AUSTRALIAN RAIL TRACK CORPORATION LTD

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Issues Paper: Consultation on the WACC for regulated railways
Economic Regulation Authority
PO Box 8469
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PERTH WA 6849

**Consultation on WACC for regulated railways**

**ARTC Response to the Authority's Issues Paper**

ARTC welcomes the opportunity to provide a response to the Authority in relation to its Issues Paper relating to its consultation on WACC for regulated railways published in February 2013.

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 has an agreement in place with the owners of that part 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)) accepted by the Australian Competition and Consumer Commission (ACCC) in 2008. ARTC is currently working towards extending coverage of this access undertaking to include those parts that have recently come under ARTC control including:

- NSW/Queensland Border to Acacia Ridge in Brisbane; and

- Southern Sydney Freight Line and Metropolitan Freight Network in Sydney.

The interstate rail network in WA continues to be covered by the Railways Access Code 2000 (Code) in that state, and administered by the Authority. As significant interstate rail freight travels on these parts of the national rail network, the application of commercial and regulatory frameworks in these jurisdictions can have a significant impact on interstate freight markets and ARTC business.

For this reason, ARTC has sought to actively participate in regulatory reviews conducted by the rail economic regulator in WA in relation to regulation of the interstate mainline and connected branch lines as well as mining rail infrastructure in the north of the state.

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 (2011); 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 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.

The arrangements ARTC has in place with Brookfield in WA do not provide ARTC with sufficient control over access and operations of that network to be directly and substantially impacted by the regulatory rate of return settings under the Code. This is largely because on that part of the network, access revenues are unlikely to be sufficient to recover economic cost of that part of the network for the foreseeable future. Nevertheless, ARTC is very aware of the implications that the outcomes of regulatory reviews relating to WACC determinations can have in regulatory settings made in other jurisdictions (including the ACCC) by way of providing precedent.

ARTC notes that the Authority is seeking public comment in relation to both its update of the rail WACC to apply to regulated rail networks as at 30 June 2013, as well as its review of methods for calculating the rail WACC values to apply from 30 June 2014. At this time, ARTC will only be providing comment with respect to the latter review.

## The existing approach under the Code

ARTC notes that the Code has some features that are different from a number of other rail access regimes throughout Australia that impact on the form of WACC. In particular the WACC is applied to a regulated asset base that is based on the gross replacement value (GRV) of assets. In many other jurisdictions, the depreciated optimised replacement cost (DORC) formulation is used to determine the regulatory asset base. ARTC understands that the primary difference between the two approaches relates to the use of a depreciated asset base under DORC and the basis for determining annual depreciation charges where an annuity based approach is applied under GRV.

As stated earlier, on that part of the interstate network in WA, access revenues are unlikely to be sufficient to recover economic cost of that part of the network for the

foreseeable future. As such the exact formulation of WACC may not have a substantial financial impact for the owners. This could be expected to be different for other parts of the rail network in WA particularly those parts servicing predominantly the mining industry.

ARTC understands that the general practice to date in WA has been to determine WACC every 5 years through a public consultation process (due 30 June 2014) and between determinations only adjust WACC through updating parameters based on observable market variations (such as risk free rate, inflation and debt risk premium) annually. ARTC does not disagree with this broad approach, but considers that a 10 year reset via a public consultation process may be more appropriate given the nature of the assets involved. ARTC notes that the Code is reviewed on a 5 year basis and would similarly support a longer time frame in this regard, particularly on the interstate network in WA which has now matured to a large extent. This would also be consistent with the approved term of the IAU.

In relation to the 5 year public review of WACC, it is ARTC's experience that these are conducted on a similar basis to WACC reviews in other jurisdictions where differences in the formulation of WACC and the underlying parameters adopted are not substantial.

In most cases, ARTC broadly supports the approach taken by the Authority in determining parameter values used to develop WACC. The approach taken by the Authority is guided either by the requirements of the Code itself (which ARTC accepts is not overly prescriptive) or methods used by Authority that are predicated on the Authority's interpretations of the Code requirements, specific circumstances of the regulated network and regulatory precedent. ARTC notes that the Authority, in periodically reviewing WACC, uses the Capital Asset Pricing Model (CAPM) framework as a primary approach to determining cost of equity.

**Regulatory discretion**

ARTC notes that the Authority is proposing criteria to apply when assessing proposals for amending the existing approach to determining WACC, where such proposals:

- have a strong theoretical underpinning;
- are well-accepted;
- are supported by robust, transparent and replicable analysis that is internally consistent and is derived from available, current and credible data-sets;
- have the flexibility to reflect changing market conditions and new information as appropriate; and
- lead to consistent regulatory decisions across industries, service providers and time.

ARTC notes that the Authority intends to apply a consistent set of criteria to rate of return decisions for all industries.

Given that the Code does not impose detailed methodologies required for the determination of WACC for regulated rail networks, and that the Authority recognises that there is a resulting degree of discretion implied, ARTC considers that adopting criteria for determining methodologies that are transparent and consistent is not, in principle, an unreasonable approach. As is detailed later in this submission however, ARTC considers that it is appropriate, and within the context of any broad criteria relating to methodology, for a regulator to have due regard to the specific financial, operational and regulatory risks faced by a service provider in the circumstances in which it operates, rather than being bound by regulatory precedent in different industries.

ARTC considers that greater flexibility is needed in determining a reasonable WACC in order to provide appropriate incentives for investment in regulated rail networks.

ARTC notes that the Authority has specifically sought comment in relation to the recognition of the degree of risk faced by a railway owner and the impact on WACC determination, and specifically addressing the treatment of stranding risk. ARTC supports this issue being raised and has provided detailed comments in this regard later in this submission.

**Approaches to estimating the cost of equity**

The most commonly used approach to estimate the cost of equity is the CAPM. While this remains the most widely accepted approach to estimate the cost of equity,

it has come under considerable scrutiny and is known to have a number of deficiencies[1].

It also assumes that returns are normally distributed, which will not necessarily be the case for all investments. For example, owners of regulated infrastructure tend to face an asymmetric risk profile (that is, limited upside but potentially unlimited downside). This also means that risks such as asset stranding are not compensated via the rate of return as determined under a CAPM framework. This may necessitate supplementary treatment of those factors that are not captured as part of the CAPM. Unfortunately, risks such as stranding risk are not necessarily adequately dealt with by regulators elsewhere in the regulatory framework.

A number of alternative approaches to CAPM have therefore been postulated. However, none of these approaches are currently viewed as a superior asset pricing model to the domestic CAPM. While other methodologies are not superior to the CAPM approach, they may be used to test the reasonableness of the estimates. For example the Dividend Discount Model may be used as a check for the cost of equity or the P/E ratio may be used as a check for the equity portion of the valuation.

Given the increasing integration of world capital markets, suggestions have also been made that it is no longer appropriate to use a domestic CAPM, which essentially assumes that the Australian market is segmented from the world market. Instead, an international version of the model should be used. It assumes that capital markets are fully integrated, with international capital flows unrestricted, and investors exhibiting no home country bias[2]. This would mean that all of its key parameters, being the risk-free rate, beta and the market risk-premium, should be estimated in an international context.

A number of versions of the model have been developed and typically require specification of the key parameters in a global market context (for example, using a

[1] A key criticism is that it is a single period model that cannot be readily applied in a multi-period setting. Further, almost all of the assumptions on which it is based can be questioned. For example: (1) not all investors can borrow and lend at the risk-free rate; (2) short-selling of physical assets is generally not permitted (with the exception of derivative instruments); (3) many investors will consider the implications of taxes and transaction costs when making investment decisions; and (4) investors tend not to have homogeneous expectations regarding risk and return. On the contrary, much trading activity, and price volatility is driven by differences in expectations (and „decision models" used by investors to form these expectations), particularly between buyers and sellers.

[2] M. Lally (2004), The Cost of Capital for Regulated Entities: Report Prepared for the Queensland Competition Authority, p.28.

global share price index instead of the All Ordinaries index)[3]. As noted by the Strategic Finance Group, this is not practical[4]:

'Clearly, re-estimating all WACC parameters as they would be in the absence of foreign investment is an impossible task and this approach must be rejected. That is, all WACC parameters should be estimated as they are, not as they would be if a particular theoretical assumption were to hold.'

In practice, the international CAPM has not been widely used. This is for a number of reasons:

- there are a number of alternative models that have been specified, however there remains no consensus view on which one should be used;

- the model is relatively complex to apply and its parameters are difficult to estimate, particularly the exchange rate co-variances; and

- there is no empirical evidence to suggest that it provides a better estimate of the expected cost of equity. For example, a study by Koedijk et al found that the domestic CAPM only yielded a different estimate from the international CAPM for three percent of firms in their sample[5]. They attribute this to a dominance of country factors in individual stock returns.

One of the key reasons that the international CAPM may not provide a superior estimate of the expected cost of equity is because of the continued existence of home country bias. That is, despite the globalisation of world capital markets, investors continue to favour domestic stocks[6]. This may be partly due to the information asymmetries faced by domestic investors considering investments in overseas firms. A survey by Strong and Xu also revealed that fund managers' recommendations were biased towards their home market[7].

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[3] The model was originally developed by Solnik. Refer: B. Solnik (1974), "The International Pricing of Risk: An Empirical Investigation of the World Capital Market Structure", in The Journal of Finance, vol.29, no.2.
[4] Strategic Finance Group (2004), The Value of Imputation Franking Credits: Gamma, Report for AGL in Relation to ESC Electricity Distribution Review, p.9.
[5] K. Koedijk, C. Kool, P. Shotman and M. van Dijk (2002), "The Cost of Capital in International Financial Markets: Local or Global?", in Journal of International Money and Finance, vol.21 (6).
[6] For example, see: R. Stulz (1999), Globalisation of Equity Markets and the Cost of Capital, National Bureau of Economic Research, NBER Working Papers, 7021.

The fact that home bias exists does not mean that some integration of world capital markets has not occurred: what is evident is that the markets are not fully integrated. If markets are not fully integrated, then it is therefore not necessarily appropriate to apply an international CAPM. Certainly, it has not proven a superior model, and until such evidence becomes available (if and when it does) there is no basis for rejecting the domestic CAPM in favour of such an alternative. After considering the estimation difficulties and lack of empirical support to demonstrate the superiority of an international CAPM over the domestic version, Lally concludes[8]:

'...in the face of an issue like this in which the truth lies somewhere between two models, a conservative approach is desirable, i.e., choosing the model yielding the higher estimate for the cost of capital, on the grounds that understating the cost of capital may lead to businesses failing to invest, and this is the more serious of the two possible errors... Taking account of all these points, I recommend the use of a domestic version of the CAPM.'

It has also been suggested that if an international CAPM is not adopted, then all CAPM parameters would need to be respecified as if foreign investors had no influence on the Australian market. However, this suggests that the Australian market is completely segmented from the world market. Given that in reality foreign investors exert significant influence, this is not only virtually impossible to do, but inappropriately ignores this impact.

The rate of return is being used to determine prices and will drive investment decisions that are made with regard to current and expected market conditions. It should therefore reflect the rate of return that an investor would require, rather than the theoretical return that an investor would command in either a fully segmented or fully integrated market, neither of which is an appropriate representation of the current market reality.

It is therefore recommended that the domestic CAPM is used to determine the cost of equity, estimated using readily observable market data that may be influenced by the presence of foreign investors. Expectations of future returns will be formed based on the actual environment facing investors. Specified in this way, the domestic CAPM does not unrealistically assume complete separation from global markets. The

[7] N. Strong and X. Xu (2003), "Understanding the Home Equity Bias: Evidence from Survey Data", in Review of Economics and Statistics, vol.85, pp.307-312.
[8] M. Lally (2004), op.cit., p.31.

domestic CAPM will therefore serve as a better proxy for the international CAPM, without assuming that the Australian market is fully integrated with world markets.

**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 stated[9]:

'- 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.

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.

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

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 QCA"s Draft Decision was close to the user's proposed WACC, representing a margin of 236 basis points above the risk-free rate[10].

DBCT Management rejected the QCA's Draft Decision in relation to WACC, stating that[11]:

'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 QCA increased the WACC to represent a margin of 318 basis points above the risk-free rate[12] (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

[10] Queensland Competition Authority (2004), Draft Decision: Dalrymple Bay Coal Terminal Draft Access Undertaking, October, p.193.
[11] 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.
[12] Queensland Competition Authority (2005), Final Decision: Dalrymple Bay Coal Terminal Draft Access Undertaking, p.151

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.

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.

**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 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.

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 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 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 separate WACC's 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.

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.

**ARTC comments in relation to specific WACC/CAPM parameters**

ARTC notes that the Authority has sought comments on a range of specific issues relating to WACC parameters. Due to the short time available for submissions, ARTC has been unable to undertake a detailed assessment of these issues, but provides the broad views below in relation to a number of the WACC parameters.

*Pre-tax WACC or post-tax WACC*

ARTC notes that the Authority currently adopts a real pre-tax form of WACC under the Code, assuming an effective tax rate equal to the statutory rate of corporate income tax. In the Issues Paper, the Authority has indicated that it is considering moving to a post tax framework with tax payment modelled in the cash flows. However, the Authority has correctly identified that the estimation of future tax liabilities may not be consistent with the light handed nature of the Code and the determination of the asset base on a GRV basis.

Under the NSWRAU, IPART also adopts a real pre-tax formulation to the WACC calculation using an inflation estimate and a statutory rate of tax.

ARTC's interstate network and Hunter Valley networks are regulated by the ACCC. The ACCC has traditionally adopted a post-tax nominal approach in determining regulatory rate of return. Whilst ARTC is required to align to this approach on the interstate network, it is fair to say that the practical implication of this for ARTC is minimal given that access revenues on the interstate rail network fall well short of a regulated economic cost for the network. As such, the use of a real, pre-tax framework is unlikely to impact on the regulatory outcome.

In relation to regulation of the Hunter Valley coal network in NSW, under the NSWRAU administered by the Tribunal, ARTC undertook annual regulatory compliance assessments based on a regulatory rate of return determined by the IPART on a pre-tax real basis. As such ARTC's financial models in the Hunter Valley are framed on a pre-tax real basis.

ARTC prefers, from a practical perspective, the use of a pre-tax, real framework. Despite the ACCC's preference for a post-tax nominal framework, ARTC continues to use a pre-tax real framework for its regulatory compliance assessments in the Hunter Valley.

ARTC recognises that the use of such an approach relies to some extent on the appropriate choice of a tax rate to use for conversion. ARTC believes that the use of a statutory tax rate is appropriate, compared to the use of an estimate of a company's effective tax rate. ARTC recognises that a company can undergo periods of higher or lower effective tax rates over time depending on changing asset and investment profiles. The statutory tax rate represents a reasonable proxy for the tax rate facing a company in the long term (and tax accounting rules are intended to achieve this outcome) and offer a more stable environment for both the infrastructure provider and users.

On the other hand, the determination of future tax liabilities for a company represents a substantial regulatory burden without providing, in ARTC's view, significant benefits.

As such, ARTC would prefer continuation of the existing pre-tax real approach used by the Authority for rail reviews, and supports the use of the statutory tax rate in its formulation.

*Gearing*

ARTC considers it appropriate to adjust benchmark estimates of gearing levels to reflect differences in the level of risk between benchmark businesses and the regulated railway. This view is consistent with those provided earlier in this submission.

*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 the Authority has considered alternative averaging periods ranging from 10 days to 40 days. ARTC notes that IPART is considering an even longer averaging period (up to 10 years) in a concurrent WACC methodology review[13]. In view of ARTC's preference for relevant parameters (eg. risk free rate, 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.

*Market risk premium*

ARTC has argued in previous submissions[14] 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%.

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[13] IPART, Review of method for determining the WACC, Discussion Paper. December 2012.
[14] IPART 2009 Review of Rate of Return and Mine Life – ARTC Proposal dated 1 Dec 2008, Appendix A, p57-71.

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.

*Term of Debt Funding*

The debt margin for a 'benchmark' efficiently funded infrastructure business is a BBB rated bond with a ten year maturity. This view is appropriate as it accurately reflects funding arrangements.

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 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) GasNet[15] 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 years[16] and after reviewing extensive evidence retained a ten year approach.

*Gamma*

In its submissions[17] to the ACCC during the application and consultation process in relation to the HVAU, ARTC provided a substantial amount of information in relation to analysis and studies into gamma in support of its position.

The conclusion drawn by ARTC as a result of this analysis and previous studies was that the case for a gamma of zero was supportable, recognising that since the introduction of the 45-day rule, franking credits are now worthless to the marginal foreign investor. This was evident from recent reputable studies, as well as internal analysis which rejected the hypothesis that gamma has a value other than approximately zero (and also demonstrates that franking credits do not have a value, such as 0.5 or 1).

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

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

[17] http://transition.accc.gov.au/content/item.phtml?itemId=917946&nodeId=0e3d47a6a4c5bf67f1f93d609a6499ec&fn=ARTC%20Hunter%20Valley%20Access%20Undertaking%20-%20Synergies%20Economics%20Hunter%20Valley%20WACC%20Report%2021%20April%202009.pdf

While franking credits may have had some value prior to this tax law change (which may be reflected in estimates from studies that have spanned that decision), this is no longer the case. The early regulatory decisions which adopted a value of 0.5 (which had since become precedent) were also made prior to the introduction of the 45-day rule.

ARTC was of the view that there is sufficient evidence to now review the fundamental basis of this assumption.

In its Draft Decision[18], the ACCC estimated a fair value of gamma at 0.65, given a payout ratio of 1, which was consistent with the 2008 AER review of WACC parameters for electricity transmission and distribution network service providers. This was considered to be at the opposite end of the spectrum of regulatory positions on gamma.

In further ARTC submissions[19] on the matter, ARTC challenged the conclusions of studies relied upon by the ACCC, but noted the ACCC's reliance on the AER precedent. ARTC considered that there was still substantial uncertainty surrounding the value of gamma, and despite the AER precedent, IPART retained its gamma range of 0.3-0.5 for ARTC's Hunter Valley coal assets.

ARTC noted, at the time, there were regulatory challenges to the AER precedent before the Australian Competition Tribunal (ACT)[20]. ARTC argued that further uncertainty arising from this made it difficult to contemplate a move away from the previous ACCC setting of 0.5 which was at the top end of the range of feasible values proposed by ARTC. On this basis, ARTC would accept the previous ACCC setting.

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[18] ACCC, ARTC Hunter Valley Coal Network Access Undertaking, Draft Decision, 5 March 2010, p577.

[19] http://transition.accc.gov.au/content/item.phtml?itemId=945870&nodeId=887292423a49d1ec41011aff0a97dd51&fn=ARTC%202010%20Hunter%20Valley%20Access%20Undertaking%20Explanatory%20Guide%20-%20Appendix%203.pdf

[20] Energex Limited, Application under Section 71B of the National Electricity Law for a review of a distribution determination made by the Australian Energy Regulator in relation to Energex Limited pursuant to Clause 6.11.1 of the National Electricity Rules (File 2 of 2010) and Ergon Energy Corporation Limited Application under Section 71B of the National Electricity Law for a review of a distribution determination made by the Australian Energy Regulator in relation to Ergon Energy Corporation Limited pursuant to Clause 6.11.1 of the National Electricity Rules (File 3 of 2010).

In its most recent position[21] on WACC in relation to the HVAU, the ACCC agreed to adopt a value for gamma of 0.5 given the above circumstances.

Since that time, as the Authority notes, the AER and the Authority have adopted a gamma value of 0.25 consistent with the decision made by the ACT referred to above.

Whilst ARTC maintains its view that a value for gamma of zero is feasible and supportable, the result of the ACT decision is at least within the range ARTC would consider feasible. As such, ARTC supports the setting adopted by the Authority as a result, and would urge continuing investigation into the hypothesis that gamma may be zero.

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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[21] ACCC, Position Paper in relation to the ARTCV Hunter Valley Rail Network Access Undertaking, 21 Dec 2010, p114.