



AUSTRALIAN RAIL TRACK CORPORATION LTD

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Queensland Competition Authority
GPO Box 2257
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Risk & the Form of Regulation/Risk-free Rate & Market Risk Premium

ARTC Response to the Authority's Discussion Papers

ARTC welcomes the opportunity to provide a response to the Authority in relation to its Discussion Papers relating to its review of the cost of capital methodology for regulated businesses. The Authority has issued for comment two Discussion Papers relating to Risk & the Form of Regulation and the Risk-free Rate & Market Risk Premium in November 2012. For efficiency reasons, ARTC intends to address both Discussion Papers in this submission.

Introduction

ARTC currently operates the interstate rail network between Brisbane and Kalgoorlie connecting to ports in Sydney, Melbourne and Adelaide (but excluding metropolitan passenger commuter networks and that part of the interstate rail network between Sydney and Newcastle). ARTC also manages the Hunter Valley coal network to Newcastle ports, as well as several parts of regional rail networks in NSW and Victoria.

ARTC commenced a 60 year lease of the standard gauge rail line between the NSW/Queensland border and Acacia Ridge (around 100 km) in January 2010.

ARTC also has an agreement in place with the owners of those parts of the interstate network in WA (Brookfield) that provides for consistency in conditions of key elements of access and operations for interstate services between Kalgoorlie, Perth and the Port of Kwinana. ARTC has had similar arrangements in place in WA since 2000.

Almost all parts of the interstate rail network managed by ARTC are now covered by a voluntary access undertaking (ARTC Interstate Access Undertaking (IAU))



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accepted by the Australian Competition and Consumer Commission (ACCC) in 2008.

ARTC is currently working towards extending coverage of this access undertaking to the recently commissioned Southern Sydney Freight Line, and Metropolitan Freight Network, in Sydney.

As far as ARTC is aware, the leased network in Queensland is not covered by an access undertaking approved by the Queensland Competition Authority (QCA) and, to the extent of standard gauge interstate services operated on the leased network, has been excluded from Part 5 (Access to Services) of the QCA Act 1997 which provides for declaration of services in Queensland, and access arrangements to apply to declared services to be administered by the QCA.

Whilst subject to ARTC Board approval and any legal impediments, ARTC is planning to seek to extend coverage of the IAU to the leased network between the NSW/Queensland border and Acacia Ridge.

The interstate rail network in WA continues to be covered by the Railways Access Code 2000 (Code) in that state.

As significant interstate rail freight travels between the NSW/Queensland Border and Acacia Ridge, the application of commercial and regulatory frameworks in this jurisdiction can have a significant impact on interstate freight markets and ARTC business.

Although not formally part of the defined interstate rail network per se, the narrow gauge rail network connecting Brisbane to major regional and interstate markets along the Queensland coast line also carries significant amounts of interstate rail freight and forms an important part of relevant transport supply chains connecting regional Queensland and the rest of Australia. This network is covered by the Aurizon Network Access Undertaking administered by the Authority.

The Aurizon Network Access Undertaking also covers those parts of the rail network in Queensland used to support coal supply chains operating between inland mines and several coal ports. The commercial and operational circumstances surrounding these networks are similar to that which existing in



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relation to ARTC's Hunter Valley coal network in NSW. Regulatory considerations in relation to these networks in either NSW or Queensland can act to influence relevant outcomes with respect to both jurisdictions.

As such, the outcome of regulatory reviews in Queensland does not have, nor ever has, any 'direct' implications for the network currently managed by ARTC but may have an 'indirect' impact on regulatory considerations with respect parts of the ARTC network by way of creating positions, introducing innovation and setting precedent.

For these reasons, ARTC has sought to actively participate in regulatory reviews conducted by the Authority.

ARTC, and its shareholders, have long held an objective to achieve greater consistency of regulation of rail networks in Australia generally and, in particular, on the interstate rail network. This should not be taken to mean uniform regulation across rail networks where ARTC recognises that the different commercial and operating frameworks of rail networks require different regulatory treatments and greater flexibility in arrangements (referred to later in this submission), but consistent arrangements where network users have greater certainty as to how they will be treated so as to instil confidence in using and investing in the rail network and complementary parts of relevant supply chains.

On the interstate rail network, consistent regulatory and commercial arrangements have been developed over the last decade primarily through a combination of:

- increasing the extent of single (ARTC) management of the interstate network through lease of those parts of the interstate network in Victoria (1998), NSW (2004) and Queensland (2010); and
- establishing and maintaining goodwill and cooperative arrangements between jurisdictions at an operational level.

ARTC recognises that, in 2006, governments agreed, through the Competition and Infrastructure Reform Agreement (CIRA), to provide for more simple and consistent national economic regulation of nationally significant infrastructure, including railways. ARTC participated, with the ACCC, in the development of a



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proposal for a code that would apply to all rail networks that would govern central decision making in relation to the coverage and intensity of regulation applicable to rail networks as well as the application of a consistent set of principles for the development of access undertakings to rail networks. This proposal was considered by governments, but ARTC understands that relevant governments elected to proceed with an alternative path to seek certification of existing state based regimes in order to satisfy CIRA requirements.

In this submission, ARTC will provide some general views in relation to its experiences in the contemplation of WACC and regulatory rate of return by regulatory, and then specifically focus on the matters raised in the Discussion Papers.

General views relate to the need for greater flexibility to be exercised in determining WACC and regulatory rate of return, and to the asymmetric consequences of regulatory error as follows.

Greater flexibility in WACC considerations by regulators

During the development and regulatory approval processes for both ARTC's Hunter Valley Access Undertaking (HVAU) and the IAU, ARTC sought to develop and implement a number of innovative mechanisms to introduce the right sort of incentives for it and the broader industry, and sought regulatory recognition of a number of specific circumstances and risks faced by ARTC in relation to each of these networks.

In the Hunter Valley, for example, specific circumstances faced by ARTC include:

- Exposure of the Hunter Valley coal network generally to a number of relatively finite, global markets (when compared to say domestic electricity or gas markets) which even can impact on the risks faced by ARTC in coal markets serviced by different parts of the rail network.
- Formal recognition of, and specific obligation to implement, alignment of rail network capacity management with that in relation to other parts of the coal supply chain with an objective to optimise outcomes for the coal supply chain rather than the regulated rail network. This can result in sub-optimal decision



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making for the rail network to the benefit of the coal supply chain as a whole. Whilst ARTC supports a coal chain focus, it is not unreasonable for the access provider to be adequately compensated through the rate of return for the additional risks it faces in this regard.

- The use of a performance mechanism designed to penalise ARTC for under-delivery of capacity entitlements through the rebate of revenue (unrecoverable through the revenue cap mechanism).
- The requirement to develop separate positive performance incentives designed to offset negative asymmetric performance mechanisms (above) to incentivise ARTC to outperform in the areas of capacity delivery and efficiency.
- The exclusion of the costs associated with raising equity at industry benchmark levels.

During the regulatory approval process, ARTC went to great lengths to convince the regulator that taking on such specific risks required recognition in the rate of return, in order to adequately encourage investment in the rail network and compensate investors for those specific risks. ARTC found that the regulator found it difficult to take a flexible approach in this regard where it saw itself bound by a fairly narrow set of boundaries largely governed by regulatory precedent.

Whilst ARTC recognises that the CAPM framework and regulatory precedent can provide a useful input to current decision making and can provide a high degree of comfort to regulators in relation to the risk of legal challenge, there is a risk that operating within such a fairly narrow band of thinking in determining what may be adequate compensation for an access provider facing industry and specific risks, may result in under-compensation in the 'real' world in which it operates, as opposed to what might be considered a 'benchmark' operating environment.

In ARTC's view, regulators should be encouraged to take a more flexible view in determining compensation for the risks faced by regulated entities, without the fear of legal challenge and perception of setting what may be considered undesirable precedent. It may be that limitations around the CAPM framework may prevent the necessary degree of flexible thinking by regulators in order to address the specific market and operating risks faced by a network, and investors.



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One of the key drivers of WACC is systematic or non-diversifiable risk, which is reflected in the cost of equity calculation via the equity beta. When making its early submissions in relation to the HVAU to the ACCC, ARTC was about to commit to an investment program that is significant relative to the size of its existing Regulated Asset Base. ARTC only had certainty in relation to the revenue it would earn for the duration of the regulatory period. Beyond that, it remained exposed to the risk of a reduction in demand. This risk is not compensated via the WACC (nor is it compensated elsewhere) given the CAPM assumes that returns are normally distributed, whereas stranding risk is asymmetric, notwithstanding that some of the drivers of asset stranding risk are systematic in nature.

Apart from the total size of the investment planned by ARTC, much of the demand for this additional capacity was being created as a result of new mines that were being developed some distance from the port. ARTC's systematic risk is underpinned by the risk profile of its customers. The systematic risk of coal mining companies is particularly high. This is driven by a number of factors including the sensitivity of these companies' revenues to exchange rates given they influence the competitiveness of Australia's coal exports. Demand for ARTC's services will also be influenced by this, although ARTC's revenues are protected under the revenue cap, at least for the term of the regulatory period.

If these mines are considered in isolation (recognising that some of these mines were owned by companies that already have other developments in the region), the systematic risk of these particular mines was likely to be higher than the systematic risk of established mines that were located closer to the port. Apart from being relatively new developments, given the mines were located much further from the port, they were at a relative cost disadvantage compared to their competitors who were located closer to the port (given they faced higher transport costs). As a consequence, these mines were likely to be more vulnerable to an adverse movement in exchange rates and could be the first to close if there was a significant downturn in demand.

ARTC's revenues are largely protected from systematic volume risk for the term of the regulatory period. If there was to be a significant change in demand during a regulatory period, it is still possible that the regulator would revisit prices. The new mines, having a higher cost structure than the established mines, would have a higher level of systematic risk (that is, they would be more affected by economic



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shocks than the established mines). The new expanded network servicing the new mines would therefore also have a higher level of systematic risk than the existing network. Closure of the new mines caused by adverse economic conditions would result in stranding risk being borne by ARTC. As noted above, the stranding risk is not compensated via the WACC.

The riskiness of the investment climate currently faced by ARTC and other regulated businesses was highlighted by the global financial market downturn. There were significant concerns regarding future world economic growth, including potential revisions to growth expectations for economies in Asia, which have fuelled much of the current boom in the demand for coal. This impact was seen in commodity prices and the implications for coal remain uncertain.

Although the demand outlook is now more positive, these events have highlighted the potential vulnerability of this outlook over the longer term. However, it is unlikely that this has moderated expectations on ARTC to undertake significant investments that will enhance the performance of the coal supply chain, which is in the public interest.

ARTC is of the view that it is reasonable to provide ARTC with at least some compensation for stranding risk. The key question is how this compensation can be appropriately determined and applied. Three possible ways of doing this include:

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

The first method is the preferred approach but unfortunately a robust methodology for valuing asymmetric risk is yet to be developed (and accepted by regulators). 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



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should not result in over-compensation provided the beta is selected from within the bounds of a reasonable range.

ARTC proposed to the regulator the use of a separate WACC for the mines closer in, and for the mines further out to address, among other things, higher stranding risk. This approach was ultimately rejected by the regulator in this instance, partially due to the uncommon nature of the proposal.

In the case of the Hunter Valley, and in order to achieve what it considered to be an adequate level of compensation to attract investment in the rail network given the risks faced, ARTC saw it as necessary to engage in separate negotiation directly with the industry. In return for conceding amendments to the HVAU sought by industry, and further increasing ARTC's risk, ARTC was able to secure what it considered to be an adequate return, higher than that considered adequate by the regulator based on benchmarked parameters and regulatory precedent. The regulator supported this negotiated outcome.

An approach similar to that used by the NSW Independent Pricing and Regulatory Tribunal (IPART) under the NSW Rail Access Undertaking (NSWRAU) where a feasible WACC range is estimated and a point estimate within this range is selected may present a means of dealing with this issue.

The asymmetric consequences of regulatory error

The return profile for a regulated entity tends to be asymmetric, given that regulation tends to limit the potential for the entity to benefit from any upside gain, while often retaining unlimited exposure to downside risk. It is also widely accepted that regulatory error tends to have asymmetric consequences. The Productivity Commission stated¹:

'- 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.

¹ Productivity Commission (2001), Review of the National Access Regime, Report no. 17, AusInfo, Canberra, p.83.



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- 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.

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. Given the imprecise nature of WACC estimation (particularly in terms of a number of underlying parameters, such as beta and the market risk premium), the probability of regulatory error is likely to be high. It is therefore considered important for regulators to adopt a conservative approach when estimating WACC.

Given WACC estimation is an imprecise science, it is not possible to assess, even with the benefit of hindsight, whether a WACC has been set 'too high' or 'too low'. While it is extremely important to ensure that the proposed estimate is robust, observing the history of WACC reviews in regulatory processes suggests a tendency to seek a degree of precision that is simply unrealistic in practice.

In making its investment decisions the infrastructure owner will assess this based on its expectations as to what is considered a reasonable rate of return for its shareholders relative to the risks that are borne. This was tested in the review of the Dalrymple Bay Coal Terminal's (DBCT's) Access Undertaking in 2004/05, where the positions submitted by the users and the infrastructure owner were vastly different (which is a common situation faced by a regulator in a regulatory review). The WACC proposed by users represented a margin of 180 basis points above the risk-free rate. DBCT Management's proposed margin was 420 basis points above the risk-free rate (excluding an additional 1% premium sought for stranding risk). The Authority's Draft Decision was close to the user's proposed WACC, representing a margin of 236 basis points above the risk-free rate².

DBCT Management rejected the Authority's Draft Decision in relation to WACC, stating that³:

² Queensland Competition Authority (2004), Draft Decision: Dalrymple Bay Coal Terminal Draft Access Undertaking, October, p.193.

³ Prime Infrastructure (2004), QCA Draft Decision on the Access Undertaking for the Dalrymple Bay Coal Terminal, Submission prepared by: Prime Infrastructure (DBCT) Management Pty Limited, p.68.



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'The Authority has identified that it is critical for the Undertaking to provide the correct incentives for DBCT Management to expand the terminal when appropriate. The single most significant factor affecting DBCT Management's incentive to expand is the allowable WACC. The Productivity Commission, amongst others, has warned of the potential "chilling effect" on investment of regulation and argued that the social costs of lower returns are considerably higher than the social costs of any over investment. This is clearly evident in the DBCT situation today.'

The DBCT review process was a particularly protracted one. At least from the perspective of some participants in the market, Prime Infrastructure's (at the time) threat of not expanding the terminal was seen as real, and the rate of return was seen as a key consideration in this decision.

In the Final Decision the Authority increased the WACC to represent a margin of 318 basis points above the risk-free rate⁴ (based on a perceived increase in the risks faced by DBCT in relation to the expansion). While ARTC is not seeking to make any assessment of the appropriateness of the position submitted by any of the parties in this review, what it does highlight is the importance of WACC in providing an infrastructure owner with sufficient incentive to invest. If investment does not occur, or occurs at a reduced level, the public detriment that would arise from this would be the value of the lost exports. At current (and expected) coal price levels, this value could be particularly significant.

The cost and impact of under-investment is evidenced in many industries, including rail. To add further context in relation to ARTC's Hunter Valley coal network, the cost of access to the rail network, averaging around \$1-2 per tonne of coal represents such a small element of the total supply chain cost and the delivered coal price (around \$100 per tonne). Increasing the risk of under-investment in network capacity, costing industry around \$100 per tonne in lost revenue, represents an extraordinary cost benefit impact where, say, allowing an additional 0.5% in return to promote investment in network capacity may cost industry as little as 5-10 cents per tonne.

⁴ Queensland Competition Authority (2005), Final Decision: Dalrymple Bay Coal Terminal Draft Access Undertaking, p.151



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Once again, an approach similar to that used by IPART under the NSWRAU where a feasible WACC range is estimated and a point estimate within this range is selected may present a means of dealing with this issue.

Discussion Paper: Risk and the Form of Regulation

The Discussion Paper contemplates two forms of regulatory control being a 'revenue cap' and a 'price cap' conceptually sitting at opposite ends of a spectrum of control mechanisms, and a range of intermediate forms of control and the ancillary mechanisms that support them.

In terms of the operational and commercial frameworks that apply, the bulk of the ARTC network can be broadly split into:

- the interstate network, where strong intermodal competition results in access revenue falling well below regulatory cost of service levels; and
- the Hunter Valley coal network, in which access revenue on parts of the network is constrained to regulatory cost of service levels.

The interstate network is covered by the IAU, which essentially provides for:

- access revenue on any part of the network (Segment) to lie between a floor limit (incremental cost) and a ceiling limit (economic cost being operating cost plus a return of, and on, a regulatory asset base)
- annual variation of indicative charges (representing around 70% of access revenue) by no more than CPI.

Whilst the IAU contains a revenue cap (limited to cost of efficient service provision) per se, the circumstances on the interstate network are such that revenues are much less than cost of service provision and the ceiling limit has no impact. In making decisions around pricing, ARTC is very cognisant of:

- the fact that substantial parts of its interstate business are subject to strong intermodal competition;
- the impact of access price changes on the overall cost structure for rail, and
- the demand elasticity of rail pricing.



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Despite this constraint on behaviour, the second provision also currently serves to cap annual price variations and provide even greater long term price certainty to users. As such, it is arguable that the revenue cap only serves to prevent cross-subsidisation between parts of the network, and that the IAU represents a 'price cap' form of regulation, with the attendant incentives (cost reduction to increase profitability implied).

The Hunter Valley coal network is covered by the HVAU which also contains a revenue cap (limited to efficient cost of service provision), but also includes a number of ancillary controls including:

- unders and overs accounting;
- performance incentive mechanism;
- coal chain focus on operational and investment decision making.

These ancillary mechanisms serve to impact on the risks and certainty of access revenue.

It is ARTC's views that the general form of regulatory control and any ancillary controls imposed in a regulatory instrument should be considered in determining an appropriate rate of return. Such regulatory controls generally create risk to the certainty of revenues and such risks are often negative asymmetric. ARTC comments earlier in this submission in relation to regulatory flexibility and the asymmetric consequences of regulatory error are relevant in this regard. As new regulatory controls are developed and introduced into regulatory instruments in order to influence service provider behaviour, presumably in a beneficial way, the additional risks that may be introduced also need to be properly assessed and either mitigated or compensated.

Consequently, ARTC broadly supports the conclusions of the Discussion Paper that:

- the form of regulation serves to alter the non-diversifiable risk of a firm;
- the regulated firm's beta is affected by the form of regulation and by ancillary controls; and
- the importance of the form of regulation in determining the regulated firm's returns means that further exploration into how explicit allowances can be made.



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Discussion Paper: Risk-free Rate and Market Risk Premium

Risk free rate

ARTC supports the continuation of the use of CGS bonds with a 10 year term for regulated rail networks. This is consistent with the existing practice on the interstate network and Hunter Valley network.

Regulatory practice applied to the ARTC network to date has applied a 20 day averaging period. ARTC notes that regulators typically employ, or are considering employing, alternative averaging periods ranging from 10 days to 40 days. ARTC notes that a regulator is considering an even longer averaging period (up to 10 years) in a concurrent WACC methodology review⁵. In view of ARTC's preference for relevant parameters (eg. market risk premium, debt margin) to be based on longer term averages, and the need for consistent treatment across the WACC formulation, ARTC would not object to the adoption of a longer term averaging period, despite the fact that a longer term average may not reflect the 'spot' debt and equity pricing that may be available at any given time.

In relation to selecting an appropriate term for sampling instruments used to determine the risk-free rate and other WACC parameters (market risk premium, debt margin) which should be treated consistently throughout the WACC formulation, ARTC strongly supports a term aligned to the life of relevant regulated assets.

Infrastructure businesses typically have long life assets. Funding long life assets with long term debt reduces the overall risks associated with debt funding being interest rate, liquidity and refinancing risks. If long life assets were funded by shorter term debt, the business would be exposing itself to unnecessary risks.

Should an infrastructure business fund itself with short term debt it would need to 'go to market' regularly to raise the necessary funds. The business would be exposed to the rate on the day that it raises the necessary funds. This would occur on each funding day over the life of the funded asset. The business would be faced with an ever changing interest rate. This has the effect of having a greater

⁵ IPART, Review of method for determining the WACC, Discussion Paper. December 2012.



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volatility (risk) than that for longer term funding where effectively rates change less often.

Additionally, shorter term funding exposes the business to the problems of not being able to raise the necessary funds or being able to raise the funds at a reasonable rate.

Greater transaction costs are imposed upon the firm seeking shorter term funding. There are fixed costs associated with raising funds and the more often a business 'goes to market' to raise funds, the greater the compounding of the fixed transaction costs associated with raising funds. Clearly long term assets are efficiently funded with long term debt.

Standard commercial practice is for companies to match average asset lives with bond maturity, or for long life assets, the longest dated traded bond. This allows the company to service its debt from the revenue generated by the assets without being exposed to interest rate risk.

Reducing the sample term to five years and below for the WACC parameter values ignores commercial reality. Setting rates to reflect the regulatory period as has occurred in some other jurisdictions introduces refinancing risks. That is, the regulatory cycle is dictating how businesses should fund themselves as opposed to standard commercial practice.

Setting the term to match the regulatory period has been previously considered by other regulators. The ten year assumption was confirmed by the Australian Competition Tribunal's (ACT) GasNet⁶ decision. In that decision, the ACT determined that the ACCC was wrong to replace GasNet's ten year term for the risk free rate with a five year term. It considered that a ten year term is appropriate for long life regulated assets.

The Australian Energy Regulator (AER) recently considered shortening the term from ten years to five years⁷ and after reviewing extensive evidence retained a ten year approach.

⁶ Australian Competition Tribunal (2003), Application by GasNet Australia (Operations) Pty Ltd (2003) ACT 6, 23 December

⁷ Australian energy regulator (2009), Electricity transmission and distribution network service providers – Review of the weighted average cost of capital (WACC) parameters – Final Decision, May.



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Market risk premium

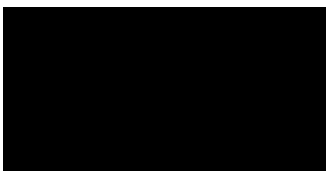
ARTC has argued in earlier regulatory submissions⁸ that the best estimate of the 'true' long-run market risk premium is the current long-run market risk premium. The market risk premium is volatile and as such a long-term average needs to be calculated to estimate a meaningful premium. It appears that the period of averaging needs to be at least 30 years and while longer periods change the calculated answer marginally, the advantage of a stable estimate outweigh any disadvantages of the longer time horizon.

Estimates of the market risk premium in Australia confirm that the value of the market risk premium has remained well above 6%. Studies over various time periods have consistently produced estimates in the range of 6 to 8%.

In ARTC's view, and putting the effects of the global financial crisis aside, a range of between 6% and 7% is a more reasonable estimate of the long-term market risk premium. With the instability caused by the global financial crisis still in the economy and financial markets, a market risk premium from at least the mid-point of this range would be considered conservative.

If you have any queries in relation to this submission please contact Glenn Edwards 08 8217 4292, gedwards@artc.com.au, or Kylie Gallasch 08 8217 4239, kgallasch@artc.com.au.

Yours sincerely



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⁸ IPART 2009 Review of Rate of Return and Mine Life – ARTC Proposal dated 1 Dec 2008, Appendix A, p57-71.