



Ref: O10_0348

11 June 2013

Economic Regulation Authority
Level 4, Albert Facey House
469-489 Wellington Street
PERTH WA 6000

Attention: Mr Jeremy Threlfall
Assistant Director Rail

By Email

Dear Jeremy,

Submission floor and ceiling cost determination for The Pilbara Infrastructure Pty Ltd

I refer to the publication by the Economic Regulation Authority (**ERA**) of a notice seeking public comment on the floor and ceiling cost determination for The Pilbara Infrastructure Pty Ltd (**TPI**).

Brockman Iron Pty Ltd is pleased to have this opportunity to comment and our submission is attached.

This submission is provided without any confidentiality restriction and with the expectation that the submission will be published on the ERA website as part of the public comment process.

We would welcome your further feedback regarding the actions the ERA may take in respect of the ERA floor and ceiling cost determination following the completion of the consultation period.

Yours sincerely,


Graeme Carlin
General Counsel
Brockman Mining Australia Pty Ltd.

C.C.
Mr Rob Pullella
Executive Director Access



Ref: O10_0347

Submission to the Economic Regulation Authority – Floor and ceiling costs proposed by The Pilbara Infrastructure (TPI)

11 June 2013



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1. EXECUTIVE SUMMARY

Brockman Iron Pty Ltd (**Brockman**) provides this submission for consideration by the Economic Regulation Authority (**ERA**) in its decision in relation to floor and ceiling costs submitted by The Pilbara Infrastructure Pty Ltd (**TPI**). Relevant background to Brockman's submission is set out in section 2.

In making its decision, the ERA should consider whether the floor and ceiling costs proposed by TPI comply with the Code, including the policy objectives of the Code such as the optimum and economically efficient operation of the relevant railway and non-discrimination in pricing and benefit to the public from having competitive markets.

TPI has provided no supporting information or explanation of its proposed floor and ceiling costs. This makes it impractical for any reasonable reviewer to determine whether the costs proposed are compliant with the Code. The costs proposed also do not reflect the access sought to be granted under the access proposal submitted by Brockman on 15 May 2013. For these reasons alone, the ERA should not approve the proposed floor and ceiling costs and should substitute its own floor and ceiling costs.

In any event, an assessment of the proposed floor and ceiling costs reveals shortcomings in the floor and ceiling costs when considered:

- against the requirements of the Code;
- against the assessment of floor and ceiling costs commissioned by Brockman; and
- in light of relevant comparison floor and ceiling costs.

To assist in its evaluation of the proposed floor and ceiling costs, Brockman has had a total cost estimate prepared for the proposed route¹. A report on those costs is contained in Attachment A. This is based on an independent assessment of the TPI infrastructure² that forms or is to form the route to which Brockman seeks access. While it is for the ERA to determine the floor and ceiling costs that should apply where it does not accept the floor and ceiling costs submitted by TPI, Brockman provides this information to aid the ERA in its consideration of the floor and ceiling costs that ought to apply in any event.

To further assist with the ERA's assessment, Brockman has prepared an annuity calculation, operating cost calculation and ceiling cost which is detailed at Attachment B. Due to the inadequacy of the information provided by TPI to Brockman, it is impossible for Brockman to prepare a floor price based on the available information.

2. CONTEXT AND PURPOSE

1. Context

This submission is made by Brockman in response to the publication by the ERA of a notice seeking public comment on floor and ceiling costs provided by TPI in response to a proposal for access by Brockman to TPI made under the *Railways (Access) Code 2000* (WA) (**Code**).

¹ Please note that because TPI has not provided any details of the expansion project which is currently underway, the cost estimate does not include costs for infrastructure under construction.

² As above.



Brockman is wholly owned by Brockman Mining Limited, an emerging multinational diversified mining and services group with interests in Australia, the mainland Peoples' Republic of China and Hong Kong and listed on both the Hong Kong and Australian stock exchanges. The Brockman group is advancing its acquired portfolio of high quality, high potential iron ore deposits in the Pilbara.

The most significant of these projects is the Marillana hematite iron ore project (**Marillana**) and the recently discovered Ophthalmia hematite iron ore project (**Ophthalmia**). A mining lease has been secured for Marillana, which has reported ore reserves in excess of 1Bt of hematite iron ore. The project has established native title agreements, has advanced environmental approvals, and completed mine planning and engineering studies including definitive engineering and front end engineering. Marillana is targeting production in excess of 400 Mt of iron ore product over a 25 year mine life. Ophthalmia has reported maiden iron ore mineral resources in three deposits over the last five months, for a combined total mineral resource for the project of 290 Mt grading 59.1%. The projects are located in the East Pilbara in close proximity to the TPI railway, Fortescue Metals Group Limited's (**FMG**) Nyidinghu iron ore project and to other major and junior mining company iron ore resources.

Brockman is now progressing its infrastructure solution to support the Marillana project and has submitted a proposal for access to TPI under the Code.

2. Purpose

The floor and ceiling costs approved under the Code will form the lower and upper limits for Brockman's negotiation of access charges with TPI. The floor and ceiling costs are an important aspect of the Code, which regulates both the process for obtaining access to regulated railways in Western Australia (including the TPI railway) and the price that a railway owner may charge for access to the railway. That price is to be negotiated, subject to some caveats including that:

- it must not exceed the ceiling cost or be lower than the floor cost as approved/determined by the ERA;
- it must be consistent with the matters set out in Schedule 4, paragraph 13 of the Code; and
- If during the term of the access agreement payments do in fact exceed the total costs attributable to the relevant route, the railway owner must reimburse the excess to the access holder in accordance with the approved Over-Payment Rules.

This submission considers whether the ERA should approve TPI's floor and ceiling costs that will apply for the first of these caveats in respect of Brockman's access proposal.

While the Code requires floor and ceiling costs to be specific to the access sought in a particular access proposal, all potential access seekers on TPI's railway have an obvious interest in ensuring that the floor and ceiling costs applicable to portions of the railway are fully compliant with the Code. Brockman therefore welcomes the ERA's decision to seek public submissions on TPI's proposed floor and ceiling costs.



3. REQUIREMENTS OF THE CODE

In considering whether or not to approve TPI's proposed floor and ceiling costs, the ERA should first have regard to the requirements of the Code.

The Code relevantly requires that TPI:

- Provide a proponent with floor and ceiling costs for the proposed access (Section 9(1)(c)(i) of the Code);
- Provide the costs for each route section on which the prices have been calculated (Section 9(1)(c)(ii) of the Code); and
- Determine the floor and ceiling costs in accordance with the Costing Principles approved under section 46 of the Code (Schedule 4, paragraph 10(1) of the Code).

The proposed access in this context is access to the route from the 219.5 km mark from Port Hedland to the 23 km mark from Port Hedland as sought by Brockman.

Other relevant requirements of the Code applicable to TPI are discussed below.

The ERA is required to either approve or not approve TPI's proposed floor and ceiling costs. If the ERA does not approve TPI's proposed floor and ceiling costs, it is to substitute its own determination of these floor and ceiling costs. These floor and ceiling costs as approved or determined by the ERA will apply for the purposes of negotiations between TPI and Brockman on Brockman's proposal for access, including the negotiation of access charges which must be within the floor and ceiling as approved or determined.

The floor and ceiling costs are to be consistent with certain matters specified under the Code. These matters are commented on in this submission. In addition, the *Railways (Access) Act 1998 (WA) (Act)* requires the ERA to take into account the matters at section 20(4) of the Act in deciding whether or not to approve TPI's proposed floor and ceiling costs. These matters recognise that decisions in relation to regulated railways (including the prices payable for access to TPI's railway) should strike a balance between:

- A railway owner's legitimate business interests;
- A railway owner's role as a provider of regulated infrastructure;
- The economically efficient use of the infrastructure; and
- The public's interest in having competitive markets.

These requirements highlight that a decision on TPI's floor and ceiling costs requires assessment of both the quantum and calculation of those costs and the consistency of the costs with these requirements and the objectives of the Code.

This submission considers the proposed floor and ceiling costs from both perspectives, to the extent possible based on the information provided by TPI.



4. COMMENTS ON COSTS PROPOSED BY TPI

1. TPI failure to provide costs for proposed access

The Code requires floor and ceiling costs to be provided by the railway owner for the proposed access, being the route to which access is sought from the proposed date of access. The only circumstances in which TPI are not required to include infrastructure that may form part of the route to which access is sought are the circumstances contemplated in section 9(2) – that is, if a proposal has specified an extension or expansion under section 8(4). Brockman has not proposed such an extension or expansion in its proposal.

TPI has not provided floor and ceiling costs for the proposed access. This is not compliant with the Code. It is also contrary to the Costing Principles which allow for infrastructure delivered, or being delivered, to satisfy projected demand to be included in the calculation of capital costs, provided that TPI also demonstrates the basis of the projected demand and its commitment to the capital expenditure. TPI is currently completing an expansion (unrelated to Brockman's access proposal) that will be completed before the access proposed by Brockman commences. The route to which Brockman seeks access will include part of that expansion. In accordance with the Costing Principles, TPI should:

- In its capital costs valuation, include the infrastructure to be provided by TPI's current expansion;
- provide an explanation of the basis of the demand projection on which TPI are undertaking the current expansion as well as demonstration of TPI's commitment to the expenditure.

It will be possible for TPI to provide costs on this basis. The calculation of capital costs is to be on a gross replacement value (**GRV**) basis using assumptions outlined in TPI's approved Costing Principles and the Code. This will be possible even for those parts of the current expansion that are not yet complete.

As the TPI floor and ceiling costs provided are not for the proposed access as required by the Code, they should not be approved by the ERA for the purposes of Brockman's proposal.

2. TPI failure to provide Costing Model or supporting information

The Costing Principles state that TPI will provide its Costing Model with its assessment of floor and ceiling costs. This has not been provided to Brockman or to the ERA, as far as Brockman is aware.

The Costing Principles also state that TPI will provide certain cost build up information to the ERA to support its claimed costs. As far as Brockman is aware, this information has also not been provided to either Brockman or the ERA.

TPI has even sought to withhold the proposed floor and ceiling costs themselves from interested submitters. It is only through information requests under the Code that potential submitters (other than Brockman) can obtain the proposed floor and ceiling costs. Brockman has separately expressed the view to the ERA that this is contrary to the intent of the Code as well as being detrimental to the submission process generally.



For the purposes of this submission, Brockman has assumed that the floor and ceiling costs are those proposed by TPI being:³

- Floor - \$73.4 million/year
- Ceiling - \$575.6 million/year

As such, submitters (including Brockman) are necessarily confined to commenting on and developing the review of the costs themselves. It is not possible to provide comment on whether these floor and ceiling costs have been prepared in compliance with the Costing Principles (for example) as there has been no disclosure of information showing how these costs have been arrived at. The Costs have not (as is required by the Code) been broken down on a route basis.

In 2010/11, the ERA considered floor and ceiling costs proposed then by TPI. One of the reasons that the ERA's appointed independent expert PricewaterhouseCoopers did not recommend approval of the costs was the deficiencies in the information provided by TPI in support of its proposed floor and ceiling costs. It is noted that TPI did provide a costing model on that occasion, although both PricewaterhouseCoopers and parties who provided submissions to the ERA identified fundamental deficiencies and flaws in the model. PricewaterhouseCoopers recommended that further information and substantiation be provided by TPI in relation to various aspects of that model before the proposed floor and ceiling costs could be further considered. Ultimately TPI recommended (and the ERA accepted) that the ERA should not publish a final determination on floor and ceiling costs for TPI as at that time an access proposal had not been lodged.

The current proposal from TPI includes no such information. It would be wholly inconsistent with the ERA's previous practice for the TPI proposed floor and ceiling costs to be approved given this apparent lack of information.

3. Factors to be considered in an assessment of costs

The composition of the proposed floor and ceiling costs is material because under the Code, costs must be calculated in accordance with principles that are directed at maximising the economically efficient operation of the railway. These principles include:

- costs are to relate to the efficient management and operation of the railway, including the operation of multiple routes on the railway (Schedule 4, paragraph 4 of the Code);
- pricing should be non-discriminatory and differences in price should reflect only differences in risks associated with provision of access;
- pricing should be reflective of the access sought and market conditions;
- apportionment of costs should be fair and reasonable;
- pricing should encourage optimum use of the infrastructure;
- pricing should allow a railway owner to recover costs that are specific to an extension or expansion required by an access seeker.

³ As reported in the West Australian newspaper on 30 May 2013 following an information request under the Code ('FMG puts \$576 million price on rail access', page 2) and provided to Brockman in TPI's response to the access proposal.



While the requirements of Schedule 4, paragraph 13 are expressed to apply to the negotiation of prices for access, it is impossible for these principles to be given effect during negotiation if the starting point for negotiation (being the floor and ceiling prices) are not themselves consistent with these principles. As such, in assessing TPI's proposed floor and ceiling costs the ERA should consider factors such as:

- whether costs have been calculated based on a railway that is optimum and efficient;
- whether the proposed costs are fair and reasonable and meet the relevant floor and ceiling cost derived from Code principles; and
- whether the floor and ceiling costs will result in pricing that is non-discriminatory.

As discussed below, in Brockman's view the proposed costs do not appear to meet these criteria based on Brockman's assessment of costs and a comparison with other relevant costs and resultant pricing. It has not been possible to consider TPI's proposed costs other than on this basis, given the lack of information provided by TPI.

5. BROCKMAN'S ASSESSMENT OF COSTS FOR THE ROUTE

In order to form a view on whether TPI's proposed floor and ceiling costs are compliant with the Code and the Costing Principles, Brockman has been required to undertake its own assessment of the costs of providing access to the proposed route the subject of the proposal. Brockman has engaged an appropriately qualified expert to prepare a gross replacement value report. That expert's report is detailed at Attachment A. The experience and competency of the expert is detailed in the report.

The gross replacement value assessment has been undertaken in accordance with the Costing Principles. Brockman provides this information to:

- help inform the ERA in its determination of the floor and ceiling costs, given that TPI has failed to provide this information; and
- allow a comparison of TPI's proposed floor and ceiling costs with Brockman's valuation.

As is noted earlier in the submission, the gross replacement value report included in Attachment A does not include infrastructure under construction. TPI have not provided any updates arising from Code obligations or details of the construction project which is currently underway and understood to be partially completed. The ERA will however be better placed to assess the replacement value of the infrastructure that is the subject of the current expansion project (which projects will be completed before the commencement of access for Brockman). Brockman submits that the ERA should assess such costs as a part of its GRV determination.

The methodology adopted by Brockman's expert in preparing the GRV report included in Attachment A is as follows:

- identify the assets in and outside of the estimate;
- reference comparative publicly available information;
- consider the ERA's previous draft decision on TPI's floor and ceiling costs. For example, in the development of unit rates TPI had previously proposed (and the ERA had accepted on a draft basis) that a percentage for indirect costs (being design, construction and project management) of 20% of direct costs be utilised. Indec has used an amount of 20% for construction indirects in the development of its rates;
- reference other relevant projects worked on by Indec;



- consider the impact of the terrain; and
- apply the reference cost information to the infrastructure.

6. COMPARISON OF TPI'S PROPOSED COSTS WITH BROCKMAN'S ASSESSEMENT

1. TPI's proposed costs on a per tonne basis

For the purposes of comparison, it is conventional to calculate proposed rail access costs on a per tonne basis.

Under the Code:

- floor costs are the incremental costs of access for a particular access holder; and
- ceiling costs are the total costs attributable to the relevant route, calculated for all users of the route.

As explained above, the costs information provided by TPI does not reflect the route to which the relevant access is sought and are therefore not compliant with the Code. Brockman has assumed that the costs reflect the current completed configuration of the railway, which TPI and FMG have publicly reported as having an estimated capacity of 120 mtpa (without regard to any capacity expansion arising from the current expansion projects).

Using these assumptions:

- TPI's proposed floor costs equate to a price of \$3.67/tonne; and
- TPI's proposed ceiling costs equate to a price of \$4.79/tonne.

As is noted above, the costs provided by TPI should have accounted for the current expansion (as if that expansion were completed – given that the project will be completed before the time that access is sought).

2. Comparison with Brockman's assessment

Despite having an obligation to do so, TPI have not provided Brockman with floor and ceiling prices. The information provided by TPI is insufficient for Brockman to propose a considered estimate for a floor price. To be in a position to propose a floor price, TPI would need to provide sufficient information to determine the avoidable costs and a minimum load factor in relation to the section of line for which access is sought by Brockman. The section of line that Brockman is seeking access to can be considered as main line as all trains from FMG's mines traverse this section and hence there would be virtually no avoidable cost on the current infrastructure.

Based on the expert report prepared by Indec (contained in Attachment B) Indec and Brockman (with the assistance of Frontier Economics) have prepared the annuity calculation, operating costs and the ceiling price. The spreadsheets supporting those calculations are also attached in Attachment B. Frontier Economics⁴ (through leading economist Dr Philip Williams) have checked and verified the annuity costs, operating costs and ceiling price calculations.

⁴ Frontier Economics are one of Australia's leading economics advisory firms. Among other matters, Frontier are expert in access and prices related matters. Dr Williams is chairman of Frontier Economics. A link to Dr Williams' profile can be found here: <http://www.frontier-economics.com/europe/en/people/28/>



The analysis prepared by Brockman shows a ceiling price as follows:

Traffic	Mtpa	
FMG and Other Traffic	80.8	120
Brockman	20	20
Total Traffic (Mtpa)	100.8	140
Ceiling cost per tonne	\$1.23	\$0.88

It should be noted that in calculating the ceiling prices Brockman has (because of the lack of information provided by TPI) used two different loads. One load assumes that FMG's production is 80Mtpa (as stated in its most recent FMG reports), and the second 120Mtpa (based on TPI's firm port capacity). It should be noted that FMG have announced an aspirational target to increase its production to 155Mtpa at an unknown point in time (despite the 120Mtpa port capacity constraint). The 155Mtpa price has not been determined because TPI have not provided the underlying costs for the expanded railway infrastructure (that is, the expansion currently underway).

3. WACC

It should be noted that the WACC which has been used in the calculations is the 2012-2013 WACC. Brockman anticipates that for financial year 2013-2014 the WACC is likely to be reduced. We note that for 2012/13 year the mature Brookfield railway system in Western Australia had a WACC determination of 6.87% while the Public Transport Authority railway had a WACC determination of 4.30%.

7. COMPARISON OF TPI'S PROPOSED COSTS WITH OTHER ARRANGEMENTS

1. Other arrangements by TPI

TPI have not disclosed the existence of any other commercial arrangements or access agreements (accordingly no assumption can be made that there are any).

To the extent that there are any access agreements, then those agreements are likely to be for FMG, the parent of TPI. Brockman is not in a position to determine whether these agreements are on arms lengths terms or otherwise seek to transfer value to or from the infrastructure business for other business reasons or could be characterised as tools to insulate spare capacity from access.

2. Access prices for comparable railways

It is usual for an assessment of costs claimed for regulated infrastructure to include a comparison against costs for comparable or similar infrastructure. The Indec report at Attachment A is prepared on the basis of other comparative cost information. This was the approach adopted in the ERA's consideration of costs proposed by TPI in 2011. For that assessment, the ERA's independent consultant PricewaterhouseCoopers considered elements of the cost model prepared by TPI against costs for similar railways such as the Central Queensland Coal Network and the Hunter Valley coal network.

TPI has previously proposed floor and ceiling prices of \$5.07 and \$5.77. This was based on an 40Mtpa railway and a WACC of 11.43%. Since that time the railway has been expanded (and is undergoing a further expansion) and the WACC determined for the railway has been reduced to 9.16% with an expectation of this rate falling further due to the further falls in the risk free rate (Pending the June 2013 ERA WACC determination). Based on the total capacity of the railway since the 2011 ERA commissioned



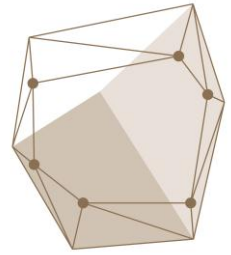
PricewaterhouseCoopers report and the lower WACC, the floor and ceiling prices should be lower than that previously proposed by TPI.

8. BROCKMAN'S RECOMMENDATIONS

For the reasons set out in this document, Brockman submits that:

- The ERA should not approve TPI's proposed floor and ceiling costs.
- Brockman is generally comfortable with the model previously proposed by TPI⁵, provided that amendments to that model incorporate the recommendations proposed in:
 - the 2011 ERA commissioned PriceWaterhouseCoopers report (in particular, that the asset base not include above rail assets, including those which were sought to be included in TPI's 2010 floor and ceiling prices); and
 - Indec's GRV report in Attachment A.
- The ERA should substitute its own determination of floor and ceiling costs. These floor and ceiling costs should be prepared having regard to the matters outlined in this submission, including Brockman's assessment of costs. Brockman would be pleased to provide further information to the ERA in relation to this assessment.
- The ERA should require TPI to provide further information and substantiation of its claimed costs, including as required by the Costing Principles and to assist the ERA in determining the costs that should apply.

⁵ This is on the basis of the publicly available model published by the ERA previously.



Ref: O10_0347

Submission to the Economic Regulation Authority – Floor and ceiling costs proposed by The Pilbara Infrastructure (TPI)

Attachment A

GRV Report

11 June 2013

TPI RAILWAY GROSS
REPLACEMENT VALUE
REPORT – JUNE 2013

Proposal Prepared for:

Mr. Graeme Carlin
General Counsel
Brockman Mining Australia Pty Ltd

Proposal V1234
June 2013

Contact Details:
Mr. Peter Tilley
Principal

DOCUMENT CONTROL

CONTROL SHEET

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1 BACKGROUND

The Pilbara Infrastructure Pty Ltd (TPI) is the owner of railway and port infrastructure in the Pilbara region of Western Australia.

TPI received an Access Proposal from Brockman Iron Pty Ltd (Brockman) on Wednesday 15 May 2013 (Access Proposal) under the provisions of Western Australian Rail Access Code (2000) (the Code). Under Schedule 1 (52), the Code allows access by third parties to all tracks that are part of the railway governed by the TPI Railway and Port Agreement.

Prior to a determination on floor and ceiling prices, the Economic Regulation Authority (ERA) has sought public comment on TPI floor and ceiling costs determination for a section of the railway between Christmas Creek mine and Port Hedland (and which is the subject of the Access Proposal).

The route starts at the 219.5 km mark from Port Hedland and ends at the 23 km mark from Port Hedland.

Under Schedule 4 of the Code, the ERA is required to approve or determine floor and ceiling costs for any railway routes subject to third party access requests.

In response to Brockman's Access Proposal TPI has provided incomplete cost information. TPI has not provided floor and ceiling prices.

With regard to load on the railway, Brockman has not been provided with any evidence or any substantive information regarding the Fortescue Metals Group (FMG) statements that they will export 155 Mtpa. We also note that FMG's use of the port capacity allocated by the Port Hedland Port Authority to TPI (FMG's wholly owned subsidiary) is 120Mtpa. Accordingly the tonnage is based on FMG's March Quarterly Report annualised at 80.8 Mtpa shipped from the TPI Anderson Point port facilities for both FMG and BC Iron Limited.

Clause 10 of the Code requires that the ERA either approves the railway owner's determination, or makes its own determination of the relevant costs. The ERA is required, under the ERA notice dated 27 May 2013, to make this approval or determination before 23 June 2013.

Interested parties have been invited to make submissions on the TPI's determination by 4:00 pm (WST) on Tuesday, 11 June 2013.

The ERA had earlier directed on 17 May 2013 that TPI amend its costing principles to define six route sections as follows:

- The route section from the loadout at the Christmas Creek mine to Cloudbreak mine loadout.
- The route section from the loadout at the Cloudbreak mine to chainage 219.5 km, measured from Port Hedland.
- The route section from chainage 219.5 km to chainage 174.875 km, measured from Port Hedland
- The route section from the loadout at the Solomon mine to chainage 174.875 km, measured from Port Hedland.
- The route section from chainage 174.875 km to chainage 23 km, measured from Port Hedland.
- The route section from chainage 23 km to the dump station servicing TPI's port facilities and additional infrastructure at Anderson Point, Port Hedland.

This amendment defined route sections, some of which may be aggregated to correspond to the route subject to the Access Proposal received by TPI.

This report is in response to the ERA public invitation for submissions on floor and ceiling costs and concerns the sections of the railway between chainage 219.5 km and chainage 23 km from Port Hedland.

2 SCOPE OF INDEC'S WORK

Indec has been retained by Brockman to provide Indec's opinion, based on Indec's knowledge and experience, of the gross replacement value of the section of the railway the subject of the Access Proposal. This scope is explained further in item 4.

3 ABOUT INDEC

Indec is a specialist rail and port consultant and a Capability Statement is attached at Appendix A.

4 SCOPE OF WORK

This part of the task is to estimate the gross replacement value (GRV) of the sections of the TPI railway for which access sought under the Access Proposal. It requires a cost basis estimate and quantities estimate:

4.1 COST BASIS ESTIMATES

A cost basis (per unit) is required for

- Earthworks, single track – undulating country
- Earthworks, single track - hilly country
- Earthworks, double track – undulating country
- Earthworks, double track- hilly country
- Formation per track kilometre
- Bridges – per span
- Culverts per route kilometre
- Drainage per route kilometre
- Track per track kilometre (incl. sleepers, fittings and fasteners)
- Turnouts (Main line RBM, swing-nose incl. sleepers, fittings, jewellery, actuators and fasteners), each
- Turnouts (Siding, RBM incl. sleepers, fittings, jewellery, actuators and fasteners), each
- Ballast per track kilometre
- Communications per route kilometre
- Track Maintenance Plant and Equipment (FB Welding plant etc)
- Train Control Centre
- Train Control Systems
- Track Camps
- Maintenance Vehicles
- Access roads
- Level crossings

- Signage
- Power supplies for below rail and train control functions.

Excluded from the estimates are ore loadout and ore discharging plant, terminal facilities and equipment, rolling stock, rolling stock maintenance inspection facilities and refuelling facilities.

4.2 QUANTITIES ESTIMATES FOR EACH LINE SECTION.

The estimates of quantities of each item based on the configuration of the railway infrastructure in normal use as at the date of Access Proposal.

The quantities estimates exclude infrastructure under construction or completed but not commissioned as at that date. Where connections (turnouts) are in place on the main lines in preparation for future works these are included in the estimates as being in use as maintenance is required on that part of the works in use by normal traffic.

Where it is not possible to segregate asset costs based on their physical location, an apportionment is made based on either estimated current gross tonnes per kilometre (GTK) or the estimated annual number of train movements.

5 METHODOLOGY

In determining the GRV without access to confidential TPI records we are only able to make an assessment based on what is currently observable. While not providing information or supporting in any way FMG statements we note that TPI is currently augmenting the railway capacity to achieve its stated targeted aspiration of transporting 155 Mtpa of product on the railway. Consequently the assets included in the calculation are those assets that have been completed and not those understood to be under construction flowing from a physical review of the construction being undertaken. Consideration has been given to:

- The nature of the assets to be included (please see section 5.1 of this report)
- Sources and currency of suitable available cost estimates for similar projects noted at 5.3
- The current estimated configuration of the TPI railway network
- The nature of the terrain through which the railway passes
- The location of significant pieces of infrastructure
- The TPI Third Party Access Model¹
- The PwC Draft Report to the ERA regarding TPI's proposed 2010 floor and ceiling costs²

Working to a generic Basis of Design for a modern heavy haul railway, units of cost have been worked up for:

- Formation establishment including clearing the alignment per kilometre,
- Embankments, cuttings, and consolidation per kilometre,

- Culverts per kilometre
- Bridges, each
- Subgrade establishment per kilometre,
- Ballast per kilometre,
- Sleepers per kilometre,
- Rails per kilometre,
- Track laying per kilometre,
- Turnouts, each
- Signalling and communications,
- Fencing, roads and signage, per kilometre

Differing rates have been applied to earthworks based on the terrain.

5.1 ASSETS INCLUDED IN THE GRV ESTIMATE

In publishing the WestNet floor and ceiling prices on 30 June 2009, the ERA determined that the assets to be included in the capital cost calculations consist of assets that are directly engaged in the provision of rail infrastructure services. These are identified in Section 3 (1) of the Railways (Access) Act 1998 (the Act) and include:

- Railway track,
- Associated track structures,
- Over or under track structures,
- Supports (including supports for equipment or items associated with the use of a railway);
- Tunnels and bridges;
- Stations and platforms;
- Train control systems, signalling systems and communication systems;
- Buildings and workshops; and
- Associated plant, machinery and equipment.

Expenditure on cuttings, embankments and earthworks formation is included in calculating the GRV.

5.2 ASSETS EXCLUDED

Sidings or spur lines that are excluded by Section 3(3) or (4) of the Act from being railway infrastructure are not included.

¹ The Pilbara Infrastructure Pty Ltd Floor & Ceiling Costs Model Public Version 9/7/2010, erawa.com.au/access/thepilbarainfrastructure/floor&ceiling.

² Pricewaterhouse Coopers, Review of Floor and Ceiling Cost Proposal of The Pilbara Infrastructure Pty Ltd, Draft Report to the ERA 7/11/2011

Assets that support operating functions are not included in the asset base for capital cost calculations.

These are included in the operating cost or overhead cost calculations as appropriate. Assets in this category include motor vehicles, computers, printers, facsimile machines, photocopiers, system hardware and software, mobile and fixed communications, office furniture and equipment.

The cost of these assets is to be calculated on a net basis.

5.3 SOURCES AND CURRENCY OF SUITABLE AVAILABLE COST ESTIMATES

The basis of estimation is an amalgam of forecast costs for four significant standard gauge heavy-haul rail projects, three of which are/were proposed in remote areas including the Mid-West of WA and West Africa. The projects were Oakajee Port and Rail where Indec conducted due diligence on behalf of the Foundation Customers, an alternative Mid-West project for a confidential client and for Rio Tinto in conjunction with Calibre rail for projects in Guinea and Sierra Leone.

Data from the Aurizon central Queensland were considered not to be appropriate as, apart from communications, it is a different network in terms of axle loads, gauge, rollingstock envelopes, ballast and haul task.

The unit rates are believed to be similar to those likely to be struck in the East Pilbara region. The ages of the estimates vary but have been adjusted for inflation to 2013 rates TPI Floor and Ceiling Cost Model (Public Version).

On 9 July 2010 TPI provided the ERA with a public version of its' Floor and Ceiling Cost Model for the Port Hedland – Cloudbreak railway which included a listing of assets and prices. On 13 April 2011 the ERA suspended the Review of TPI's proposed Floor and Ceiling Costs for its Cloudbreak-Port Hedland railway due to the commissioning by TPI of the

extension of the railway from Cloudbreak to Christmas Creek.

The costs contained in the model and the subsequent PwC Draft Report are considered valid in that they set out, in part, the costs associated with the sections of line under review as at July 2010 which includes the section of line that Brockman is seeking access to. Significant pieces of infrastructure which are included in the TPI model remain in use unaltered including the main line, bridges, the BHPBIO overpass, roads, communications equipment and turnouts.

The TPI cost model, adjusted for inflation, has been used as a comparator in this report.

5.4 THE PWC DRAFT REPORT TO THE ERA REGARDING TPI'S PROPOSED 2010 FLOOR AND CEILING COSTS

On 7 June 2011, at the request of the ERA, PriceWaterhouseCoopers (PwC) provided a Draft report on the TPI Floor and Ceiling Cost proposal which compared the TPI costs and unit rates with currently available information. The report considered the route between the Cloudbreak loadout and the Port Dumper at Anderson Point. It did not disaggregate the route into line sectors.

Much of the PwC report is supported by confidential information from TPI which has been excised from the published version. Many more PwC comments recommend that ERA seek further information from TPI in support of TPI cost assertions.

Where the PwC report has provided rates, these have been used to confirm the soundness of estimates in this report derived from other sources.

5.5 THE TPI NETWORK CONFIGURATION

The TPI network configuration which forms the basis of this estimate is detailed in Appendix B.

The only considerations in determining the GRV are the TPI network assets outlined in Section 5.1 which are in place and in use

between Chainage 219.5 Km and Chainage 23 Km. Assets under construction or completed but not commissioned are not included.

The assets are further considered in the terms of the ERA determination of the TPI Costing Principles on 17 May 2013 requiring TPI to sectionalise the main line. These are

- The route section from chainage 219.5 km to chainage 174.875 km, measured from Port Hedland
- The route section from chainage 174.875 km to chainage 23 km, measured from Port Hedland

5.6 THE NATURE OF THE TERRAIN

For the purposes of estimating, and in the absence of detailed surveys, the terrain through which the railway passes has been divided into classifications of either undulating or hilly. The country between chainage 219 km and chainage 174.875 km has been considered to be hilly and the country between chainage 174.875 km and chainage 23 km has been assessed as undulating.

5.7 THE LOCATION OF SIGNIFICANT INFRASTRUCTURE

Significant bridges comprising piers and spans are used in crossing watercourses at;

- East Turner River
- Gillam Creek
- Turner River
- Coorong Creek
- Yule River, and
- Coonarie Creek

The route crosses the BHPBIO main line at chainage 139.6 km by means of an earth embankment and a bridge structure.

All of these structures are located within the section of the route between chainage 174.875 km and chainage 23 km and are single track structures.

There are no significant bridges between chainage 219.5 km and the route boundary at chainage 174.875 km.

Turnouts are in place at;

- Avon (1)
- Barker (1)
- Chapman (3)
- Durack (2)
- Derwent (5)
- Forrest (4)
- Gibb (2)
- Nunna (4)
- Hunter (3)
- King (1), and
- Morgan (2)

Several of these have been laid in the main line in preparation for expansion works which are under construction but not yet commissioned (at King, Durack and Nunna). Where this has occurred, the turnouts are considered to be part of the operating network even though the connecting infrastructure has not been commissioned.

This is because they are part of the normal operation and are subject to traffic and routine maintenance.

Significant cuttings and embankments are in place between chainage 219.5 km and Hunter.

There are no significant workshops or buildings within the area under consideration. There are no signals, tunnels, railway stations or significant over or under track structures other than those outlined above.

6 CURRENT NETWORK CONFIGURATION

The TPI main line railway network runs from the Port, located adjacent to the FMG facility at Anderson Point in Port Hedland, to the FMG Cloudbreak and Christmas Creek Mines. A spur line leaves the main line at the 176.875 km mark, running to the Solomon hub to service the Firetail mine.

The total route distance is approximately 420 km, 290 km of this being the main line and 130 km being the Solomon spur. The major yard and maintenance facility is located at Rowley yard, situated between 15 km and 19 km from the Port.

The estimates contained herein are only concerned with the sections for which third-party access is sought which are those between Chainage 219.5 km and Chainage 23 km.

6.1 INFRASTRUCTURE

The railway is standard gauge single track with crossing loops to permit trains to pass or overtake. The track is laid with 68 kg/m rail on concrete sleepers. Mainline turnouts are 1 in 20 swing nose crossing type, with motorised blades and crossings remotely operated from the TPI train control centre in Perth.

Turnouts leading to sidings from loops and in Rowley Yard are 1:12, hand operated locally with derails protecting the main and loop lines. Turnout indicators provide visibility to train crews of the direction of the turnout.

The main lines and loops are equipped with an undetermined form of train detection, most likely tuned track circuits, to provide the train controller with track occupancy information.

The zero km post is the exit side of the car dumper, with the balloon unloading loop turnout at the 4.4 km / -4 km.

6.2 PASSING TRACKS AND SIDINGS

A number of passing sidings or loops (double ended) and 'refuge sidings' (single ended) are located between the Rowley yard (located between the 15 and 19 km) and the mines at Cloud Break and Christmas Creek.

The sidings are named and located thus³:

- Rowley Yard, between the 15 and 19 km, train marshalling yard, with workshops at the north end
- 21 Switch, ballast and rail welding yards. Located at the 21 km, with sidings running north
- Barker Siding (refuge) ballast loading, between the 43 and 44 km, 250 m length
- Chapman Siding (loop) between the 68 and 72 km, 3,000m length
- Durack Siding (refuge) near the 98 km, 250 m length
- Forrest Siding (loop) near the 126 km, 3 000 m length
- Gibb Siding (refuge) near the 157 km, 250 m length
- Nunna Siding (loops) near the 173 km, 3,000 m length
- Hunter Siding (loop) near the 185 km, 3,000 m length
- Morgan Siding (refuge) near the 216 km, 250 m length
- Cloud Break (mine and loadout) near the 250 km
- Christmas Creek (mine and loadout) located at 290 km

The section of line between Durack and Forrest is duplicated throughout providing a 30 km section of double line.

A schematic representation of the TPI main line as currently operated is detailed in Appendix B.

³ From www.pilbararailways.com.au

7 THE SECTION BETWEEN CHAINAGE 219.500KM AND CHAINAGE 174.875.000KM

This section lies within the Chichester ranges and contains significant cuttings and embankments. There are no bridges; all watercourses are equipped with culverts beneath the formation.

There are two locations equipped with turnouts, at Hunter and at Morgan. The line is single track with a 3 000 metre crossing loop at Hunter and 250 metre refuge siding at Morgan. A turnout in preparation for expansion works is in use at King.

7.1 DETAIL FROM 219.500KM TO 174.875KM

	Qty	Unit
Section route length	44.625	Kilometres
Section track length	47.875	Kilometres
Turnouts 1:20	5	Each
Turnouts 1:12	1	Each

7.2 COST

Item	Unit	Pricing	Qty	Cost
Formation including clearing, embankments, and cuttings.	Km	\$1,600,000.00	44.625	\$71,400,000.00
Culverts	Km	\$127,000.00	44.625	\$5,667,375.00
Subgrade	Km	\$152,000.00	47.875	\$7,277,000.00
Ballast	Km	\$137,000.00	47.875	\$6,558,875.00
Sleepers	Km	\$226,000.00	47.875	\$10,819,750.00
Rails	Km	\$204,000.00	47.875	\$ 9,766,500.00
Track laying	Km	\$373,000.00	47.875	\$17,857,375.00
Turnouts 1:20,	Each	\$677,000.00	5	\$ 3,385,000.00
Turnouts 1:12,	Each	\$207,000.00	1	\$ 207,000.00
Signalling and communications,	Km	\$317,000.00	44.625	\$14,146,125.00
Fencing, roads and signage	Km	\$44,000.00	44.625	\$1,963,500.00
Total				\$149,048,500.00

8 THE SECTION BETWEEN CHAINAGE 174.875.000KM AND CHAINAGE 23.000KM

This section lies to the north of the Chichester ranges and generally traverses undulating country. Bridges are employed to cross the significant watercourses while culverts beneath the formation are used elsewhere.

The line crosses the BHPIO railway by means of a significant embankment and overbridge.

There are seven locations equipped with turnouts, at Avon, Barker, Chapman, Durack, Forrest, Gibb and Nunna. The line is generally single track with 3,000 metre crossing loops at Chapman and Forrest, and a 250 metre refuge siding at Gibb. The line is duplicated between Durack and Forrest. Turnouts in preparation for expansion works are in use at Avon, Derwent and Nunna.

8.1 DETAIL FROM 174.875KM TO 23.000KM

	Qty	Unit
Section route length	151.875	Kilometres
Section track length	186.375	Kilometres
Turnouts 1:20	18	Each
Turnouts 1:12	4	Each
Bridges	7	Each

8.2 COST

Item	Unit	Pricing	Qty	Cost
Formation including clearing, embankments, and cuttings.	Km	\$682,454.00	151.875	\$103,647,701.25
Bridges	Each	\$6,000,000.00	6	\$36,000,000.00
BHPBIO Overpass	Each	\$32,000,000.00	1	\$32,000,000.00
Culverts	Km	\$127,000.00	151.875	\$19,288,125.00
Subgrade	Km	\$152,000.00	186.375	\$28,329,000.00
Ballast	Km	\$137,000.00	186.375	\$25,533,375.00
Sleepers	Km	\$226,000.00	186.375	\$42,120,750.00
Rails	Km	\$204,000.00	186.375	\$38,020,500.00
Track laying	Km	\$373,000.00	186.375	\$69,517,875.00
Turnouts 1:20,	Each	\$677,000.00	18	\$12,186,000.00
Turnouts 1:12,	Each	\$207,000.00	4	\$ 828,000.00
Signalling and communications,	Km	\$317,000.00	151.875	\$ 48,144,375.00
Fencing, roads and signage,	Km	\$44,000.00	151.875	\$ 6,682,500.00
Total				\$ 462,298,201.25

APPENDIX A - RAIL ACCESS ADVISORY SERVICES

CAPABILITY STATEMENT
INDEC CONSULTING



INTRODUCTION

Indec is the most established transport management consultancy in Australia. Since the company's formation almost thirty years ago we have been at the forefront of fundamental change in transport management and our capabilities, expertise and results are widely recognised in the industry.

Indec consultants provide access advisory services and supporting cases to clients. Indec develops and implements substantial efficiency improvements, conducts economic and technical feasibility and due diligence studies for major development projects, achieves significant cost savings, improves asset utilisation, reliability and availability, optimises transport services, supply chains and networks, assists with commercialisation, full-cost pricing and outsourcing, and manages major asset and service procurement projects.

Major Indec clients include private rail operators, infrastructure owners and maintainers, rollingstock manufacturers and maintainers, access seekers, haulage customers (including major miners) and rail & public transport operators. Minor Indec clients include Commonwealth Government and other government agencies, regulators and financial institutions.

COMMERCIAL ADVISORY AND FINANCIAL ANALYSIS

Indec regularly conducts commercial viability assessments of rail infrastructure projects, performs pricing reviews, and determinations of access conditions & agreements as well as due diligence for financial institutions.

Indec is regularly engaged by the private sector on infrastructure projects and private industry bids and/or acquisitions in the, port, rail and public transport sectors.

Indec Services:

- Access negotiations - advisory services
- Financial and cost analysis
- Cost-benefit analysis
- Discounted cash-flow analysis, terminal values, sensitivity analysis
- Economic and engineering verification
- Funding models
- Revenue and projections
- Cost reviews and audits



ASSET MANAGEMENT

Our asset management capabilities are extensive and have been successfully applied for port assets, rail networks, roads, and utilities over many years. Indec's approach to asset management covers:

- Integrating strategy in relation to stakeholder objectives with regard to asset configuration and condition
- CAPEX and OPEX optimisation
- Life-cycle costing
- Business case development for new capital works and upgrades
- Prioritisation models for capital and maintenance expenditure

PROJECT DEVELOPMENT

Our capabilities in key project development and management tasks cover:

- Identification of service needs and output requirements with regard to finalising the concept
- Regulatory requirements
- Project scoping
- Risk assessment
- Asset management including prioritisation of expenditure
- EOI and tender specification development and evaluations
- Documentation development
- Dispute settlement and arbitration
- Contract management and contract delivery

SUPPLY CHAIN MANAGEMENT

Indec has a demonstrated capability in supply chain management covering all modes and includes:

- Business case development and economic valuations
- Analysis of storage and delivery requirements/risks/options
- Modelling the supply chain options
- Infrastructure access requirements (i.e. arrangements and delivery systems)
- Infrastructure projects feasibility, development and management
- Service innovation and technology
- Consortia and joint venture formation
- Interfacing regulatory compliance and Government agencies requirements
- Project development including cost estimating
- Project deliverability



RAIL ACCESS

NORTH WEST INFRASTRUCTURE REVIEW

Regulation of Rail Access (Western Australia)

Indec assisted North West Infrastructure (NWI) with its submissions to the ERA regarding the rail (access) code review. Indec also conducted dynamic simulation modelling of the South-West Creek Iron Ore loading project at Port Hedland.

COOPERATIVE BULK HANDLERS (WA)

Grain Line Access Charge Model

Indec developed a rail access charge model for the WA grain rail network. The model was built up from first principles of rail maintenance and bottom up cost estimates to allow CBH to understand the cost of rail access required for the long term upkeep and renewal of the network as it was currently configured. CBH used the model to assist in their negotiations with Brookfield Rail the access provider.

COUNTRY RAIL INFRASTRUCTURE AUTHORITY (CRIA)

Review of Access Charges

Assisted CRIA with its first regulatory price review and undertook a review of strategic and operational issues relating to below rail access charges in NSW.

DEPARTMENT OF TRANSPORT (VICTORIA)

Review of Freight Rail Access Charges

Indec was requested by the Freight, Logistics and Marine Division of the Department of Transport (Victoria) to review the implications of the proposed changes to the price of rail access to the Melbourne metropolitan rail network that were under consideration by the Essential Services Commission of Victoria.

ALCOA

Review of Freight Rail Access Charges

Indec was lead Negotiator for Alcoa in negotiations with WestNet Rail for rail access terms and conditions for Alcoa's use of the South West Mainline in Western Australia

NORTH WEST IRON ORE ALLIANCE

Regulation of Rail Access (Western Australia)

Provided advice and prepared submissions for the North West Iron Ore Alliance (NWIOA) (Atlas Iron, Brockman Resources, FerrAus & BC Iron) to the National Competition Council regarding the business case for access to the Mt Newman, Hamersley, Goldsworthy and Robe Railways. Indec assistance was invaluable with respect to applications for declaration, access arrangements, and related submissions:

- to the NCC for the declaration of the Pilbara Railways of BHP Billiton and Rio Tinto; and
- to the Western Australian Regulator with regard to the Fortescue Metals Group rail access Regime; and
- to the Pilbara Rail Access Interdepartmental Committee (PRAIC) with regard to rail haulage agreements under the Mt Newman Participants and Hamersley Range State Agreements for rail haulage.

DUE DILIGENCE

FOUNDATION CUSTOMERS

Due Diligence Assessment Oakajee Port & Rail

Expert commercial advisory services and technical analysis of a new \$8 billion Port and Rail operation in Oakajee on behalf of the foundation customers (Sinosteel Midwest, Karara Mining and Crosslands Resources). Due diligence on the adequacy of all capital and operational cost estimates for infrastructure and transport operations; reviewed all port and rail operational models, assessed basis of design and suitability of the technical & engineering solutions.

CONFIDENTIAL RAIL COMPANY

Redesign of Transport System and Updating of Costs Estimates

Assessed a major mining development for the export of iron ore (CAPEX \$3B). Reviewed the proposed port's technical designs and the cost structures of port operations.

Developed a number of technical and commercial assessments of the current and proposed port and landside operations.

FOUNDATION INVESTORS

Due Diligence Assessment Yilgarn Infrastructure

Due diligence assessment of the new international port and heavy haul rail system in the Mid West of Western Australia. Main tasks included the review of the viability of the proposed port and rail operational model, the basis of design and the capital and financial estimates for all port infrastructure and future marine and rail operations.

RAIL SIMULATION MODELLING

CENTENNIAL COAL

Optimisation of Coal Export Supply Chain,

Centennial Coal approached Indec to determine if the coordinated management of train loading, stockyard operations and coal delivery from its Western Operations was feasible, and that an export increase of over 100% per year of coal to Port Kembla could be achieved.

Indec developed a highly sophisticated integrated supply chain model of Centennial's mine, rail and port operations including coordinated paths on the multiple rail networks, and into Port Kembla.

Indec delivered a fully animated model of the coal export chain from the Western Operations to Port Kembla including all mine loading operations, rail movements and unloading operations at Port Kembla.

PORT KEMBLA COAL TERMINAL

Capacity Expansion

Facilitated a commercial strategy for PKCT to enable future capacity expansions to be managed effectively.



RAIL OPERATIONS

RAIL INFRASTRUCTURE CORPORATION

Coal Export Rail Network

Identified rail infrastructure requirements, determined the impact on the Hunter Valley rail network from a proposed third coal terminal in the Port of Newcastle and developed the business case for access to the rail network.

DEPARTMENT OF TRANSPORT (VICTORIA)

Port of Hastings Rail Study

Indec undertook a review of options, with Aurecon and AECOM, for a dedicated rail freight corridors for the State and included both single and double stack container options required for shuttle services between the Port of Hastings and Dynon siding and connections to intermodal terminals for the handling of interstate freight.

RAIL INFRASTRUCTURE CORPORATION

Capacity of Hunter Valley Rail Network

Identified rail infrastructure requirements, determined the impact on the Hunter Valley rail network from a proposed third coal terminal in the Port of Newcastle and developed the business case for access to the rail network.

MINING LOGISTIC OPERATIONS

CONFIDENTIAL MINING COMPANY

Review of Transport Design and Costs

Technical review of all port, rail systems and landside terminal designs for a 50 million tonne per annum bulk port.

Assessed the viability of a range of port and iron ore handling operations and associated technical system designs and the reliability of proposed cost estimates.

Developed new capital and operational cost estimates of a number of alternative port and rail systems from 20mtpa to 50Mtpa.

CONFIDENTIAL MINING COMPANY

Review of Logistic Operations


Assessed the draft Heads of Agreement for supply chain services between two major iron ore companies for the export of Iron Ore via Port Hedland.

Developed the principles covering the functional requirements for logistic services and the performance criteria used in delivering infrastructure, rail and port services.


INDEC SPECIALISTS

The Indec Centre of Excellence in rail access advisory services provides critical advice to many clients. Following is a summary of the experience of our three lead consultants:

- Peter Tilley
- John Shields
- Michael Neal


	<p>Name Peter Tilley</p> <p>Title Principal Consultant</p> <p>BComm, Cert III OHS</p>
<p>Demonstrated Ability</p>	<ul style="list-style-type: none"> • Access negotiations and advisory services • Stand-alone cost modelling & tariff development • Asset management & review • Industry Benchmarking • Financial analysis & modelling • Risk Assessment & Management • Strategic Planning • Efficiency Reviews
<p>Relevant Experience</p>	<p>Management experience at Director level has been in the categories of business planning, financial analysis, commercial negotiation, business process re-engineering, asset management, change management implementation, transport logistics and regulatory pricing and infrastructure access. Work experience includes major line management functions in publicly listed companies in mining, smelting, transport and international trade. Regulatory experience includes asset management and stand alone operational cost submissions in the energy sector, tariff pricing, rail access submissions and rail access negotiation.</p> <p>Headline projects :</p> <ol style="list-style-type: none"> 1. Alcoa. Recommendations regarding rail infrastructure access terms and conditions for the WA Rail Access Regime; Preparation of a response to the Office of the Rail Regulator regarding Weighted Average Cost of Capital (WACC) calculation as proposed by WestNet Rail. 2. Confidential Client. Lead the Indec team in reviewing the proposed commercial conditions and port and handling tariffs for an alternative Oakajee Project and determined that the access conditions required amendment to comply with ACCC principles and that the port tariff structure was commercially viable <p>Peter has led a large number of projects. A representative sample of further rail projects follows:</p> <ul style="list-style-type: none"> • Due diligence on the Oakajee Port & Rail Project business case for the foundation customers (Sinosteel Midwest, Karara Mining and Crosslands Resources) for a \$6B project to construct a 50Mtpa iron ore port with stockpiles and a 400km railway in the mid-west of WA. This included a review of the proposed Non-Access Agreements for port the Regulated Access Agreement for rail and the interlinking Supply Chain Agreement • Base case and best practice reviews of rollingstock and infrastructure maintenance, procurement reviews, asset management, outsourcing and financial analysis for Westrail and MetroBus.

- Creation of comprehensive rail strategies for **PGA (Logistics) Pty Ltd** and **Toll Logistics**
- Negotiation strategy advice for a tram and rail infrastructure poles&wires regime between Agility (electricity distributor) and VicTrack for **AGL**.
- Prepared submissions for the **North West Iron Ore Alliance (NWIOA)** and **United Minerals Corporation** with regard to the Determinations by the Economic Regulation Authority (ERA) of the Part 5 Instruments of the Rail Access Code of WA for access to the Fortescue Metals Group (TPI) Railway Network.
- Prepared submissions for the **NWIOA** to the National Competition Council regarding access to the Mt Newman, Hamersley, Goldsworthy and Robe Railways.
- Prepared submissions for the **NWIOA** to the Parliamentary Interdepartmental Committee on Rail Access regarding rail haulage terms under the BHP State Agreement.
- Undertook development of Contract Arrangements for Private Ferry Operators including operational costing for the **Ministry of Transport (NSW)**.
- Assisted **BHP Billiton Worsley Alumina** with calculation of rail access pricing and recovery of rail expansion capital cost and development of a rail access agreement with WestNet Rail.
- Prepared a capacity study for BHP Mt Newman railway for the **North West Iron Ore Alliance (NWIOA)**
- Prepared the **CBH** Case for the restoration of Tier 3 grain lines
- Preparation of submissions for **NWIOA** and **CBH** Group on floor and ceiling costs under the WA Rail Access Regime.
- **Country Rail Infrastructure Authority (CRIA) NSW** developed the business case for an increase in rail access floor and ceiling costs to IPART for country NSW grain lines.
- Provision of ongoing rail access advice to **Brockman Mining** regarding the **TPI Pilbara network**.
- Representation to the **ERA** (on behalf of **CBH Group**) regarding the appropriateness of using Gross Replacement Value as the basis of calculating the Regulated Asset Base on WA grain lines which the ERA recognised as a special case and the ERA agreed with the submission in its recent review of the Rail (Access) Code.
- Prepared a Dispute Resolution case for **Alcoa** along Regulatory lines in its dispute with the Port of Portland regarding access rights and pricing.

	<p>Name Michael Neal</p> <p>Title Managing Consultant</p> <p>MBIT, BEng (Civil) (Hons)</p>
<p>Demonstrated Ability</p>	<ul style="list-style-type: none"> analysis of light and heavy rail systems including <ul style="list-style-type: none"> rolling stock management, infrastructure maintenance and operations, service planning, technical condition assessment development of overhaul options in order to extend life. optimisation and cost forecasting for new infrastructure. franchise bids for metro networks including Melbourne; strategic and financial analysis of mining and freight railroads; analysis of supply chains and logistic operations including comparing of rail to alternative modes of transport; Simulation modelling of services including light rail, heavy rail and bus services to test operating plans and service delivery levels Due diligence of metro rail concessions including reviews of revenues and costs, predicted service levels and business plans in several countries including Australia, Brazil, South Africa and Saudi Arabia; Track and civil plus electrical overhead concept designs for mining railways, metro passenger railways and light rail analysis of rail supply industry and roadmapping Benchmarking of above & below rail costs separately for passenger operations for new & existing operations across Australia
<p>Relevant Experience</p>	<p>Michael has an extensive background in heavy and light rail systems covering strategic and financial aspects of transport projects as well as the design and service planning. He has provided expertise to clients ranging from BHP Billiton and Iluka in the mining and resources sector, V/Line and Keolis for metro rail and passenger services and Macquarie Group Capital and the Inter-American Development bank.</p> <p>Michael is an effective communicator and his knowledge in technical elements, engineering, commercial, and financial elements ensures the right outcome for clients: an outcome that satisfies both engineering requirements to maintain new assets and the commercial requirements to have those assets & resources funded.</p> <p>Headline projects :</p> <ol style="list-style-type: none"> CBH Track Access Review. Development of a whole of life cost model based on a bottom up asset management plan for the track including routine maintenance, major periodic maintenance and asset renewal tasks and frequencies based on traffic volumes. The model was developed to provide transparency about the rail access pricing to CBH and Indec also worked with CBH in exploring the rail access Code in WA. North West Infrastructure Review - Regulation of Rail Access (Western Australia: assisted North West Infrastructure (NWI) with its submissions to the ERA regarding the rail (access) code review. Indec also conducted dynamic simulation modelling of the South-West Creek Iron Ore loading project at Port Hedland.

A representative sample of further rail projects follows:

- Undertook due diligence for the Foundation Customers for the **Oakajee Port and Rail** Project \$8Bill, including assessing the rail operations, design and cost estimates and commercial aspects of the project.
- **Metro Trains Melbourne (MTM)** Schedule 4 & 5 Franchise adjustments and technical financial model - Developed the schedule 4 model to calculate the maintenance impacts on MTM through the addition of new infrastructure assets; Developed the schedule 5 model, spanning rolling stock maintenance, operations and infrastructure to calculate timetable change impacts on the franchise payments; model is used to calculate timetable cost impacts that will meet the needs of the department in terms of cost transparency and auditing requirements.
- **Brockman Heavy Haul Strategic Rail Advice** - Value engineering services and strategic rail advice for Brockman regarding their proposed logistics operation in the Pilbara region; development of alternative haulage strategies including the higher opex, lower capex; development of most appropriate, fit-for-purpose, basis for design.
- **BHP Billiton Manganese Export Review** – Rail Operations Analysis of the Transnet Freight Operations from the mine to Port Elizabeth including the operations at the port. Development of growth strategies and options for improving efficiency and increasing the system throughput.
- **BHP Billiton Iron Ore Strategic Rail Review (Pre RGP5)** – Rail Operations Analysis and Financial Outcomes of Different Growth Strategies. This included developing the high level costs and a plan for a duplicated railroad to Port Hedland.
- **BHP Billiton Olympic Dam Pre Feasibility Study, Design of the Rail Alignment, Operations, Terminals** including Intermodal and Bulk Handling aspects at the mine and port.
- **Melbourne Metropolitan Tram Franchise (Keolis / Downer EDI)** – Lead Role in Producing the Infrastructure Financial Model to the KDR bid. The bid was successful and Michael took a lead role during the transition from Transdev to KDR.
- **Melbourne Metropolitan Tram Maintenance Review** – Review of the Melbourne Tram fleet to identify maintenance issues and then develop fully costed overhaul programmes to address the issues. This work is ongoing.

	<p>Name John Shields</p> <p>Title Senior Associate Consultant</p> <p>Awards: 2006: John was awarded the Public Service Medal "For outstanding public service and contribution to the operation and maintenance of New South Wales railways".</p>
<p>Demonstrated Ability</p>	<ul style="list-style-type: none"> • Below rail optimisation and maintenance • Operational, Technical & Safety design specialist and costing specialist • Rail Safety audits - Rail Infrastructure and Rolling Stock condition audits • Rail Safety Systems and Procedures and Rail Safety documentation. • Asset management - replacement planning and scheduling • Establishment of train maintenance centres
<p>Relevant Experience</p>	<p>John has over 40 years experience in capital works of above and below rail assets, operations, maintenance, safety systems and management in a variety of roles from front line experience to senior executive. He provides specialist advisory services for new rail investments. John is considered a rail 'boffin' by his peers and is well sought after by many clients. Recent engagements include operations and maintenance plans and associated infrastructure plans for the new Rio Tinto iron ore mine in Sierra Leone, capacity studies of the Mt Newman railway for access negotiations with BHP for the NWIOA Members, preparation of capital works program for BHPB Worsley expansions negotiation with WestNet and a complete review of the Oakajee rail proposal for the Foundation Customers. He has demonstrated and unique problem solving abilities and is able to co-ordinate and communicate complex activities to diverse audiences ranging from front line staff to the Rail Regulator.</p> <p>Headline projects :</p> <ol style="list-style-type: none"> 1. Developed rail infrastructure plans, operating and maintenance plans for Calibre rail in support of the proposed Rio Tinto Simandou Iron Ore Project in Guinea, West Africa. Specifications: a 450km, 90Mtpa heavy-haul iron ore railway. 2. Due diligence on the Oakajee Port & Rail Project business case for the foundation customers (Sinosteel Midwest, Karara Mining and Crosslands Resources) for a \$6B project to construct a 50Mtpa iron ore port with stockpiles and a 400km railway in the mid-west of WA. This included a review of the proposed Non-Access Agreements for port the Regulated Access Agreement for rail and the interlinking Supply Chain Agreement <p>John has delivered a large number of rail projects. Following is a selection:</p> <ul style="list-style-type: none"> • Prepared the CBH Case for the restoration of Tier 3 grain lines • Developed a Rail Infrastructure Asset Management Plan on behalf of Geraldton Port Authority (GPA) • Developed a Rail Safety Management System on behalf of GPA to achieve accreditation as a Rail Infrastructure Owner and Operator (WA) • Assisted BHP Billiton Worsley Alumina with calculation of rail access pricing and recovery of rail expansion capital cost and development of a rail access agreement with WestNet Rail.

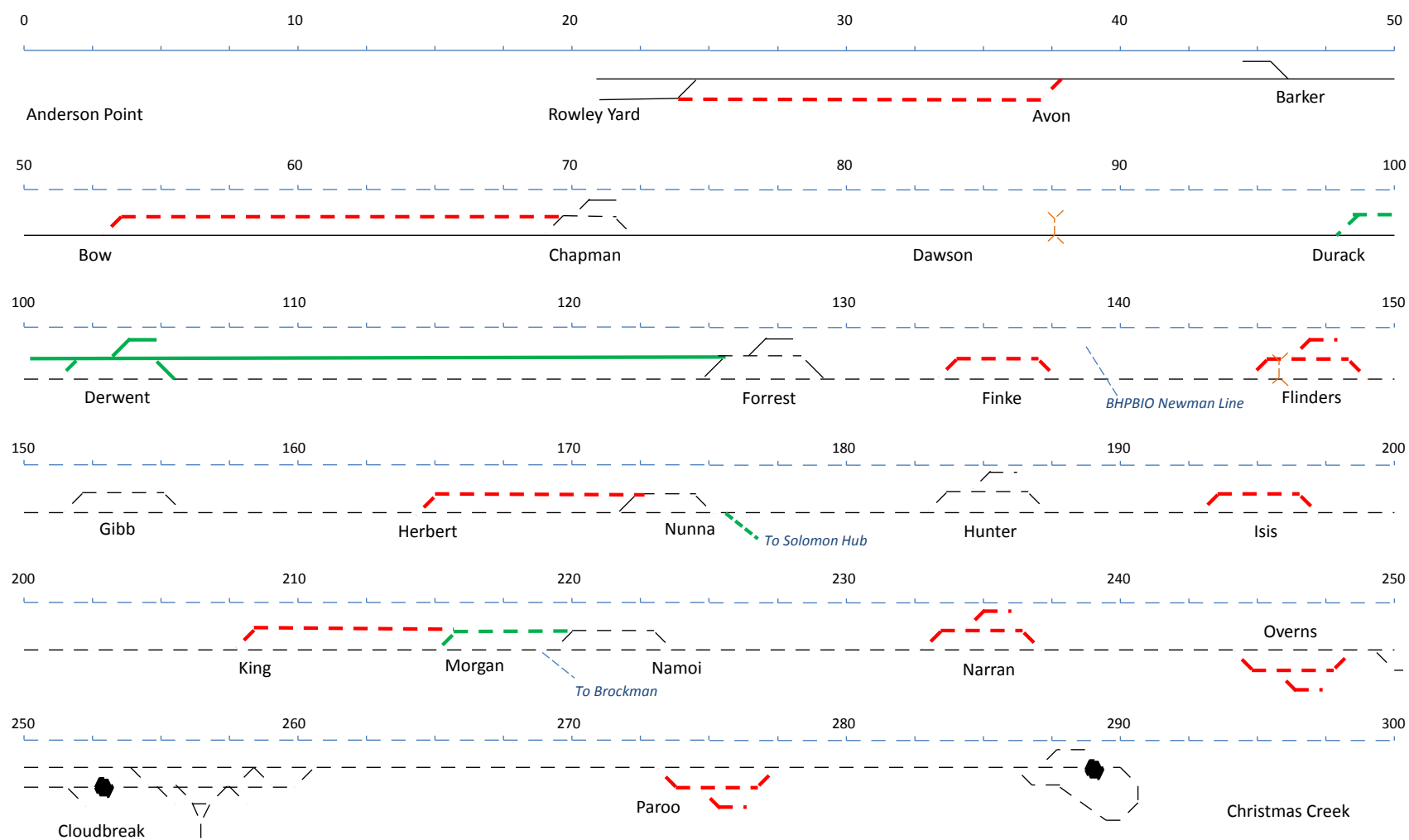
- Prepared a capacity study for BHP Mt Newman railway for the **North Wet Iron Ore Alliance (NWIOA)**
- **Country Rail Infrastructure Authority (CRIA)**. Review of Access Charges for the first regulatory price review and a review of strategic and operational issues relating to below rail access charges in NSW.
- **BHP Billiton Worsley Alumina** - estimated the configuration and capital cost of extra rail infrastructure required to transport an alumina expansion of 2Mt to the Port of Bunbury.
- **Department of Transport** - freight rail corridor study as to the least cost options of providing a dedicated freight corridor from the Port of Hastings and the Dandenong/South Gippsland area to the Port of Melbourne.
- **Department of Transport** - Tram Depot Study as part of the Due Diligence process for the Re-franchising of the Melbourne metro train & tram services
- **Department of Infrastructure** - Freight, Logistics and Marine Division study into the Capacity of the rail freight network from the Inner West (Melbourne) into the Port of Melbourne.
- **Alcoa (Russia)** – Complete review of rail infrastructure and rolling stock and development of a Capital Works programme to restore productivity and safety to the rail operations.
- **Asciano** - Rolling stock condition assessment and valuation report covering 160 wagons as part of an Asciano undertaking to the ACCC.
- **RailCorp, NSW** - Executive Manager, CountryLink Projects. Reviewed CountryLink's rail and coach service patronage by service, destination and day and recommended strategies to improve both customer service and revenue; Introduced revised train and coach services across NSW.
- **State Rail Authority, NSW**. Developed long-term CountryLink network strategies; Managed the restructure of the luggage handling at Sydney Terminal with a saving of over \$500k annually; Introduced a train crewing depot to reduce shift lengths, enhance customer service and reduce costs.
- **State Rail Authority, NSW**. General Manager Rural Services and Passenger Fleet Maintenance. Introduced fleet reliability strategies that achieved lowest number of fleet related peak incidents and delays ever recorded; Managed development and implementation of Rail Safety Management System (RSMS) in Passenger Fleet Maintenance leading to rail safety accreditation; Established Millennium train maintenance facility including protocols for interaction between contracted maintainers and rail operator; Instituted CountryLink service reliability and customer service improvement strategies that reduced customer complaints by over 50%
- **State Rail Authority**. Developed and managed the implementation of the Sydney 2000 Olympic Fleet Plan underpinning the transport success of the event. The principles have been used in subsequent Olympics & Games.
- **State Rail Authority, NSW**. Developed and implemented XPT Operating and Maintenance strategies to increase fleet utilisation by greater than 60%

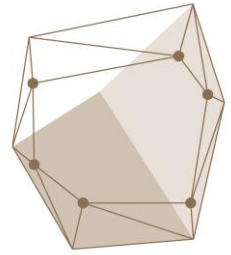
APPENDIX B

SCHEMATIC LAYOUT OF TPI MAIN LINE INFRASTRUCTURE IN GENERAL USE MAY 2013

NEW WORKS UNDER CONSTRUCTION AND NOT IN USE SHOWN RED

NEW WORKS IN USE SHOWN GREEN





Ref: O10_0347

Submission to the Economic Regulation Authority – Floor and ceiling costs proposed by The Pilbara Infrastructure (TPI)

Attachment B

Annuity Calculation Report

11 June 2013

TPI FLOOR & CEILING
COST AND ANNUITY
CALCULATION



Prepared for:

Mr. Graeme Carlin
General Counsel
Brockman Mining Australia Pty
Ltd

V1234 June 2013

Contact Details:
Mr. Peter Tilley
Principal
Tel: 03 9650 4644
Mob: 0401 635 371

Public submissions

FLOOR COST

It is not possible to calculate a floor cost at this stage as there is insufficient publically available information or information from TPI to determine avoidable cost and a minimum load factor. The section of line that Brockman is seeking access to can be considered a main line as all trains from FMG's mines traverse this section and hence there would be virtually no avoidable cost on the current infrastructure. The floor and ceiling cost would be close and the PwC 2011 review noted that the floor cost that TPI submitted in 2010 was 88% of the ceiling cost¹.

However, PwC also noted that this arose because TPI applied a load factor of 78.59% and recommended that the value of the floor operating costs should be determined by applying a 15% minimum load factor to total ceiling operating costs reflecting a similar avoidable, to total, operating costs in the WestNet rail model.² This recommendation should be considered by the Authority in determining TPI's floor and ceiling cost.

With regard to infrastructure if it was necessary to increase capacity for access seekers by adding track infrastructure then such infrastructure could be considered avoidable cost. PwC noted that most of the costs included in the TPI model are unlikely to be avoided if TPI remained the only customer and also noted that an assessment of avoidability could be performed at the time of a third party proposal or prospect of one. This assessment would need to be undertaken by the Authority to determine avoidable costs and hence floor cost.

PwC also stated regarding the TPI model that "Floor costs are determined by applying specific processes to particular cost components used in the build up of ceiling costs. The factors used to

reduce expenses, and the basis for identifying capital cost components to be excluded from the calculations to arrive at floor costs, have not been substantiated".³

The efficient avoidable capital costs should be considered by the Authority based on actual access proposals under the Code.

¹ Review of Floor and Ceiling Cost Proposal of The Pilbara Infrastructure Pty Ltd, Draft Report, February 2011, page 41.

² posit, page 41, paragraph 8.

³ posit, page 41, paragraph 4.

CEILING COST AND ANNUITY CALCULATION

The annuity calculation is based on The Pilbara Infrastructure Pty Ltd (TPI) Costing Principles (CP) as approved by the Economic Regulation Authority (ERA) dated 2 April 2013. References to CP numerals below relate to the relevant section of the CP.

Weighted Average Cost of Capital (WACC)

Principle – The WACC which is separately determined by the ERA is applied to the asset base.

The 2012-13 WACC for TPI is 9.16%.

Asset Base

CP 3.2.1 Principle – Based on the Gross Replacement Value (GRV) using Modern Equivalent Assets.

GRV as per Indec Report \$611,346,700.

Design, construction and project management fees

CP 3.2.1 Principle – 20% maximum limit claimable based on the total cost of the infrastructure.

Using GRV as a proxy for the total cost of the infrastructure 20% of GRV = \$122,269,340.

Financing charge during railway infrastructure construction

CP 3.2.1 Principle – WACC is applied to the construction cash flows to calculate the financing charge.

In November 2006 Railway construction from Port Hedland to Cloud Break commenced with earthworks and the marshalling yard and on 7 April 2008 construction of railway was completed sufficiently to move the first load of ore by train.⁴

⁴Milestones in Fortescue History, <http://www.railwaygazette.com/news/fortescue-opens-the-worlds-heaviest-haul-railway.html>

The construction period for the purposes of this calculation is approximately 27 months.

The calculation is based on the GRV cost, evenly spread payments and the averaged WACC risk free rate and debt margin rates for 2010, 2011 and 2012 = \$79,183,583.

Equity raising costs

CP 3.2.1 Principle – Based on the notional level of equity contained in the WACC gearing assumption and include equity costs of raising equity finance calculated as an increment to the GRV.

The ERA in the initial TPI WACC Determination gave the cost of equity funding as 12.5 basis points with a 30% debt gearing ratio. In the absence of any further determination by the ERA these parameters have been used in the calculation namely 30% GRV x 1.25% = \$2,292,550,.

Economic life

CP 3.2.2 Principle – The economic life of the railway is 50 years or the life of the mine(s) if lesser.

In the September 2012 Fortescue Annual Report mineral resources as at 30 June 2012 were estimated to be 6,626Mt. In the Fortescue March 2013 Quarterly Report exports were running at an annualised rate of 80.80Mt. At this shipping rate the mine(s) economic life exceeds 50 years.

Operating Costs

CP 4 – Operating costs were provided by TPI to the ERA for the Pt Hedland to Cloud Break section in September 2010 and these were reviewed by Pricewaterhouse Coopers (PwC) and published by the ERA in November 2011.⁵

⁵ The Pilbara Infrastructure Pty Ltd Floor & Ceiling Costs Model Public Version 9/7/2010, erawa.com.au/access/the-pilbara-infrastructure/floor&ceiling. Pricewaterhouse Coopers, Review of Floor and Ceiling Cost Proposal of The Pilbara Infrastructure Pty Ltd, Draft Report to the ERA February 2011

The PwC amended costs of \$58,542,689 have been reduced to take out an estimate for rollingstock maintenance overhead to \$53,931,924 inflated by the realised inflation rate over the period, divided by the Pt Headland to Cloud Break track kilometres (256.7km) and multiplied by the 23km to 219.5 kilometre mark (196.5km) = \$44,128,284.

Asymmetric Risk

CP 6.2 Principle – The Costing Principles state that “TPI will include an allowance for asymmetric risk as an annual operating cost in its model and in its floor and ceiling cost proposal”

The ERA is currently conducting a review of the WACC and Brockman has submitted in response to the ERA Issues Paper that there should be no allowance for stranding risk in the case of the TPI railway.

Normally stranding risk is reduced by the ability to diversify customers and product. This is possible for the TPI railway and in addition the main stranding risk would be any spur lines which is mitigated by the access seeker having to pay for the spur line. There would be minimal effect on the main line as TPI are duplicating many sections of track under their current expansion.

It would not be appropriate for, or consistent with achieving an efficient benchmark, to make allowances for stranding risk, given the market outlook and the iron ore available for development.

The CAPM does not accommodate an assessment of stranding risk as it is a non-systematic risk. However, as explained, Brockman considers that no allowance for stranding risk is warranted.

Overhead Costs

CP5.1 – It is not possible for Brockman to comment accurately on an appropriate level of overhead costs as they relate solely to costs attributed to activities related to the Code's definition of railway infrastructure. Given the

Segregation Arrangements and that as a railway company TPI would have staff and an office function related solely to that activity it is our view that this would involve several staff, an office function, some executive time, legal and expert advice and the extent that such staff would have to participate in ERA reviews and submissions and access proposals under the Code. The latter task would not be onerous as Brockman access proposal is the first ever to be issued under the Code.

For purposes of estimation a nominal cost of \$1,000,000 has been included in the calculation.

Working Capital

CP 4.2 – Includes in operating costs an annual working capital charge that is calculated by multiplying half of the WACC by the annuity with interest charged at the sum of the 2012 WACC risk free rate and debt risk premium rate of 6.474%.

Ceiling Cost and Annuity per tonne

Based on the above calculations the ceiling cost is \$123,658,117 and the cost per tonne is \$1.23.

Tonnage

With regard to load on the railway Brockman has not been provided with any evidence or any substantive information regarding the Fortescue Metals Group (FMG) statements that they will export 155Mtpa. We note that FMG's port capacity allocated by the Pt Headland Port Authority is 120Mtpa. Further, the Fortescue Metals Group March Quarterly Report states that its annualised production quantity is 80.8Mtpa for both FMG and BC Iron. Tonnages of 80.08Mtpa and 120Mtpa are modelled below. A tonnage of 155Mtpa has not been modelled because the GRV costs prepared do not include costs for the 155Mtpa expansion (because details of that project have not been disclosed by TPI).

Track Access Costs Summary (Ceiling Cost Calculation)					
		Value	Life	WACC	Annuity
	Asset Base Gross Replacement Value	\$ 611,346,700	50	9.16%	\$56,589,862
	Design and Construction Management	\$ 122,269,340	50	9.16%	\$11,317,972
	Equity Raising	\$ 2,292,550	50	9.16%	\$212,212
	Interest During Construction	\$ 79,182,583	50	9.16%	\$7,329,608
	Subtotal Annuity Payments				\$75,449,654
	Operating Costs				\$ 44,128,284
	Overheads related to access				\$ 1,000,000
	Working Capital	\$67,907,834	0.5	9.16%	\$ 3,110,179
	Subtotal Operating Costs				\$ 48,238,463
	Total Ceiling Access Costs				\$ 123,688,117
	Traffic	Mtpa			
	FMG and Other Traffic	80.8	120		
	Brockman	20	20		
	Total Traffic (Mtpa)	100.8	140		
	Cost per tonne	\$ 1.23	\$ 0.88		

Index
Numbers ;
All groups
CPI ;
Australia ; *Source: Australian Bureau of Statistics*

Unit Index Numbers
Series Type Original
Data Type INDEX
Frequency Quarter
Collection Month 3

Series Start Sep-1948
Series End Mar-2013
No. Obs 259

Series ID	A2325846C	Quarterly inflation factor	Operating costs (incl. Overheads)	Operating costs (excl. Overheads)	Overheads calculated by PwC
Jun-2010	95.8		\$58,542,689	\$49,321,158	\$9,221,531
Sep-2010	96.5	1.0073	\$58,970,454	\$49,681,542	
Dec-2010	96.9	1.0041	\$59,214,891	\$49,887,476	
Mar-2011	98.3	1.0144	\$60,070,421	\$50,608,245	
Jun-2011	99.2	1.0092	\$60,620,404	\$51,071,596	
Sep-2011	99.8	1.0060	\$60,987,060	\$51,380,497	
Dec-2011	99.8	1.0000	\$60,987,060	\$51,380,497	
Mar-2012	99.9	1.0010	\$61,048,169	\$51,431,980	
Jun-2012	100.4	1.0050	\$61,353,716	\$51,689,397	
Sep-2012	101.8	1.0139	\$62,209,246	\$52,410,166	
Dec-2012	102.0	1.0020	\$62,331,464	\$52,513,133	
Mar-2013	102.4	1.0039	\$62,575,901	\$52,719,067	
Jun-2013					

Pt Headland to Cloud Break track kilometres 256.7
Distance relevant to this application 196.5

Cost per km \$243,771 \$205,372
Operating costs for this application \$47,900,914 **\$40,355,655**

Indec's estimate of GRV \$611,346,701

			Monthly construction cost	Monthly WACC	Monthly finance charge
1	17	Jun-13	\$35,961,570.66	0.73%	\$36,225,185
2	16	May-13	\$35,961,570.66	0.73%	\$36,490,732
3	15	Apr-13	\$35,961,570.66	0.73%	\$36,758,225
4	14	Mar-13	\$35,961,570.66	0.73%	\$37,027,679
5	13	Feb-13	\$35,961,570.66	0.73%	\$37,299,109
6	12	Jan-13	\$35,961,570.66	0.73%	\$37,572,528
7	11	Dec-12	\$35,961,570.66	0.73%	\$37,847,951
8	10	Nov-12	\$35,961,570.66	0.73%	\$38,125,394
9	9	Oct-12	\$35,961,570.66	0.73%	\$38,404,870
10	8	Sep-12	\$35,961,570.66	0.73%	\$38,686,395
11	7	Aug-12	\$35,961,570.66	0.73%	\$38,969,983
12	6	Jul-12	\$35,961,570.66	0.73%	\$39,255,651
13	5	Jun-12	\$35,961,570.66	0.88%	\$40,297,445
14	4	May-12	\$35,961,570.66	0.88%	\$40,651,867
15	3	Apr-12	\$35,961,570.66	0.88%	\$41,009,407
16	2	Mar-12	\$35,961,570.66	0.88%	\$41,370,091
17	1	Feb-12	\$35,961,570.66	0.88%	\$41,733,948
			\$611,346,701.25		\$657,726,460
			Interest during construction		\$46,379,758.63

Inputs

	2012	2011
ERA WACC determination	9.16%	11.08%
Monthly compounding rate	0.73%	0.88%
Section between Chainage 219.500km and Chainage 174.875.000km	\$149,048,500.00	
The Section between Chainage 174.875.000km and Chainage 23.000km	\$462,298,201.25	
Total GRV	\$611,346,701	

Operating costs in ceiling price calculation	\$40,355,655 <i>From 'Operating costs' tab</i>
Working capital	\$4,963,803 <i>Update with final working capital figure</i>
Total operating costs	\$45,319,458
Incremental operating costs (assuming no economies of scale)	\$11,217,688

Traffic	Mtpa	
FMG and Other Traffic	80.8	120
Brockman	20	20
Total Traffic	100.8	140
Incremental traffic from Brockman access	25%	

Track Access Costs Summary (Ceiling Cost Calculation)

	Value	Life	WACC	Annuity
Asset Base Gross Replacement Value	\$ 611,346,700	50	9.16%	\$56,589,862
Design and Construction Management	\$ 122,269,340	50	9.16%	\$11,317,972
Equity Raising	\$ 2,292,550	50	9.16%	\$212,212
Interest During Construction	\$ 79,182,583	50	9.16%	\$7,329,608
Subtotal Annuity Payments				\$75,449,654
Operating Costs				\$ 44,128,284
Overheads related to access				\$ 1,000,000
Working Capital	\$67,907,834	0.5	9.16%	\$ 3,110,179
Subtotal Operating Costs				\$ 48,238,463
Total Ceiling Access Costs				\$ 123,688,117

Traffic	Mtpa	
FMG and Other Traffic	80.8	120
Brockman	20	20
Total Traffic (Mtpa)	100.8	140
Cost per tonne	\$ 1.23	\$ 0.88

Indec's estimate of GRV

\$611,346,701

			Monthly construction cost	Monthly WACC	Monthly finance charge
1	27	Jun-13	\$22,642,470.42	0.73%	\$22,808,450
2	26	May-13	\$22,642,470.42	0.73%	\$22,975,646
3	25	Apr-13	\$22,642,470.42	0.73%	\$23,144,068
4	24	Mar-13	\$22,642,470.42	0.73%	\$23,313,724
5	23	Feb-13	\$22,642,470.42	0.73%	\$23,484,624
6	22	Jan-13	\$22,642,470.42	0.73%	\$23,656,777
7	21	Dec-12	\$22,642,470.42	0.73%	\$23,830,192
8	20	Nov-12	\$22,642,470.42	0.73%	\$24,004,877
9	19	Oct-12	\$22,642,470.42	0.73%	\$24,180,844
10	18	Sep-12	\$22,642,470.42	0.73%	\$24,358,100
11	17	Aug-12	\$22,642,470.42	0.73%	\$24,536,656
12	16	Jul-12	\$22,642,470.42	0.73%	\$24,716,521
13	15	Jun-12	\$22,642,470.42	0.88%	\$25,372,465
14	14	May-12	\$22,642,470.42	0.88%	\$25,595,620
15	13	Apr-12	\$22,642,470.42	0.88%	\$25,820,738
16	12	Mar-12	\$22,642,470.42	0.88%	\$26,047,835
17	11	Feb-12	\$22,642,470.42	0.88%	\$26,276,930
18	10	Jan-12	\$22,642,470.42	0.88%	\$26,508,040
19	9	Dec-11	\$22,642,470.42	0.88%	\$26,741,182
20	8	Nov-11	\$22,642,470.42	0.88%	\$26,976,375
21	7	Oct-11	\$22,642,470.42	0.88%	\$27,213,637
22	6	Sep-11	\$22,642,470.42	0.88%	\$27,452,985
23	5	Aug-11	\$22,642,470.42	0.88%	\$27,694,438
24	4	Jul-11	\$22,642,470.42	0.88%	\$27,938,015
25	3	Jun-11	\$22,642,470.42	0.91%	\$28,369,058
26	2	May-11	\$22,642,470.42	0.91%	\$28,626,072
27	1	Apr-11	\$22,642,470.42	0.91%	\$28,885,414

\$611,346,701

\$690,529,284

Interest during construction

\$79,182,583

Inputs

	2012	2011	2010
ERA WACC determination	9.16%	11.08%	11.43%
Monthly compounding rate	0.73%	0.88%	0.91%

Section between Chainage 219.500km and Chainage 174.875.000km	\$149,048,500.00
The Section between Chainage 174.875.000km and Chainage 23.000km	\$462,298,201.25

Total GRV	\$611,346,701
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