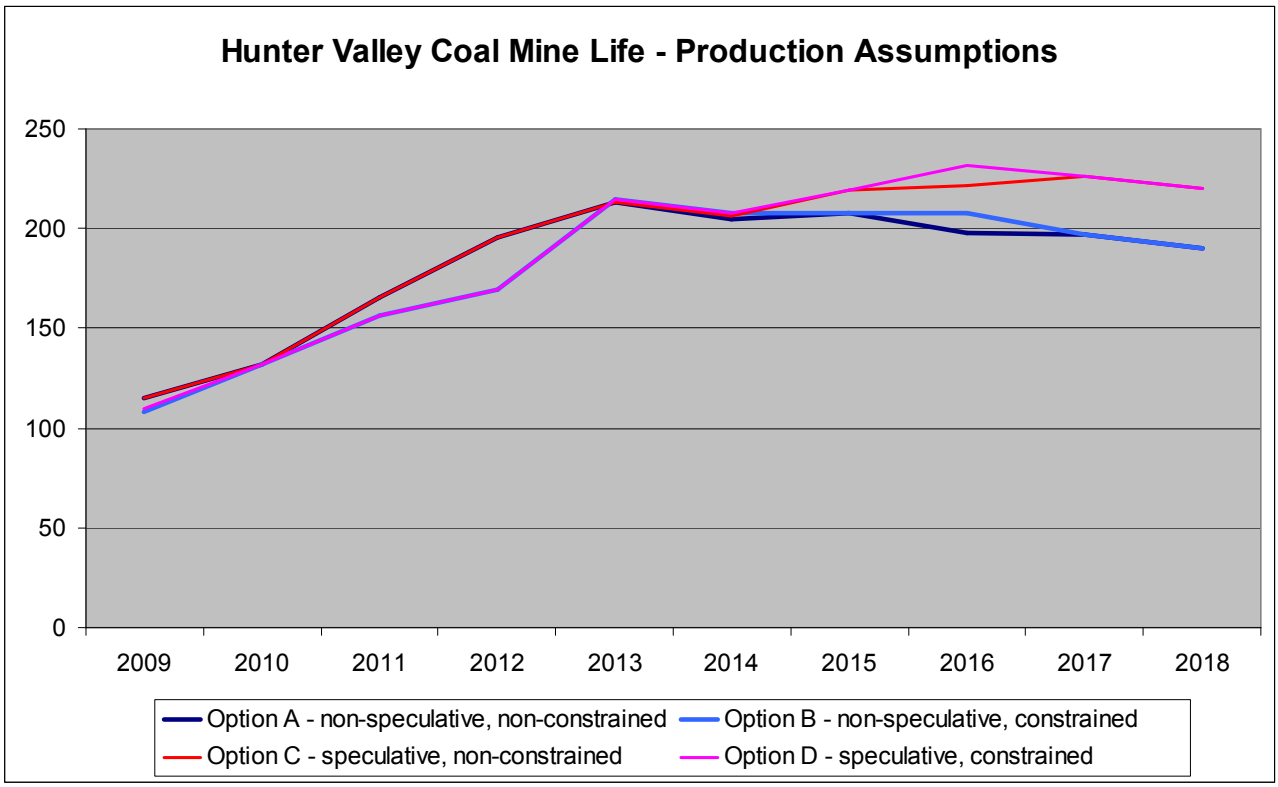
In response, ARTC has addressed both of these matters earlier in this submission. The NSWMC based its assertion of 240-260mTpa on the graph of Hunter Valley coal chain capacity provided in the Booz report. Booz assumed that coal chain capacity would be sufficient to meet demand beyond 2013. The actual production forecasts used in the Booz study are shown at Attachment 1. These show that for the option not including speculative developments, the highest annual level of production is around 211mTpa (aligned to known ports development). Only where the speculative developments are included does annual production (unconstrained) increase to 230mTpa. The coal chain capacity estimates beyond 2013 provided in the report are based on coal chain investment strategies presumably

designed to meet the additional demand placed on the system by these speculative developments.

As such, ARTC does not see either of the reasons provided by the NSWMC for adopting a remaining mine life above ARTC's proposal (to 30 years) as supportable.

There was very little other detailed evidence provided by the NSWMC supporting its position provided at the hearing. As such, ARTC is not able to make any further comment on its position. ARTC would hope to have an opportunity to consider and respond to the NSWMC proposal in detail at a later time.

ATTACHMENT 1



ATTACHMENT 2

Loss Capitalisation Approach to Economic Valuation

(An excerpt from Hunter Valley Access Undertaking Consultation Documents)

Background

Expansion of the Hunter Valley coal network

Coal transported on the HV Network is sourced from a number of geographically dispersed mines and coal loaders.

The majority of coal shipments occur at the lower end of the Hunter Valley. However, it is anticipated that a substantial portion of the growth in the network is likely to occur at the extremities of the current network. The forecast strong growth in the coal transport task over the next five years indicates an increasing proportion of coal being hauled from north of Muswellbrook and east along the Ulan line.

This will have implications for traffic patterns on the network and for the location of future capital investment to expand network capacity. In particular, in terms of expansion plans, there is likely to be a stronger focus on single track sections of the network north of Antienne. Nevertheless, such investment is likely to yield capacity benefits to mines closer to the port, as well as mines further out.

Investment risk

Asset stranding risk occurs where an infrastructure service provider cannot fully recover the cost of providing the infrastructure having particular regard to the full capital cost of its sunken infrastructure.

Asset stranding risk is greater the longer the life of the asset. Long life assets are typically found on rail networks.

To meet increasing demand over the current regulatory period, ARTC has plans to invest in additional network capacity outside the scope of the current regulated network but this will lack binding contractual arrangements to underpin this capacity enhancement, notwithstanding some existing commitments.

ARTC is currently most exposed to asset standing risk with respect to what is known as the 'unconstrained' part of the HV Network (where mines do not pay the full economic cost of rail service provision) and to expansions of the HV Network outside of the relatively narrowly defined 'stand alone' network used in the NSW Rail Access Undertaking.

Moreover, future capacity expansion will be necessary for new, or relatively new, mines on geographically distant parts of the Hunter Valley Network which will entail significantly more investment risk than capacity enhancement on the heavily used sections of the network closer to the port.

There are a number of options that ARTC could pursue to mitigate its asset stranding risk, especially in respect of new investment including:

- capitalisation of initial economic losses incurred on new infrastructure for later recovery through access charges; and
- adoption of accelerated depreciation in certain circumstances.

Capitalising economic losses for future recovery

Asset base roll-forward to start of next regulatory period

ARTC is proposing to establish the opening regulated asset base (RAB) for the next regulatory period by rolling forward the value of the RAB determined for the existing regulatory period.

Initial RAB in relation to those Segments that have been ascribed a regulatory asset value in accordance with the NSW Rail Access Undertaking in force at the time immediately preceding the Commencement Date will be set at the value of those Segments determined in accordance with the NSW Rail Access Undertaking as at the Commencement Date.

This will involve taking the depreciated optimised replacement cost (DORC) asset value at the commencement of the last regulatory period and rolling it forward each year to the commencement of the next regulatory period by adding in new capital expenditure for the defined regulated network and adjusting for inflation, actual depreciation and any asset disposals/transfers. This would then form the starting value for the next regulatory period.

The starting value in relation to those segments that have been ascribed a regulatory asset value in accordance with the NSW Rail Access Undertaking in force at the time immediately preceding the commencement date of the HVAU will be set at the value of those segments determined in accordance with the NSW Rail Access Undertaking as at the commencement date.

As such, the potential for windfall gains that might arise from a revaluation are avoided. However, to the extent that the initial valuation of the regulated network undertaken by the regulator in 1999 may have under or over-estimated the value of the regulated network, such under or over-estimate will be perpetuated with related efficiency consequences.

Asset base roll-forward during next regulatory period

Where an access provider is earning below economic returns on existing assets or initially on an investment in new capacity, ARTC considers that it should be able to offset this against any above-normal returns from the asset in question at a later period. Such an approach will facilitate use of the network as, where an expansion is occurring to service a new mine, setting higher prices initially for that expansion will tend to undermine the growth in volumes. This raises the riskiness of the investment, with the possibility that it would not be undertaken.

In any event, there is still some risk that volumes will never increase to levels that might bring about future above-normal returns.

By minimising stranding risk and reducing the possibility that an investment is deferred, the mining industry will benefit from the higher tonnages railed. The additional tonnage also

provides a wider community benefit through income generated from the higher tonnages. This higher income would not have been generated in the absence of the rail investment.

By allowing the infrastructure to recover the full economic cost of the investment in the long term (even though such recovery may not be possible in the early years of an investment), the likelihood of ensuring investment is undertaken ahead of demand is enhanced.

ARTC is proposing to adopt the 'loss capitalisation' approach in its HVAU. Under this approach, ARTC would be able to 'capitalise' any economic losses incurred over time, provided its regulatory asset base (RAB) is above a specified lower limit, so it is able to earn a regulated return on these losses in the future.

Under this approach, if the access provider is earning insufficient revenue to cover operating expenditure and capital costs, the RAB will increase over time, providing a capability to recover larger amounts of revenue in the future if sufficient higher volumes do eventuate.

Where the access provider is consistently earning excess returns (and not investing at high levels), the RAB must eventually decline. The proposed approach includes a floor below which the RAB is not allowed to drop (ie. the 'RAB floor limit'). This RAB floor limit starts at a level at or near the initial RAB and evolves over time, according to a conventional building block approach, such as annual roll-forward through the application of capital expenditure and adjustment for depreciation and inflation.

Worked examples of this approach are provided in the section below.

Worked Examples

Conventional approach to defining a ceiling revenue limit

'Building Block Model'

The revenue limit is equal to the sum of the 'return on capital' (WACC times RAB) plus depreciation 'return of capital' (determined on some basis) plus operating expenditure. The

Regulatory Asset Base ("RAB") is rolled forward as the sum of the previous RAB inflated, less depreciation plus net capital expenditure.

The proposed approach

'Loss Capitalisation Model'

The proposed approach seeks to allow an access provider a greater degree of flexibility than is normally possible under the building block approach. The access provider is allowed to 'capitalise' any economic losses incurred over time, provided its RAB is above a specified lower limit, so the access provider is allowed to earn a regulated return on these losses in the future.

RAB annual roll-forward

$RAB_{t\ start} = RAB_{t-1\ end} = (1 + WACC) * RAB_{t-1\ start} – Out\text{-}turn\ Revenue_{t-1} + Out\text{-}turn\ Opex_{t-1} + Net\ Capex_{t-1}$

Under the proposed approach, if the access provider is earning insufficient revenue to cover operating expenditure and capital costs, the RAB will increase over time, reflecting the need to recover larger amounts of revenue in the future.

'The RAB Floor Limit'

If the access provider is consistently earning excess returns and is not investing at high levels, RAB must eventually decline. The proposed approach includes a floor below which the RAB is not allowed to drop – 'The RAB Floor Limit'

Once RAB drops to the RAB Floor Limit, the access provider is no longer free to choose access pricing. Instead, prices are regulated according to the conventional building block approach.

The RAB Floor Limit starts at a level at or near initial RAB, and evolves over time, according to a conventional building block approach.

RAB Floor Limit annual roll-forward

RAB Floor Limit$_{t\ start}$ = RAB Floor Limit$_{t-1\ end}$ = (1 + CPI$_{t-1}$) * RAB Floor Limit$_{t-1\ start}$ + Net Capex$_{t-1}$ – Depreciation$_{t-1}$

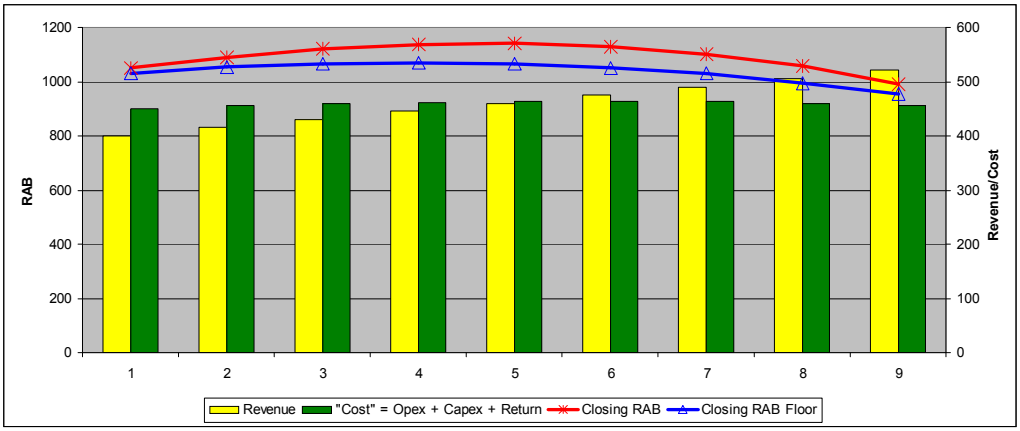
The initial RAB is determined on a DORC basis.

Examples

1. RAB does not reach RAB Floor Limit. Access provider is allowed to capitalise losses in the early years.

   Opening RAB = Opening RAB Floor Limit = $1000 Opex = $200
   Capex = $150 WACC = 10%

   Access pricing set to achieve revenue of $400 increasing annually by $15. Numbers are for illustrative purposes only.



2. Revenue in excess of costs. RAB declines rapidly. When RAB reaches Floor Limit, access provider must revert to building block approach, substantially reducing revenue.

   Opening RAB = $1000, RAB Floor Limit is lower at say $350 (reflecting earlier accumulated losses)

Opex = $200 Capex = $150 WACC = 10%

Access pricing set to achieve higher revenue of $500 increasing annually by $30. Numbers are for illustrative purposes only.