A submission to ERA

Prepared for Hancock Prospecting

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**Economics Policy Strategy** 

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## 1 Introduction

The purpose of this paper is to provide comment to the Economic Regulation Authority (ERA) on ERA's Issues Paper on the cost of capital for TPI's Pilbara railway<sup>1</sup> and TPI's submission on asymmetric risk<sup>2</sup>.

Section 2 comments on the WACC methodology and parameter questions raised in ERA's Issues Paper. Section 3 of the paper then comments on TPI's submission on asymmetric risk and the discussion on asymmetric risk contained in ERA's Issue Paper.

<sup>&</sup>lt;sup>1</sup> ERA, September 2008, Issues Paper, Determination of the weighted average cost of capital for the Pilbara Infrastructure's railway from the Cloud Break iron ore mine in the Plibara to Port Hedland.

<sup>&</sup>lt;sup>2</sup> TPI, 29 July 2008, Asymmetric risk and the TPI railway



## 2 ERA Issues Paper: Methodology and Parameter Issues

### 2.1 Methodology

In the Issues Paper ERA identifies three key matters in estimating a WACC:

- Choice of method and financial model to estimate the costs of equity and debt (such as the capital asset pricing model or CAPM)
- The treatment of inflation and
- The treatment of taxation.

Hancock Prospecting:

- Endorses the use of a CAPM framework for estimating the cost of equity.
- Endorses the use of a real WACC on the basis that this is consistent with the real framework embodied in the regulatory regime.
- Recommends ERA adopt a post-tax real WACC. Although this requires explicit modelling of taxation costs for the purpose of identifying the cost ceiling, use of a standard transformation to derive a pre-tax cost of capital using the statutory tax rate would significantly over-state TPI's required cost of capital. While use of an effective tax rate would mitigate this problem, the increased complexity involved in deriving an appropriate effective tax rate removes the apparent advantage of a pre-tax approach in terms of simplicity.

#### 2.2 Parameters

#### 2.2.1 Risk free rate and inflation

Hancock Prospecting endorses ERA's proposed methodology for calculating the risk free rate by:

- Determining the nominal risk free rate as the average of implied returns on nominal government bonds.
- Determining a forecast value for inflation, and
- Calculating the real risk free rate by the use of the Fisher equation.

#### 2.2.2 Financial structure (gearing)

The ratio of equity and debt is used to weight the equity and debt returns in the WACC calculation. It is standard regulatory practice in Australia to use a "benchmark" based on the long term financial structure that would be targeted by an efficient firm in the industry. The use of a benchmark rather than actual



gearing levels is intended to ensure that customers do not pay for an inefficient capital structure.

We disagree with ACG<sup>3</sup> that past precedent for electricity and gas has had a disproportionate influence on gearing parameters determined by other regulators. This is particularly in the light of the July 2008 ACCC decision on ARTC's access undertaking, and QR's proposed 2009 access undertaking (submitted to the QCA in September 2008).

During the recent determination of ARTC's access undertaking, the ARTC proposed a financial structure of 50:50 debt to equity<sup>4</sup>. The ACCC accepted the ARTC's argument that the gearing assumption should differ from the ACCC's usual assumption of 60:40 (for electricity), and accepted ARTC's proposal for a 50:50 debt to equity ratio.

In its 2006 Determination of Queensland Rail's coal reference tariffs, the QCA accepted QR's proposal to maintain its current capital structure of 55% debt and 45% equity. Moreover, in its proposed access undertaking for 2009 (submitted in September 2008), QR considers that the assumption of 55% gearing remains an appropriate long term target, taking into account QR's significant capital investment program.

In a determination of the rate of return suitable for the Hunter Valley Coal Network (HVCN), IPART determined a gearing level of 50 to 60% to be appropriate.

Hancock Prospecting supports the use of QR's coal lines and the Hunter Valley Coal Network as appropriate benchmarks for TPI's Pilbara Railway. This would suggest a gearing level of around 55%.

#### 2.2.3 Cost of debt

The cost of debt is the cost of raising and servicing debt. In previous decisions, ERA has typically determined the cost of debt by adding a debt-risk margin to the risk free rate. ERA also includes an allowance for debt raising costs.

The methodology for assessing the debt margin is reasonably well accepted. Hancock Prospecting supports the use of 10 year BBB+ bonds to determine the cost of debt.

<sup>&</sup>lt;sup>3</sup> ACG, Oct 2007, Railways (Access) Code 2000: Weighted average cost of capital

<sup>&</sup>lt;sup>4</sup> ACCC, July 2008, Final Decision ARTC Access Undertaking – Interstate Rail Network, p158



CRA proposes that yields to maturity be adjusted for credit spreads when estimating the debt margin. Hancock Prospecting agrees the need for such an adjustment.

#### 2.2.4 Market risk premium

The market risk premium represents the reward that investors require if they are to accept the risk associated with a diversified portfolio of equity investments.

In the 2008 WAC determination, ERA considered that there has been no marked change in the evidence on the premium required by investors since the late 1990s, validating the continued use of a 6% market risk premium.

Hancock Prospecting notes the heavy weight of regulatory precedent in favour of a 6% market risk premium, and supports ERA's previous assessment of 6% as the appropriate market risk premium.

#### 2.2.5 Systematic risk (beta)

Beta measures a firm's exposure to non-diversifiable risk (termed systematic risk). Systematic risk cannot be avoided by holding a diversified portfolio of assets, and hence requires compensation under CAPM.

Equity betas are assessed by measuring the correlation between returns to the firm and returns to the market as a whole. For businesses that are not quoted on the stock exchange, equity betas are not directly observable. As a result, regulators often identify comparators, and de-lever and then re-lever the equity beta to derive an estimate appropriate for the benchmark level of gearing assumed for the regulated business.

Hancock Prospecting supports the use of QR's coal network as a suitable comparator, since it embodies similar systematic risk characteristics to TPI's railway given the export-orientated nature of its traffic.

#### 2.2.6 Tax imputation (gamma)

Australian resident shareholders receive a franking credit for corporation taxation paid at the company level when determining their personal income tax liabilities.

The actual value of franking credits is represented in the WACC by the parameter gamma (Y) and is used to adjust the taxation rate used to calculate a pre-tax cost of capital cost of capital (or the tax cash flows under a Vanilla cost of capital).



The value of gamma depends on the proportion of tax paid that has been distributed to shareholders as franking credits (the payout ratio) and the value the average/marginal investor places on \$1 of franking credits (the utilisation rate). The payout ratio can be observed from taxation statistics, but the value of franking credits must be estimated empirically.

In its 2008 determination of the WACC for freight and urban networks, ERA acknowledged that valuation of imputation credits is complicated by unresolved theoretical and empirical issues<sup>5</sup>. ERA concluded that, given the inconclusive arguments and evidence, it is appropriate to apply a gamma of 0.5, consistent with ERA's previous regulatory decisions and regulatory precedent in other jurisdictions.

The weight of regulatory precedent is strongly in favour of a gamma of 0.5, and Hancock Prospecting supports a value of 0.5 on this basis.

#### 2.2.7 Debt and equity raising costs

The Issues Paper indicates that in the 2008 WACC determination, ERA considered that an allowance of 12.5 basis points for debt issuance costs.

Regulatory precedent on the cost of debt confirms that an allowance of 12.5 basis points for debt issuance costs is standard practice amongst Australian regulators. Therefore Hancock Prospecting endorses the use of 12.5 basis points as a benchmark measure of the cost of debt raising costs.

On equity raising costs, ERA considered that where appropriate equity raising costs should be recognised in the valuation of the regulatory asset base and in new capital expenditures rather than the WACC.

Hancock Prospecting previously provided comments on the inclusion of equity raising costs in its response to TPI's Costing Principles. Hancock Prospecting agrees that, if they are to be recognised, equity raising costs should be included in the regulatory asset base. However, such costs should reflect the equity raising costs that would have been incurred by an efficient and independent railway provider rather than the equity raising costs of the mining entity FMG.

<sup>&</sup>lt;sup>5</sup> ERA, June 2008, Op cit, p33



## 3 TPI submission on asymmetric risk and ERA commentary

In addition to general comment of TPI's submission and CRA's commentary, ERA invites specific comments on:

- the expected future loads and spare capacity on the TPI railway and the likelihood (if any) of the TPI railway asset becoming stranded; and
- in the event of stranding risk:
  - the magnitude of this risk; and
  - the best approach to value and incorporate this risk into the regulatory framework.

We address each of these questions below, before providing some specific comments on the Issues Paper and TPI's submission.

#### 3.1.1 Is stranding of TPI's railway likely?

This is a question that any single potential access seeker has difficulty in answering. However, ERA may be in a position to identify the potential demand for access on the railway following the consultation process.

From Hancock Prospecting's perspective, a number of observations are in order.

Under the State Agreement, the TPI railway is required to have a capacity of not less than 70 mt per annum<sup>6</sup>. ERA reports that FMG's initial 45-55 mtpa production target has been fully contracted with signed agreements for the export of a further 50 mtpa. In total, these volumes exceed the current capacity of the railway, and make it unlikely that in the short to medium term the railway will be subject to stranding risk.

In addition, ERA has identified a number of miners interested in accessing TPI's railway, such as BC Iron and Hancock Prospecting. There are at least 16 junior miners with potential iron ore projects in the Pilbara – and although many of these will be in locations where they may be unable to use FMG's railway, this demonstrates extent of potential activity and demand for rail services in the region. Moreover, as the NCC noted access to rail services may affect whether proven deposits are developed<sup>7</sup>. The level of interest in access

<sup>6</sup> Until the required thickness of ballast is laid the capacity may be slightly less.

<sup>7</sup> Quoted in ERA, Sept 2004, p7





to TPI's railway that can be expected from other potential projects makes it even less likely that the asset will become stranded.

Finally, we note that if asset stranding were of genuine concern to TPI, it would have sought to have a number of foundation contracts in place, from FMG and other miners, before building the railway.

# 3.1.2 Whether the risk should be compensated within the regulatory framework

We do not believe that the risk of stranding is likely enough to warrant incorporation into the regulatory framework. However, if for the sake of argument we assume that such a risk did exist, there are several other questions that need to be addressed before compensation is warranted.

#### Is the risk asymmetric?

The above discussion suggests that considerable up-side is possible, in addition to the potential downside identified by TPI. While some moderation in the growth in demand for iron ore may follow from the current financial instability, none of the major iron-ore producers (Rio, BHBP and FMG) have been affected to date<sup>8</sup>. It is not at all clear, therefore, that the demand risk facing TPI is asymmetric.

The nature and location of TPI's railway means that it will remain relatively unconstrained in terms of its ability to add additional capacity for some time. In particular it is relatively easy and inexpensive to add passing loops, which serve to increase capacity. Thus TPI will be able to benefit from upside demand and has an existing demand that would take up most of the installed capacity.

#### Is the risk unavoidable?

There are several aspects to this question. The first is whether TPI could, or could have, mitigated the risk by agreeing to contracts with potential access users in advance of committing to the railway. In our view, any stranding risk could have been substantially reduced in this way.

Expected demand from its associated company FMG would seem likely to use all available capacity within a relatively short period. Thus TPI could easily have set in place contracts that guaranteed payments to the railway over a long period even without approaching other mining companies.

<sup>8</sup> The Age, Oct 10 2008, "Iron ore stocks fall on slowdown fears"



In addition, under the Railways (Access) Code, TPI is able to request up front capital contributions to cover the cost of future expansions necessitated. Thus TPI will not be subject to any asset stranding risk on new investments made under the regime.

There is also a question as to whether the risk is insurable (and whether it would be efficient to insure against the asset stranding). For example, TPI could hedge against a major downturn in commodity markets, with the cost of the hedge counted in the cashflows used to assess ceiling costs.

#### Appropriate treatment within the regulatory regime

As TPI recognises, regulators have differed in their approach to taking asymmetric returns into account within the regulatory framework.

As indicated above, CAPM requires the assumption of normally distributed returns to estimate an unbiased beta factor. Where returns are asymmetric, that assumption is violated.

IPART, for example, took the position that CAPM is based on a number of assumptions, but is the best model currently available<sup>9</sup>.

...if asymmetric risk represents a truncation of returns and consequently violates the CAPM assumption of normally distributed returns, a different model should be used.

It was on this basis that IPART refused an adjustment to the beta factor for electricity distribution companies.

However, a number of regulators have agreed that asymmetric or truncated returns can be adjusted for via the cash flows. The addition of a "self-insurance premium" to costs ensures that the WACC is applied to cashflows which reflect the true expected value of outcomes, rather than the "most likely" outturn. This difference is represented in Figure 1 of TPI's submission.

Thus the ACCC, ESCOSA and QCA have all considered the incorporation of a self insurance premium to allow for asymmetric risks. However the burden of evidence required of the regulated entity is heavy. In particular, the regulated business needs to demonstrate that it has resolved to self-insure for the identified events, and will not make any future claims to recover the costs in the event of the adverse event occurring. In the SPI Powernet decision, the ACCC set out the following requirements<sup>10</sup>:

<sup>&</sup>lt;sup>9</sup> IPART, June 2004, Op cit, p231

<sup>&</sup>lt;sup>10</sup> ACCC, Dec 2002, Decision: Victorian Transmission Network Revenue Caps 2003-2008, p78-9.

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As a general matter, the Commission is required to apply an incentive based form of regulation under the code. After careful examination of the merits of self-insurance on efficiency grounds, the Commission has determined that the following matters must be established prior to considering a self-insurance application:

- confirmation of the board resolution to self-insure;
- a report from an appropriately qualified insurance consultant that verifies the calculation of risks and corresponding insurance premiums;
- relevant self-insurance details that unequivocally set out the categories of risk the company has resolved to assume self-insurance for. This would need to clearly establish what the insured events and exclusions are so as to avoid any future debate as to whether or not an event was a self insured one and form the basis for actuarial assessment noted above;
- a regulated entity's resolution to self-insure would also be expected to explicitly acknowledge the assumed risks of self-insuring (i.e. in the event of future expenditure required as a result of an insurance event such costs would not be recoverable under the regulatory framework as the relevant premiums would have already been compensated for within the operating and maintenance element of the allowed MAR and funded by users, eg if a 1 in a 100 year event occurs in year 1 then the business will need to have the financial ability to restore assets out of own resources).

Board resolution and corporate governance requirements are fundamental issues. Risk management strategy of an entity and approaches to events that could affect the overall risk profile of the entity are matters for Board consideration. This is important because it may require parent entity/shareholder support to self-insure and/or affect debt covenant requirements of lenders.

In both the SPI Powernet decision and its GasNet decision, the ACCC concluded that a number of claims for asymmetric risks were not justified when assessed on these criteria.

QCA took a similar position in its review of QR's coal network, for which QR had claimed a number of asymmetric risks. QCA stated that<sup>11</sup>:

for a material increase in its risk premium, QR should:

- *identify the specific risks to be self-insured and the profile of those risks, including any exclusions;*
- quantify the expected incidence and costs of risk by a method which is consistent with an actuarial assessment including, where appropriate, a report from a qualified insurance consultant confirming risk estimates and premiums;
- confirm that there is a Board resolution to self-insure such that if an insured event occurred, QR would provide sufficient funds to meet any claims arising and include

<sup>11</sup> QCA, Dec 2005, Op cit p55



such a commitment in QR's access undertaking as well as disclosing the selfinsurance in QR's accounts;

- provide explicit confirmation that future actual costs relating to the insured events will not be included in future regulatory cash flows and that QR would not seek to recover these costs through alternative avenues such as disaster relief arrangements; and
- demonstrate that QR has the financial capacity to assume the risks proposed to be self-insured.

As a consequence, QR allowed rejected QR's claim for \$9.2 million per annum for self-insurance.

#### Compensation not allowed elsewhere

It is also important to ensure that the regulatory regime does not provide compensation for the asymmetric risk elsewhere.

ERA's Issues Paper highlights the example of IRAR's 2003 WACC determination for WNR. WNR suggested that stranded asset risk arose given the long term nature of the investment in rail infrastructure. However, the Authority considered that the stranded asset risks identified by WNR were adequately protected through:

- the Costing Principles where the Regulator has allowed WNR to calculate the annuity based on a shorter life where WNR can demonstrate that the economic life of an asset is dependent on the life of a specific business, such as a mine;
- the re-determination of the ceiling costs with the review of the GRV of the asset base every three years, which could also take account of changed asset lives in cases of potential asset stranding;
- the ability of WNR, if affected by asset stranding, to surrender the rail line (if it is not one of the main lines) under the terms of the Lease Agreement or receive compensation from the State Government to maintain the rail line in question; and
- the ability to minimise asset stranding through contractual agreements in access agreements.

With the exception of the third point, all of these considerations apply equally to TPI.

In particular, TPI appears to have proposed relatively short depreciation lives for a number of its assets. The assumption of short lives allows TPI to recover accelerated depreciation in line with the expected life of mines, rather than the economic lives of the assets involved. This acts similarly to the tilted depreciation allowance discussed by ERA on page 26 of the Issues Paper.

The operation of the under and over payments regime also serves to provide some revenue protection to TPI. TPI's calculation of over and under-



payments allows underpayments to be offset against overpayments within any three year period. Thus reductions in revenue from the scaling down or closure of a mine can in effect be recovered from other operators using that line segment.

#### 3.1.3 Valuing asymmetric risks

TPI proposes 3 methods of valuing asymmetric risks.

TPI's options based approach involves applying a Black - Scholes formula to value the "call option" (being the asymmetric risk). Black - Scholes is typically used to value financial options, and its application to "real options" can be difficult both in terms of deriving appropriate parameters and in understanding the intuition behind the results derived.

If an options approach is used, we believe it would be preferable to adopt a decision-tree approach, which assigns probabilities to a range of defined outcomes in a transparent manner. The impact on the expected value of the cashflows of a possible mine closure or partial shutdown could be determined directly from such an options model. We believe this is what CRA had in mind when they proposed their alternative options approach.

We do not favour TPI's second approach, using probabilistic cashflows to adjust the rate of return. Adjustments to the rate of return are a very "blunt" instrument and is likely to introduce distortions into the regulatory framework. For example, the real options approach could be tailored to examine the impact of a mine closure on a given rail segment, with other mine segments potentially unaffected. Adjustment of the rate of return necessarily "smears" the adjustment over the entire network.

TPI's practical approach involves using evidence on TPI's actual debt margin and that on contemporaneous BBB debt as an indication of the stranding risk. However, the practical approach does not distinguish between the risk appropriately borne by FMG, as a mining entity, and the risk appropriately borne by TPI, the railway infrastructure provider. If TPI were a genuinely independent party, we would expect that the stranding risk would be shared between the two, in proportion to their ability to manage the risk. In our view, the majority of stranding risk in that situation would lie with FMG (and be reflected in foundation contracts that would be expected to have take or pay provisions) rather than TPI per se.

The practical approach also suffers from the "blunt instrument" problem, whereby the rate of return is adjusted for the whole network rather than being related to the line segments affected by asset stranding.



For this reason, we disagree with CRA's suggestion that the practical approach is likely to under-estimate the premium required for compensation for stranding risk.

CRA raises the question whether the incentive problems with the practical approach can be dismissed as easily as TPI suggest. We consider that perverse incentives are indeed an issue, and run counter to the reasoning behind the use of benchmark parameters for the cost of capital calculation.

#### 3.1.4 Other comments on TPI's submission and CRA's commentary

On page 1 of its submission, TPI states that the railway is particularly exposed to stranding risk because mines cannot be moved to an alternative location and they do not have an alternative use. However, there are deposits in the area that could be reached by spur lines from the TPI line and more deposits can be expected to be found given the prospectivity of the Pilbara for iron ore.

TPI also suggests that its revenue risk is highly concentrated, being based on a single commodity. As the discussion above makes clear, however, TPI's revenue risk is less than the risk faced by the mining companies. The miners face both volume and price risks, whereas the rail infrastructure provider only faces volume risk (its price being set by regulation). Also iron ore is the basic input for steelmaking and the Pilbara is a major world source for iron ore. This means there is a strong and diverse market for iron ore that is quite different to that faced by other minerals.

TPI also suggests that its stranding risk is higher because its prospective customers are few in number and being junior miners, relatively vulnerable to downturns. However a large proportion of its access services are being provided to FMG, which is now the third biggest iron-ore producer in WA and TPI should be able to mitigate this risk through its contracts with FMG.

On page 4 of its submission TPI indicates that measured equity betas will be biased if returns are asymmetric. However TPI does not indicate what action is required to ensure appropriate beta measurement. In practice, it will be necessary to use a proxy beta for TPI, using comparators for whom asymmetric returns are unlikely to be an issue.

On page 5 TPI indicates that the prospect of regulatory truncation was recognised by ESCOSA for the Alice-Springs to Darwin rail line. Although TPI implies that compensation for asymmetric risk was given by ESCOSA, in fact it was not, because the truncation was expected to have no impact on expected returns from the railway:

... regulatory truncation may only be an issue were ESCOSA to impose a ceiling on returns below the project's maximum expected return



Because the industry-wide WACC (of 7.0%) exceeds the maximum expected rate of return on total assets (of 3.9%), use of the industry-wide WACC estimate does not truncate the returns expected on the Project at financial closure. In these circumstances, ESCOSA is therefore justified in not providing for any uplift factor or imputed self-insurance premium beyond the industry-wide WACC when setting the ceiling rate of return.

On page 6 TPI suggests that the QCA compensated DBCT for asymmetric risk in its 2005 review. However, the QCA's decision to provide a higher cost of equity for use in determining future reference tariffs was not based on any explicit analysis of asymmetric risk<sup>12</sup>. Rather the QCA was responding to uncertainty regarding the appropriate beta factor for DBCT (in the light of its unique status as the only Australian terminal devoted to coal, as well as being dominated by export coal), and the need to err on the high side when estimating a cost of capital. While the QCA referred to the greater volume risk attaching to the new capacity, QCA was also conscious of the need to encourage investors to invest in regulated infrastructure in Queensland.

In our view, neither of TPI's examples provides a strong precedent for regulatory compensation for asymmetric risks. Moreover, there are many more examples where claims for asymmetric risks have been rejected. These include:

- the ESC's 2005 decision on electricity distribution pricing
- QCA's Decision on QR's 2005 draft access undertaking
- ERA's 2005 further final decision on the access arrangement for the Goldfields Gas Pipeline
- IPART's 2004 decision on electricity distribution pricing

On page 27 of the Issues Paper, CRA asks a series of questions related to the stranding risk on the line. In our view, it is clear that FMG "caused" TPI to build the railway largely for FMG's own use. It is not clear the extent to which TPI intended to provide any excess capacity in the line as built for third party access, as TPI has indicated to potential access seekers that they will need to pay for additions to capacity if they wish to use the line. Moreover, FMG has indicated that it has signed agreements which will take the usage of capacity beyond the 70 mtpa capacity provided.

TPI's lack of independence from FMG is also relevant, but not in the manner implied by CRA. The appropriate question is to what extent would TPI have mitigated its stranding risk through appropriate contracts with FMG had the decision to build been taken by an independent entity. In our view, an

<sup>&</sup>lt;sup>12</sup> QCA, April 2005, Dalrymple Bay Coal Terminal Draft Access Undertaking, Final Decision, p149



independent entity would have required a foundation contract to mitigate its risk and TPI should be treated as if this were the case.

#### 3.1.5 Conclusion

We do not consider that TPI has made a case for the presence of asymmetric risk and the need for compensation. It is not clear that the risks identified are asymmetric or unavoidable – and in fact the opposite can be argued strongly. TPI is in a position to have mitigated the main potential source of asymmetric risk and users should not be penalised if TPI has not acted in the manner expected of a prudent rail operator intending to invest in the building of a greenfields railway.