

Inquiry into

The Development of Northern Australia

submission from

East West Line Parks Ltd



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1.0 Executive Summary

Dear Select Committee Members -

30th January 2014

Project Iron Boomerang links the Pilbara iron ore mines in Western Australia with the Bowen Basin coal mines in north Queensland via an east west Transcontinental Corridor. Accommodated in the Transcontinental Corridor is a world's best practice heavy haul railway which takes full payloads each way over a 3,370 Km journey (coal to iron ore - iron ore to coal) to value adding first stage steel manufacturing Steel Parks at Abbot Point Qld and Newman WA.

Highlights of the seven year study on *Project Iron Boomerang* study indicate that:

- The Corridor is a multi-user, multi-purpose, open access infrastructure corridor that will contribute to a significant reduction in the long term environmental impact on land, natural fauna and flora and economic and social impacts on the agricultural sector and rural and indigenous communities generally.
- *Project Iron Boomerang* will provide productivity gains and value-add Australia's coal and iron ore by 50% to make and export 44 million tonnes per annum (mtpa) of quality slab steel equivalent to A\$22 billion per annum delivered to east Asia and A\$11 billion value adding per annum
- The rule of thumb generated economic benefit is usually 3 to 1 in dollar terms for every dollar of steel produced¹. The outcome is A\$22 billion of steel, plus A\$66 billion of directly related economic generated benefit for a total of A\$88 billion pa.
- *Project Iron Boomerang* Phase 1 when commissioned in 2022 indicates an uplift of approximately 8% to the 2013 GDP of US\$1,488 billion².
- Our study predicts 35,000 directly related permanent jobs will result with 20,000 at Abbott point and 12,000 at Newman WA and rest around Australia.
- 75,000 thousand peak construction jobs will be required to deliver the project over a seven to eight year period for *Project Iron Boomerang* Phase 1.
- A beneficial outcome of our seven year intensive study is a Boomerang Class roll on roll off ("RO-RO") slab steel and container vessel which is patented worldwide in 2013 - another key innovative feature of *Project Iron Boomerang*.
- These full payloads each way RO-RO ships indicate productivity gain savings could approach A\$2 billion per annum Australia in sea freight logistics based on 50 Boomerang class ships required for 44 mtpa of steel exported per annum. A major benefit to overcoming our current hurdle as the "tyranny of distance continent."
- Against current operating practice for world steelmaking - *Project Iron Boomerang* offers a world productivity gain of 20 - 30%.

We commend this study as a major catalyst, one we are sure will help define and drive the future of Australia's North above the Tropic of Capricorn.



Shane Condon

Managing Director and Founder
East West Line Parks Limited



David Dundas Trude

Chairman
East West Line Parks Limited

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¹ Tata Steel Consulting UK and Nomura Research Institute Japan

² Please refer to <http://www.dfat.gov.au/geo/fs/aust.pdf>

2.0 Introduction

This submission is evidence based and contains a substantial body of knowledge not in the Public domain. The content is an outcome of our seven years of research and development on the *Project Iron Boomerang* study and was prepared solely for the Parliamentary Select Committee for the inquiry into *The Development of Northern Australia* as we believe that it is in the Public interest. East West Line Parks Ltd³ (“EWLP”) in creating this submission has drawn from our experiences in developing *Project Iron Boomerang*. *Project Iron Boomerang* was established for the sole purpose of developing the business model of producing first stage steel in Northern Australia. This submission includes facts, opinions and arguments and recommendations for action; we have taken care to ensure the submission was prepared in context to the Terms of Reference.

The ensuing content describes how *Project Iron Boomerang* resonates and aligns in context to developing the northern region of Australia, the regions which lie north of the Tropic of Capricorn, spanning Western Australia, Northern Territory and Queensland. Prior to the Committee delivering its final report and recommendations to the Parliament on or before July 2014 EWLP want the Committee to appreciate what we have learnt from our research and development efforts, and through the discovery process, the new knowledge, the learning outcomes acquired over a period of seven years as we have sought to develop a formula in order to bring to financial close, the Business Model of producing first stage steel that will be utilised in the mass markets of Asia and elsewhere on a sustainable basis.

This submission describes the enormous potential to be reaped on the realisation of *Project Iron Boomerang*; a Project that is located above the Tropic of Capricorn and has preoccupied EWLP’s resources and energies since 2006. After seven years of research and development we are of the fundamental view that *Project Iron Boomerang* has the inherent attributes to catalyse the development of northern Australia. In the ensuing evidence based submission we would optimistically hope the joint select committee will arrive at a concurrent view, and that we are not articulating because of the steadfast belief in “a good idea”; but there is a substantial body of evidence acquired through the efforts of EWLP that provides the strongest of indicators that we need to jointly pursue the reality of *Project Iron Boomerang* because it is in the National interest to do so. We hope this submission is the spark that stimulates the Nations productive interest; in that Australia needs to capitalise on its assets and be more than a mine. Australia needs a new productive direction⁴ and *Project Iron Boomerang* has arrived to catalyse and transform the northern region of Australia, and the Nation.

The submission was prepared by EWLP as Proponents for *Project Iron Boomerang*. Since 2006 EWLP has invested in excess of \$A 10 Mn into developing the Economic and Financial Model and the Business Case of *Project Iron Boomerang*.

We disclose that on the 28th November 2013 EWLP submitted the Transcontinental Corridor project, a subproject of *Project Iron Boomerang* for listing on Infrastructure Australia’s Infrastructure Priority List. In the Infrastructure Australia submission we listed the components that are Commercial in Confidence; the main reason for Commercial in Confidence is *Project Iron Boomerang* is wholly private sector and the Infrastructure Priority List process submission contains core intellectual property that represents a substantial body of knowledge not currently in the public domain.

³ A listing of the EWLP board and executive management team is available at this [link](#) and the project management team at this [link](#)
A list of the shareholders is provided at Appendix 1

⁴ Beyond the Boom: Australia’s Productivity Imperative - McKinsey Global Institute, August 2012 - Refer to Appendix 12

We have mentioned the “Transcontinental Corridor” subproject and now describe what it is and how it contributes to realising the vision of *Project Iron Boomerang*.

The Transcontinental Corridor is approximately 3,370 Km⁵ will be used primarily to site initially, a single track standard gauge, heavy haul railway system with 250 Km of passing loops and a carrier grade high availability communications network, in part consisting of a fibre core and a wireless overlay network for train control and general communications. This involves the construction of a multiuser, multi-purpose, open access infrastructure corridor nominally 200m in width⁶ from the Abbot Point State Development Area (or adjacent land) to the terminus at Newman, Western Australia. The primary purpose of the Transcontinental Corridor is to provide an efficient rail freight system from the east coast to a Steel Park at Newman and iron ore from the west coast to a Steel Park located at Abbott Point, Queensland.

The method of transportation will be a new transcontinental heavy haul railway. The economics and cost benefits of a heavy haul railway are supported because the notional alternative, coastal shipping around Australia is economically and environmentally inferior⁷ to a heavy haul railway in many aspects. The costs of building inwards loading port facilities in already overcrowded and congested out loading ports that are not currently meeting expansion growth needs is a major constraint issue.⁸

EWLP is the Proponent of the Transcontinental Common User Infrastructure Corridor (“Transcontinental Corridor”). The Transcontinental Corridor is a subproject of the master project code named *Project Iron Boomerang*. EWLP proposes to facilitate and coordinate the design and construction of the railway and associated infrastructure within the Transcontinental Corridor which will incorporate high efficiency 40 tonne load per axle rolling stock⁹ and freight operations to serve the needs of Steel Parks, the stranded mines, and the local and indigenous communities en route the Transcontinental Corridor. The Proponent has invested in significant intellectual property in relation to the design and operation of the Transcontinental Corridor and the heavy haul railway and the supporting infrastructure to optimise the efficiency of heavy haul freight operations and scheduling between the Steel Parks. This will in turn facilitate financial investment decisions which can further enable the “stranded” mining projects en route to be realised.

⁵ This track distance of 3370 km, on a preferred 3120 km route (based on aerial surveys and desktop GIS audit taking into account the gradient, geographic considerations, and known environmental and cultural sites, between Moranbah in Queensland to near Newman in Western Australia plus 250 km between Moranbah to Abbot Point) was verified by Quantm. Baker, R. Quantm Report. East West Line Park Rail Corridor Identification Pre-Feasibility Study March 2007⁵p2. Please refer to Appendix 11

⁶ The initial Quantm Report, (Baker, R. Quantm Report. East West Line Park Rail Corridor Identification Prefeasibility Study. March 2007) suggested that a 50 m wide corridor would be sufficient for the rail (p7). However a width of ~150m to 200m will provide a buffer enabling the open access corridor to be also used for water, energy and information and communication technology infrastructure and access maintenance, to support the emerging Northern Regional Development zone. This wider width has been the basis for planning since late 2011. (P.Hammond, Engenium report. "EAST WEST LINE PARKS" Project Iron Boomerang General Arrangement Infrastructure Corridor section".PIBSKEG0041, November 2011 - please refer to Appendix 2)

⁷ Calculations demonstrating the cost efficiencies of using rail versus coastal shipping are provided in the PIB Prefeasibility Study Report, Alternative Coastal Shipping Solution, Appendix A: Spreadsheets, October 2008. Section AP6: The primary author of this appendix is Ross Hunter, an internationally recognised expert in rail construction. Please refer to Appendix 13

⁸ Evidence of the magnitude of the port loading capacity problem on a real time basis is provided by Monson. See <http://www.monson.com.au/wpcontent/uploads/Portsummary1311011.xlsx>

⁹ Independent documentation of the increased rail freight efficiencies of the 40 tonne wagons and environmental impact advantage of using covered wagons is provided in Ernst & Young + Everything Infrastructure Comparative Economic Study of the Galilee Infrastructure Corridor FINAL Report August 2012 and comparative simulations providing further independent validation of the efficacy of 40 tonne wagons is provided by Calibre Operations Ltd. EWLP additional simulations and capacity assessment supplemental report CARP 11069-REP-Z-0, August 2012. Please refer to Appendices 20 and 7 respectively.

EWLP is building one of Australia's largest multi-faceted infrastructure projects. At financial close *Project Iron Boomerang* will be amongst Australia's largest infrastructure projects. The master project is code named *Project Iron Boomerang*. *Project Iron Boomerang* consists of many sub projects which will revolutionise global steel manufacturing. It is the Transcontinental Corridor that EWLP seeks to have listed on the Infrastructure Priority List, the Transcontinental Corridor underpins the steel manufacturing complexes on the east and west coast of Australia. In the Transcontinental Corridor a purpose built heavy haul transcontinental railway line will link Australia's two great ore bodies for steelmaking, iron ore from the west coast and metallurgical coal from the east coast. The transcontinental railway will be dedicated to carrying resources efficiently from one side of the country to the other between the first stage iron and Steel Precincts.

The infrastructure, services and resource linkages will support and fuel two Steel Precincts, one on each coast, which will manufacture slab and coil steel for export. Project Iron Boomerang delivers triple bottom line benefits¹⁰ (financial, environmental and social) that are very positive to all participants, particularly steelmakers. The major benefits of Project Iron Boomerang are consistent with a Comparative Economic Study conducted by Ernst & Young and Everything Infrastructure Pty Ltd, which compared the initial 650 Km¹¹ of the 3,370 Km Transcontinental Corridor against other proposed Galilee Basin rail lines¹² determined that:

1. The Corridor achieves major financial, environmental and community benefits by:
 - 1.1. bypassing community areas;
 - 1.2. minimising impact on agricultural land;
 - 1.3. minimising the length of corridor in flood plain areas;
 - 1.4. provide a single alignment solution, at around AUD 7.00 per tonne, indicates 50% to 55% efficiency against the alternative dual alignment solution;
 - 1.5. utilising standard gauge which performs more efficiently than narrow gauge on a cost per tonne basis; and
 - 1.6. subject to further validation of wagon design (a programme has been commissioned and is now underway), providing a 40 tonne axle load wagon which outperforms 32.5 and 26.5 tonne axle load wagons delivering fully optimised freight efficiencies and productivity gains¹³.

EWLP rationale for pursuing the Transcontinental Corridor for listing on the Infrastructure Priority List is multifold and we list those reasons below:

- *Project Iron Boomerang* provides enormous benefits across Northern Australia is privately funded; But endorsement and support by the Australian Government is needed to raise the

¹⁰ These triple bottom line benefits have been confirmed through assessments made through the consensus of recognised world experts in steel making, rail construction, finance, environmental and social impact evaluation domains and through contracted inputs and evaluations by organisations who are likely to bid on components of the project. These sources will be footnoted under discussions of specific impact.

¹¹ Refer to Appendix 8 - EWLP Initial Advice Statement Galilee Infrastructure Corridor Project 8 Mar 12 FINAL. pdf page 4

¹² Advice from McKinsey & Co and Goldman Sachs on a process to achieve financial close for Galilee Miners and PIB lead to engagement with Mining proponents and was supported at that time by the Qld State Government Coordinator General

¹³ Refer to Appendix 19 - Ernst & Young + Everything Infrastructure Presentation of Comparative Economic Study Galilee Infrastructure Corridor Project 2012, Page 27. Comparative simulations providing further independent validation of the efficacy of 40 tonne wagons is provided by Calibre Operations Ltd - please refer to Appendix 7.

necessary capital. The *Project Iron Boomerang* business model, first and foremost is a Steelmakers Project. Steelmakers, the ultimate beneficiaries of *Project Iron Boomerang*, are being asked to be the principal funders of *Project Iron Boomerang* ;

- Infrastructure Priority List listing is a tollgate on the critical path to realise the master PIB project. During the last six years the majority of the world's Steelmakers have signed confidentiality agreements and are in general agreement with the economic and financial models.¹⁴ In particular China, Japan and Korea steel makers exhibit the most interest in participating in *Project Iron Boomerang* as stakeholders. While we have continuing dialogue they have many queries chief amongst them being " ... **is there Australian government support for Project Iron Boomerang ?...**"¹⁵ This critical question is partially answered should the Transcontinental Corridor be listed on the Infrastructure Priority List;
- the very nature of *Project Iron Boomerang* requires agreement and active participation by foreign governments, at the highest levels. The question of Australian government support is answered in full with active participation and engagement by the Australian government and we envisage the support of the below Australian government lead departments:
 - Department of Industry;
 - Department of Infrastructure and Regional Development; and
 - Department of Foreign Affairs and Trade
- Infrastructure Priority List submissions to Infrastructure Australia follow a prescriptive process that has Auditor General oversight. Projects are assessed as being in one of four stages, according to the Infrastructure Australia criteria *Project Iron Boomerang* self-assessed as "Real Potential". The next stage is "Threshold" and the final stage is "Ready to Go". At "Ready to Go" stage *Project Iron Boomerang* under the current project timeline, would have been on a 3 year journey with Infrastructure Australia, and EWLP would have expended approximately \$A 150 Mn to understand the known unknowns. At the end of this journey *Project Iron Boomerang* would have been identified as a project of national significance and be eligible for Division 415 or otherwise known as the tax loss incentive for infrastructure projects, and;
- as technical advisers to the Australian government, Infrastructure Australia has the inherent capability of providing inter jurisdictional support and a coordination point for Queensland and Western Australia State Governments, the Northern Territory Legislature and the Commonwealth of Australia.

2.1 Transcontinental (Common User Infrastructure) Corridor Advantages

In addition to those outlined above, the following reasons support the potential for development of the region's mineral, energy, agricultural, defence and other industries that serve the manufacture of first stage steel and catalysing mining enterprise en route the Corridor:

¹⁴ The following steelmakers have not only signed the confidentiality agreement, but over a five year period, have provided data increasing the precision of cost/benefit calculations under different technological advances and under different world supply and pricing conditions: Arcelor Mittal Steel, Hebei Steel, Nippon Steel & Sumitomo Metal, Baosteel, POSCO, Hyundai Steel, Dongkuk Steel, BlueScope Steel, Jiangsu Shagang, Wu steel, Angang Steel, Maanshan, Nanjinzhaogroup, EUnited, Formosa Plastics Group, Meijin Energy, JFE Steel, ESSAR Group, Bhushan Steel & Strips Limited. Based on 2012 data, collectively, these firms account for over 43% of the world steel output. (MetalBulletin Company data base report, www.mbdatabase.com June 2013, p 5).

¹⁵ Foreign steelmakers and Chinese steel makers in particular, because of state ownership and substantial long term support from their Government, are reluctant to commit without endorsement by their Government and Australian Government entities. The Australian Government will necessarily be involved. This theme has been consistently voiced by the major steelmakers in China, Korea, Japan and India since 2006, when the PIB project was first developed and continues in 2013, to be voiced as a necessary step for more than a small initial investment by them.

1. In addition to facilitating a core freight corridor for iron ore and metallurgical coal, the Transcontinental Corridor will be available for infrastructure owned and operated by a number of entities which will provide a range of products to many members of the public and industry sectors.
2. The Transcontinental Corridor is of economic significance¹⁶ to Western Australia, South Australia, Northern Territory, Queensland and the nation, in that it will:
 - a. contribute to the Australian Government's Infrastructure Policy;
 - b. contribute to domestic capital formation; and
 - c. shape infrastructure planning and development, and significantly facilitate further economic development in Northern Regional Australia
3. The capital investment required to establish the Transcontinental Corridor will predominantly consist of the purchase price of the land or rights of way across land and works on land to enable development of various forms of transport and other infrastructure within the Transcontinental Corridor. However, the capital investment involved in establishing rail infrastructure, utility services, pipelines and information and communication technology conduits within the Transcontinental Corridor is expected to exceed US\$18 billion.
4. Approval of the Transcontinental Corridor (which includes the first 650 Km a.k.a. the Galilee Infrastructure Corridor ("GIC")) a multiuser, multi-purpose, open access infrastructure corridor will contribute to a significant reduction in the long term environmental impact on land, natural fauna and flora and economic and social impacts on the agricultural sector and rural and indigenous communities generally¹⁷.
5. The Transcontinental Corridor will facilitate the cost efficient freight of cargo for the benefit and needs of multiple economic sectors, including the mining sector¹⁸, the agricultural sector¹⁹ and the horticulture sector.
6. The Transcontinental Corridor will function as a continental trade corridor for Northern Regional development and will be a foundation customer for the proposed facility at the Port of Abbot Point and provide an anchor at Newman.
7. The Transcontinental Corridor will have the capacity to provide for water, energy and information and communication technology infrastructure to support the emerging Northern Regional development policy in Queensland, Northern Territory and Western Australia and contribute to better utilisation of, and returns on investments in, existing

¹⁶ The range of potential beneficiaries is extensive. An example of the breadth and depth of these benefits can be found in a Qld Government sponsored Independent report by rail engineers Kellog, Brown and Root, 2012 held commercial in confidence by the Qld government.

¹⁷ Refer to Appendix 14- EPBC Act 1999 Referral of Proposed Action EWLP Limited GIC Appendix 31 July 12.pdf

¹⁸ PIB is also a Galilee proponent as the first 650 Kms is part of the 3,370 KM Transcontinental Corridor. The Galilee Basin will remain undeveloped for two key reasons. The current preferred corridors nominated by the Queensland State Government (Adani, Hancock GVK and Aurizon as proponents) are 1) a high environmental and 2) a high commercial risk. A solution that is consistent with the PIB model has been developed by McKinsey & Co and supported by Goldman Sachs it also the solution for developing the Galilee Basin. Refer to Ernst & Young + Everything Infrastructure Comparative Economic Study of the Galilee Infrastructure Corridor FINAL Report.pdf. Refer to Appendix 20

¹⁹ Consistent with the endorsements from the mining and steelmaking sectors, the Agricultural sector has been a very strong advocate of PIB. (personal communication to Shane Condon, PIB from Peter Anderson, Central Queensland Agforce Chair), 2012.

- infrastructure, including that established by Government Owned Corporations.²⁰
8. While the Transcontinental Corridor project will not directly generate royalties or export duties to governments, it will generate major investment and economic returns through the development of sector opportunities for upstream industry and downstream processing industries which will in turn contribute royalties as well as revenue by way of taxes and charges for State and Commonwealth Governments; and as a project within the master project, *Project Iron Boomerang*.²¹
 9. *Project Iron Boomerang* will generate significant national export revenue.
 10. The Transcontinental Corridor project will generate significant regional and local employment in construction and through mobile employment of key construction workforce teams from site to site. Permanent employment opportunities, particularly for indigenous workers, will centre on track and rolling stock maintenance and train and infrastructure operations and maintenance. Additionally, the Transcontinental Corridor project will contribute to long term employment sustainability in the regions for existing industry sectors and will open up employment opportunities from upstream and downstream development realised by existing and potential industries utilising the Transcontinental Corridor.
 11. Finance for the construction of the Transcontinental Corridor project will be sourced through alliance partners, third party investors and financial institutions. Negotiations are underway to achieve the capital raising requirements of the Transcontinental Corridor project and further details can be provided upon request, with the consent of relevant parties. However, this Project **is not** being sought for the Transcontinental Corridor planning and acquisition.
 12. The Project is of strategic significance²² to multiple localities and local government areas of Queensland – Whitsunday, Isaac, Charters Towers and Barcaldine Regional Council Local Government Areas.
 13. The Project includes support for the Government’s Policy on Strategic Cropping Lands²³ and contributes to local economies.
 14. This Transcontinental Corridor proposes an optimum economic freight efficiency heavy haul rail freight solution and will have far less social and environmental impacts than lower efficiency rail freight.²⁴

²⁰ The development of these capacities is central to the vision of the Australian Government. <http://www.liberal.org.au/2030visiondevelopingnorthernaustralia>. This platform statement forecasts the white paper currently being prepared by Government. Negotiations are continuing with Government Owned Corporation, State governments and the Northern Territory to identify needs that can be served effectively by the corridor infrastructure.

²¹ Independent estimates of the contribution to the economy from turnover from 22 million tonnes of semi finished steel products at each end alone, was \$20 billion per annum. Refer to Appendix 18 - Presentation by NRI and TSC SmarT Complex of Project Iron boomerang: Realisation of a Sustainable Industrial and Residential Complex in Queensland, Australia” 18 June 2013.

²² C2C Submission to the Minister May 2011.pdf, 120511 GETTING IT RIGHT submission.pdf, and Isaac Regional Council Subm8141657550001.pdf - Refer to Appendices 3, 4 and 5

²³ A detailed analysis of the proposed QLD corridor section’s consistency with Strategic Cropping Land legislation is provided in the Referral of Proposed Action EWLP Limited GIC Appendix 31 July 12.pdf. - Refer to Appendix 14

²⁴ Refer to Appendix 20 - Independent evidence of the economic and environmental benefits of using heavy rail (40 tonne load per axle rolling stock) is summarised in Ernst & Young and Everything Infrastructure August 2012. The report by Calibre gives a finer grain analysis of the advantage of heavy rail. Refer to Appendix 7 - Calibre Operations Ltd. EWLP additional simulations and capacity assessment. Supplemental report CARP 11069-REP-Z-005, August 2012.

15. The strategic significance to Australia includes establishing infrastructure which anticipates continued growth in accordance with the Australian Government's 2030 Vision²⁵ for Developing Northern Australia.
16. The Transcontinental Corridor falls within the development application process pursuant to the Sustainable Planning Act 1999 and would involve multiple separate applications to ten (10) local governments and multiple aboriginal land trusts and a Referral to the Commonwealth Government pursuant to the Environment Protection and Biodiversity Conservation Act 1999²⁶. The timelines involved in separate applications, referrals and decision making processes and unpredictable timing of appeals processes would potentially render the project non-viable if unable to meet or achieve project and commercial timeframes, as required by the alliance partners and potential investors.

The proposed heavy haul transcontinental railway of 40 tonne load per axle from Abbott Point in Queensland to the terminus in Newman, Western Australia in a proposed transcontinental common user infrastructure corridor is supported because the notional alternative of coastal shipping around Australia is both economically and environmentally inferior²⁷.

The mandated rail geometry is flat grade of 1:320 to enable optimum economic efficiency of the Heavy Haul rail. The transcontinental corridor is nominally 200 metres wide²⁸ and accommodates robust carrier grade cellular wireless overlay network for train control and management. The proponent is a licensed carrier²⁹ under the Telecommunications Act and intends to offer Carrier grade communications to local and indigenous communities, and mining enterprises enroute the Corridor.

The railway and rolling stock to be undertaken by EWLP involve an investment, in today's dollars, of US\$18.259 billion. The steel smelters are to be owned and constructed by participating steelmakers, which will require an overall total investment of around US\$24 billion. In addition, there will be investments in shared industrial services directly related to the functioning of the steel smelters. We estimate that the total supporting infrastructure investment directly related to the PIB development will be in the vicinity of US\$50 billion, with the majority funding emanating from overseas participants.

Whilst *Project Iron Boomerang* is a very large project of national or even global significance, it is not overly ambitious. The project phase one development case provides 44 million tonnes per year of production out of a forecasted worldwide steelmaking capacity need in excess of 1.3 billion tonnes per annum. *Project Iron Boomerang* is targeting less than 3% of projected global capacity

²⁵ A white paper on the Government's vision is forthcoming. The press release signalling its likely content provides a basis for the gains to be made through the proposed rail infrastructure to add significant value to the policy. This [link](#) refers.

²⁶ Refer to Appendix 14 for the first 650 Km of the 3,370 Km Transcontinental Corridor Referral of Proposed Action EWLP Limited GIC Appendix 31 July 12.pdf

²⁷ Calculations demonstrating the cost efficiencies of using rail versus coastal shipping are provided in the PIB Pre Feasibility Study Report, Alternative Coastal Shipping Solution. Appendix A: Spreadsheets, October 2008. Section AP6: The primary author of this appendix was Ross Hunter, an internationally recognised expert in rail construction. These figures have since been validated by various subject matter logistics experts in logistics including TSC and NRI.

²⁸ Please refer to Appendix 2

²⁹ License # 312, issued 14 September 2011

growth, or in China 2012 steel production terms, around 6% of their capacity.³⁰

2.2 Key Value Drivers

The key value drivers of *Project Iron Boomerang* relate to efficiencies in the supply chain, Steel Park economics and environmental benefits³¹.

- Reduce transport and other supply chain tonnage by consolidating major raw material inputs (by 2.5 times) and maximise back loading transport rail and eliminate sea freight inefficiencies (coking coal railed west and iron ore railed east);
- Develop synergies in colocation of raw material production by making available large Steel Park sites suitable for the consolidation of industry;
- Facilitate construction of high efficiency steel smelters using world class technology;
- Provide benefits of colocation of steel smelters, shared services and efficiencies in managing energy inputs and outputs;
- Deliver major global environmental benefits by improving transport efficiencies, modern first stage steel production techniques and efficient cogeneration energy utilisation;
- Deliver significant economic benefits to Australia through investments that will exceed \$50 billion, value adding of resources, job creation, and sustainable economic activity.

The first requirement for *Project Iron Boomerang* to be a viable project is that it delivers significant advantages and benefits to the participating steelmakers. The extensive analysis conducted in the Pre-Feasibility Study and subsequently updated with input from Tata Steel Consultants indicates that the capital expenditure required to construct a first stage steel smelter facility will be reduced by US\$1 billion for each smelter as against a standalone mill in an OECD country.

The fob cost of slab steel production of a tonne of slab steel for delivery to an East or South Asia second stage steel mill will be reduced by over 30%. The economic advantages of *Project Iron Boomerang* are compelling and justify proceeding to further analysis. The project's concept and strategy prospects currently indicate that *Project Iron Boomerang* at such a sustainable scale can be one of the most sustainable cost competitive locations on earth to make first stage steel products.

3.0 Background to *Project Iron Boomerang*

First and foremost *Project Iron Boomerang* is a steel maker's project and is wholly private sector.

Project Iron Boomerang is the code name for the master project which consists of many sub projects when brought into reality will revolutionise global steel manufacturing. The Transcontinental Corridor project is one of the sub projects of *Project Iron Boomerang*. The vision of *Project Iron Boomerang* will underpin and be an enabler, if not the fast acting catalyst for *The Development of Northern Australia*, above the Tropic of Capricorn. Our assertion for the foregoing is the Transcontinental Corridor project is both a critical path and the primary tollgate to advance *Project Iron Boomerang*. The Transcontinental Corridor will accommodate a purpose built heavy haul transcontinental railway line that will link Australia's two great ore bodies for steelmaking, iron ore from the west coast and metallurgical coal from the east coast. The transcontinental railway will be dedicated to carrying resources efficiently from one side of the country to the other

³⁰ These steel production figures are taken from the China Iron and Steel association 2012 report in 2012, the steel production in China was 716.54 million tons.

³¹ The evidence for these drivers is summarised in Independent reports by Tata Steel Consulting- Refer to Appendices 9, 10 and 16

between the first stage iron and Steel Parks to be located at Abbott Point in Queensland³² and Newman in the Pilbara, Western Australia.

Project Iron Boomerang has been specifically developed by EWLP to explore the economic feasibility of establishing semi-finished steel production in Australia, close to the major raw materials inputs. The project can provide significant economic advantages to the steelmakers, the Financial Model has been developed to prove the theory and over the last six years the world's Steelmakers have accepted the economics that underpin this Financial Model. Should the enablers of this Project be in place the advantages are sufficient to enable the steelmakers to fund *Project Iron Boomerang*.

We do not anticipate an equity involvement in the project by government. However a critical ingredient *Project Iron Boomerang* needs from the government is the political will to assure Australia is behind bringing the vision of *Project Iron Boomerang* into reality. This is not an assumption on our part; This is a conclusion after years of meetings with the executive management teams of the world's top steelmakers.

3.1 Developing the Northern Regions of Australia

Our focus is on the Northern Australia Region and in the process of transforming the economic base from only being that of a "mine pit to port" basis to that of a sophisticated value adding manufacturing of first stage steel products. While the best practise steel making technology associated with this initiative results in fewer people in the steelmaking process due to advances in automation, the consequence of the scale of operations created from the by-products of the steelmaking process will support a substantially larger workforce. It is estimated by our consultants Tata Steel Consulting and Nomura Research Institute that 40,000 permanent workforce will develop around the auxiliary services needed to support the Steel Parks.

Project Iron Boomerang an infrastructure and manufacturing project will develop a steel industry of international significance in Northern Australia and transform the region from a mining centric industrial base to that of manufacturing and exporting first stage steel products and the creation of auxiliary supporting industries.

The project includes the building of significant infrastructure including a transcontinental heavy haul rail line within a Transcontinental Corridor linking the Bowen Basin metallurgical/coking coal mines in Central Queensland with the Pilbara iron ore mines of Western Australia. EWLP proposes to establish a Steel Park within the Abbot Point State Development Area (APSDA), linked by the rail corridor to a similar facility in the Pilbara, each of which will manufacture 22 million tonnes of slab steel products annually for export from its adjacent coastline.

TATA steel Consulting – UK (TSC), a leading consultant to the world steel industry, examined the 2007 Pre-feasibility Study at a deeper level, based on current market conditions³³. They reconfirmed 32 *Project Iron Boomerang's* strong economic case to develop a more competitive steel manufacturing industry in Northern Australia than anywhere else in the world. *Project Iron Boomerang* will be Australia's largest infrastructure and manufacturing project, involving Capex of approximately \$16 billion for the steel complexes, and approximately \$18 billion for the transcontinental rail crossing. The value of high quality slab steel products exported from APSDA to the world's expanding markets will exceed \$22 billion annually. In addition, secondary industries established downstream on the back of surplus heat and energy from the steel complexes, including cement manufacturing, biofuels and bio plastics, will be capable of

³² For detail please refer to Appendices 15 and 17 - General Arrangement for Project Iron Boomerang at Abbott Point and Combined Smart Materials Concept and *Project Iron Boomerang* RFI response to APSDA for APX - February 2013

³³ Tata Steel Consulting, EWLP Steel Complex Report Aug 2012, Newport, Wales, UK - Refer to Appendices 9 and 6.

generating products for export with a value of approximately \$10 billion annually³⁴.

The proponent is continuing to strongly pursue the planning and development of the required infrastructure, manufacturing plants and associated facilities while at the same time securing necessary investment and ongoing technical input from steel manufacturers. The proponent has developed strong relationships including confidentiality agreements with the leading steel manufacturing companies in Japan, Korea, China and India and Australia³⁵ and is pursuing the ongoing development of the project with the following primary committed logistics, construction and planning providers.

1. TATA Steel Consulting, UK - (TSC) a leading consultant to the world steel industry, who are providing independent validation of the models against world best practice.
2. Nomura Research Institute (NRI) - a leading Japanese consulting firm, who has signed a business agreement and is jointly developing and modelling the non-rail components of the *Project Iron Boomerang* project.
3. Engenium – One of Australia’s leading heavy haul rail designers who as partners, *Project Iron Boomerang* Shareholders and are represented on the EWLP board of Directors provide value input into the design of the rail.
4. Leighton Contractors - an international large infrastructure/ project contractor and *Project Iron Boomerang* Shareholder.
5. HMA Consulting - Founding shareholder and National power consultants.
6. XStrata Coal (now Glencore) - Founding shareholder and on EWLP board of Directors.

By consolidating international supply chain logistics *Project Iron Boomerang* will change forever the current industry paradigm that Australia chooses only to export its world class coking coal and iron ore and import steel rather than ‘value add’ to its raw materials domestically. In doing so, *Project Iron Boomerang* will also replace the need to ship more than twice the export tonnage of raw materials with the consolidated export of finished steel slab product³⁶, thereby improving national productivity and generating significant economic benefits to Queensland, Western Australia and the nation as a whole.

With a strong focus on productivity, long term sustainability and energy efficiency, TSC has assessed the proposed steel plant meets world’s best productivity benchmarks for slab steel production with a labour input of 0.25 man-hours/tonne compared to a typical world figure of 0.5 man-hours/tonne. TSC estimates the energy consumption of the facility to be approximately 16 GJ/tonne of slab³⁷, which is of the order of 20% better than typical worldwide practice. Further, it will also deliver an environmentally sound plant with low emissions to the atmosphere by world standards³⁸. These environmental benefits on a world scale add to the substantial savings in

³⁴ NRI, Feb 2013

³⁵ These include: BlueScope Steel, Baosteel, Hebei steel, Jiangsu Shagang, Wu steel, Angang Steel, Maanshan, Nanjinzhaoh Group, EUnited, Formosa Plastics Group, Meijin Energy, Nippon Steel & Sumitomo Metal, JFE Steel, POSCO, Hyundai Steel, Dongkuk Steel, Arcelor Mittal Steel, ESSAR Group, Bhushan Steel & Strips Limited.

³⁶ The actual advantage of shipping slab steel over shipping the raw ingredients that are used in its production is closer to 2.5:1. The raw material weight to produce 44 million tons of slab requires 66 million tons of iron ore plus 40 million tonnes of coking coal plus 8 million tonnes of limestone and other raw materials that go into the production and shipping of 44 tonnes of steel slab.

³⁷ Refer to Appendix 9 - Tata Steel Consulting, EWLP Steel Complex Report Aug 2012 Newport, Wales, UK. see points 5 and 6 in the executive summary and page 75 of the full report.

³⁸ Refer to Appendix 9 -Tata Steel Consulting, EWLP Steel Complex Report Aug 2012 Newport, Wales, UK. See summary figure page 84.

greenhouse gas emissions from the supply chain consolidation that accrues by shipping finished slab steel outside Australia, rather than shipping more than double the volume of iron ore and coal as raw materials.

The focus on long term sustainability and energy efficiency brought into play collaboration between TSC and NRI, to develop sustainable uses for surplus gas, energy and heat from the steel complex. This collaboration has identified the potential to develop significant secondary industries including cement manufacture, biofuels and bio plastics which would naturally follow the establishment of the steel complex. *Project Iron Boomerang* would create the world's first sustainable industrial and residential complex located in Bowen areas Queensland, sustaining upwards of 40,000 people³⁹ who will be drawn to the region's new found industrial profile.

The improved efficiency of the supply chain will deliver triple bottom line benefits in terms of improved environmental outcomes through lower carbon emissions and economic dividends flowing from its competitive efficiency advantage. Separate from the sound economic case for *Project Iron Boomerang*, the proponent notes the economic benefits that will accrue to the nation from the transcontinental rail line which were documented in a joint study by Ernst and Young and Everything Infrastructure Pty Ltd⁴⁰ commissioned by EWLP. The study has demonstrated that the proposed rail corridor and 40 tonnes load per axle heavy haul rail line provides by far the most efficient freight solution for coal from Queensland's Galilee and Bowen Basin to Abbot Point, even as a standalone project without any reliance on *Project Iron Boomerang's* own tonnages.

Project Iron Boomerang will deliver:

- a nation building opportunity to leverage domestic raw materials into a modern, internationally competitive steel industry on a significant scale;
- Australia's largest infrastructure and manufacturing project;
- Improved supply chain cost efficiencies and technology transfer benefits through partnerships with international steel companies with access to world's best technologies;
- Improved resource management/consumption sustainability;
- reduced carbon emissions on a global scale;
- facilitation of significant secondary industries at the APSDA and Newman;
- significant regional domestic employment in both construction and operational phases;
- Increased diversity of economic activity in the APSDA, Newman and the Northern Region, and;
- a transcontinental, standard gauge rail line with 40 tonne axle load efficiency which will open up the enormous economic potential of stranded inland mineral reserves.

³⁹ Refer to Appendix 18 - page 6 SMarT Complex Information Pack Booklet Feb 2013.pdf

⁴⁰ Refer Appendix 20 - Ernst & Young + Everything Infrastructure Group Comparative Economic Study of the Galilee Infrastructure Corridor FINAL Report August 2012 Pages 2 and 27



Figure 1: Locational Overview of Project Iron Boomerang

EWLP has progressed its planning for *Project Iron Boomerang* to the stage where it needs to secure suitable land within the Abbot Point State Development Area to establish the Queensland Steel Park.⁴¹

Project Iron Boomerang will contribute to significant northern regional development in Queensland and Newman, Western Australia. It will continue to deliver nation building benefits to the State and the Commonwealth for the long term and, accordingly, deserves the State's and Commonwealth's strong support when allocating land appropriately within the APSDA and Newman.

The proponent considers that a spirit of openness in discussions about land use at APSDA and development of suitable facilities at the Port would arrive at a suitable accommodation for all concerned and confirms its strong desire to continue to participate with the State in such discussions until a satisfactory solution is reached. This approach is being used with the Northern Territory and West Australia in transforming the region.

3.1.1 Developing the Northern Region of Australia - Communications Infrastructure

EWLP is a licensed carrier (number 312) under the Telecommunications Act. EWLP plans to implement a robust carrier grade terrestrial based (diverse fibre paths) with a cellular wireless overlay communications network that offers high capacity carriage services (fast internet and mobile data) to the EWLP *Project Iron Boomerang* railway train operators as well as emerging enterprises on the transcontinental common user corridor illustrated below.

Amongst other bulk cargo trains six daily *Project Iron Boomerang* bulk cargo trains will be in concurrent operation on the rail on their 44 hour transit journey time. Trains of coal, and iron ore trains 4 Km in length and 44,500 tonnes that need to operate safely and efficiently. To meet this need the trend in Australia and overseas is to implement 'in cab' train communication platforms, and the co-dependency is the critical reliance on a modern terrestrial based wireless communications infrastructure for the EWLP railway to operate safely and efficiently. The communications network will be implemented as a modern digital, highly available and reliable service for the entire transcontinental railway route ensuring constantly available communications to simplify railway operations management and mitigate risk.

⁴¹ Refer to Appendix 17 - detailed response provided to Qld DSDIP in February 2013 please refer to Combined SMC and PIB RFI response to APSDA for APX February 2013.pdf

EWLP plans to implement an international standard cellular wireless overlay network supplying mobile telephony and internet to service the railway route, and as a licensed carrier offer carriage services to nearby enterprises. EWLP communications network connects people, equipment and systems across the entire EWLP *Project Iron Boomerang* railway organisation and other nearby external parties e.g. Shire Councils, Indigenous Communities and Mining enterprises.

The transcontinental railway route will traverse mineral and energy deposits and provide a transport route to market for the previously stranded Mining sites and a supply chain route for emerging sustainable Energy development. Mining tenements and sustainable energy hubs will be able to rapidly develop due to the quality of the communications and internet services and the transcontinental railway.

The architecture of the EWLP communications network is scalable to offer enterprises a high availability network for carriage services such as cellular mobile services, telecommunications, and internet via cellular mobile data as well as high capacity optical fibre. EWLP will proactively offer to all enterprises carriage services i.e. communications and sites to rapidly commence operations regardless of the remoteness and minimal supporting infrastructure.

Resource tenements that are not within the immediate vicinity to the transcontinental railway, and require a transport route to market can be catered to by extending a rail spur from the east west transcontinental rail corridor to their proposed mine site.

The communications architectural base line ⁴²allows straightforward extension of the high availability communications network to the adjacent or remote emerging mine sites utilising a combination of optical fibre, and cellular communications may be readily extended in the rail corridor spur to the mine development site. At specific intervals within the rail spur corridor extension, equipment shelters that house the communications equipment amplifiers and signal regenerators will dot the rail corridor.

The equipment shelters will be designed to be passively cooled, ballistic and IP66 rated and optimally will be perimeter security fenced. Housed within the equipment shelters are the base station controllers for the cellular wireless, digital radio amplifiers and repeaters for the backhaul digital radio, transmission switches for the optical fibre, optical fibre terminating equipment, and standby battery power and security surveillance. To sustain the high availability rating, component equipment is duplicated and maintained in hot standby mode ⁴³.

3.1.2 Developing the Northern Region of Australia - National Energy Market

Energy Efficiency will be maximised in purpose designed Steel Parks, through cogeneration and utilisation of waste heat and treatment of volatile gases from both the coke and steel mill making process. This will produce substantial surplus electricity for sale, which emulates world's best supply chain emissions control and utilisation practices.

Additional benefits will in part be linked to future national, global and bilateral agreements potential carbon credits. The energy equation for the *Project Iron Boomerang* development is driven by the relative availability of coal for coking and thermal purposes in Queensland and the availability of gas in Western Australia (WA).

The relatively small size of the connected demand for electricity in WA, and the large market available from the National Electricity Market (NEM) in Queensland encourages the development of coking plant and heat recovery generation in Queensland rather than WA. The sale of electricity

⁴² Initial desktop study by Huawei in 2011 of the first 1,000Km is the basis for the architectural design of the Carrier grade cellular wireless overlay network.

⁴³ Standard Carrier architecture for n+1 redundancy, when off the grid, remote, desolate placement for sensitive infrastructure

in WA is likely to yield a higher price. The larger sales in Queensland will require intelligent selling arrangements to manage the price and volume risks associated with the national market pool and the relatively short term contracts market.

The cost of electricity network infrastructure required to connect the quantity of electricity likely to be produced will be significantly less in Queensland because of the close proximity of the smelter park to a major transmission network node at Strathmore. In WA, the economics of displacing relatively small quantities of isolated load will determine the quantity of electricity that can be sold into that market.

The conclusion is that the coking plants, based on capability to dispatch electricity generated, should be considered for Queensland and the blast furnaces should be shared between Queensland and WA. This will result in some imbalance in the material flows between WA and Queensland and therefore the overall *Project Iron Boomerang* will require optimisation.

Electrical Infrastructure and demand for electricity is unlikely to be a constraint in Queensland for export and sale of electricity. The detailed economics of connecting isolated electrical loads will be important to establish the optimum energy balance in WA.

The energy study has been prepared based on HMA consulting's knowledge⁴⁴ of the energy industry in Australia as well as the energy infrastructure in each region. The aim of the study was to provide validation of the fundamental feasibility and natural advantages of the *Project Iron Boomerang* proposal. The study does not provide a recommendation on the optimum energy configuration, or other detailed solutions, but provides investigative support to the *Project Iron Boomerang* concept, and illustrate the feasibility and conceptual value of the project.

TSC has provided the below validation on the usable energy for export to the national grid and TSC estimate power generation of 1290 Mw with a contribution 670 Mw base load exported to the national grid. If all the additional energy saving measures above could be realised this would change to around 1580 Mw plant with 960 Mw going to export.

Revenues for the export generation would be (based on 90% capacity factor) \$530 Mn in QLD and \$1210 Mn in the Pilbara, combining these figures and equating to cost per tonne of slab it is equivalent to nearly \$40 per tonne of slab across both facilities⁴⁵.

3.2 Expanding Australia's Productive Capacity

The Steel Parks' at the completion of Stage 1 (44 mtpa of first stage steel for export to Asia) will introduce a level of productive capacity of 500% of first stage steel due to state of the art Steel making technology being deployed at Abbot Point and Newman. The heavy haul railway (40 tal) increases the productive capacity of the Transcontinental Corridor in context to the national freight network introduces an efficiency factor of 50% when compared with 32 tal and 60% when compared with the 26 tal of the narrow gauge Qld rail network.

The efficiency factors were corroborated in the Comparative Economic Study of the Galilee Infrastructure Corridor by Ernst & Young and Everything Infrastructure Pty Ltd. This study analysed the cost of delivering per tonne of coal from mine pit to port comparing 40, 32 and 26 tal and proponents Corridor alignments.

In a similar vein the 44 mtpa of steel products shipped from the Steel Park will be exported to their

⁴⁴ HMA is a specialist electrical networks consulting business, focused on developing strategies to manage the connection of large load and generation projects to the electricity supply network. HMA also has considerable expertise in energy market and fuel sectors and provides strategic advice for the feasibility evaluation of generation and heavy industry projects.

⁴⁵ Refer to Appendix 10 - Project Iron Boomerang Tata Steel Consulting Prefeasibility Study Report February 2012.pdf

foreign destinations utilising the purpose built steel ship specifically designed for roll on roll off operations. The ship is a sub project of *Project Iron Boomerang* and is provisionally patented; it is a first of its kind, designed from the ground up for efficiency; e.g.

- the loading process is automated requiring four stevedores for loading and unloading operations;
- ship loading time is 48 hours for 76,000 tonnes of steel product. and;
- adjustable decks for carrying containers on the inward return leg to Australia and slab steel and coil on the outward leg to Asia.

3.3 Increasing Australia's Productivity

When fully operational (circa 2022) *Project Iron Boomerang* will increase Australia's productivity in the vicinity of 10% contribution to GDP by virtue of the Steelmaking operations and the auxiliary supporting industries. Contributing to productivity but not currently factored in are the below:

1. Transcontinental heavy haul railway will provide a route to market for the development of the current raft of stranded mines that are within striking distance of the Transcontinental Corridor.
2. The digital communication infrastructure needed to support the railway will be utilised to automate remote mining operations that would be otherwise uneconomic for FIFO operations.
3. The Steel Parks are exothermic and generate 1600 Mw of low cost base load power available to the National Energy Market

3.4 Diversifying Australia's Economic Capabilities

Project Iron Boomerang strongly resonates with the Australian government's policy of regional development and diversifying Australia's economic capabilities. In the first instance all the infrastructure development i.e. the Steel Parks and the Transcontinental Corridor geographic positioning is north of the Tropic of Capricorn. Due to the scale of the activities in *Project Iron Boomerang* it will further diversify Australia's economic capabilities.

3.5 Building on Australia's Global Competitive Advantages

Australia was established as a colonial outpost and it was built on a sheep's back and export of primary produce to the world. In the last 50 years we have leveraged the export of Education and whatever we could dig out of the ground to sell to our neighbours while the Asian economies chose to modernise. The idea that Australia should value add iron oxide has been around since the 1930's. That Australia should value add iron oxide by producing first stage steel, until very recently the conditions precedent to do so and the hard yards to achieve that goal has not been evident and that has changed with the modernisation of the Asian economies. With the coalescence of recent events it is opportune to prick the Nation's conscience and spark the Nation's interest to head down a sustainable and prosperous path by engaging in a Nation building project that we have code named *Project Iron Boomerang*.

There is little doubt that economically the 21st century will be owned by the Asian economies, and we need to play our part in this more effectively than we have done to date. Australia is uniquely positioned to be both a partner to Asian progress as they make haste to modernise and increase their standard of living commensurate with what the western world has enjoyed for a century. For *Project Iron Boomerang* to be more than a Vision we need to do more than be a mine. Since 2006 EWLP has invested in *Project Iron Boomerang* for the sole purpose of developing a formula in order to bring to financial close, the business model of producing first stage steel that will be utilised in the mass markets of Asia and elsewhere on a sustainable basis.

3.6 Economic Benefits of *Project Iron Boomerang* to Australia

Project Iron Boomerang will provide many economic advantages to the economy of Australia. The benefits directly related to *Project Iron Boomerang* include:

- private investment in infrastructure;
- job creation, skills and training; and
- generational long term and sustainable business activity.

The infrastructure investment is anticipated to be in excess of \$50 billion and should occur over the next eight to ten years. The forecasted construction workforce for the rail corridor alone will be in excess of 6,822 person weeks over an extended period, along with a permanent indirect workforce of 2,000 to 3,000 workers at each precinct given the auxiliary projects. The operations of the railway, Steel Parks, steel smelters and ancillary services should also generate a significant level of economic activity in Western Australia, Northern Territory and Queensland. The time dimension on these job and economic activity benefits is expected to be over at least 70 years.

In addition to the direct economic impacts of *Project Iron Boomerang*, there are many advantages that will occur to the benefit of businesses outside of *Project Iron Boomerang*, and thus to both the great economic benefit of Australia and to its major trading partner nations.

3.6.1 Railway related

The transcontinental railway has substantial reserve capacity, with only three loaded trains operating per day in each direction for the Project Case of five smelters in each Steel Park. Additional rail activity would be at low marginal costs. The railway will pass close by many known resource deposits that have not been economical to mine. Some of these mines will be opened once access through *Project Iron Boomerang* is established. *Project Iron Boomerang* will also provide the opportunity to effectively value add and beneficiate lower grade magnetite iron ore reserves to effectively blend with the major hematite ores, without the added transport penalty involved in exporting these ores to an overseas smelter.

The development of an transcontinental railway will enhance the operations of the Adelaide – Alice Springs – Darwin Line. An expected *Project Iron Boomerang* 5% total phase 1 rail freight deviation to this line will more than increase by three times the current business. We anticipate that this will be particularly advantageous for rail transport to Darwin. There are also likely to be opportunities for economising on facilities and costs by cooperation between the two companies. An obvious example would be in service delivery and refuelling.

Establishing the transcontinental railway will also establish the Transcontinental Corridor. There are many benefits that may evolve from the existence of such a corridor including the transport of water, communications infrastructure and the transmission of energy.

3.6.2 Steel Park related

The Steel Parks are very large industrial parks (960 hectares) with the basic infrastructure in place. Power, water and roads will be developed as part of the precinct development. This creates opportunities for complementary industries to locate in the Steel Parks. The expansion of the Steel Parks to accommodate such businesses would have low marginal cost.

A key consideration in the Steel Park planning is to maximise the energy efficiency of the steelmaking process. A large power cogeneration plant is proposed as an integral element of the coke production process, using surplus heat and burning the released volatiles to produce electricity for internal precinct use, and for export to external users. A detailed report from HMA Consulting in respect of energy related aspects of each precinct has been completed and is included in the Pre-Feasibility Study Report.

Opportunities exist within both Queensland and WA to value add from efficient utilisation of cogeneration surplus heat for production of electricity for base load power sale, and to replace existing high cost gas or diesel fired electricity generation in the Pilbara.

A particular attraction in the Pilbara will be providing base load power for the beneficiation of iron ores, and for use in power for running slurry or water pipelines. *Project Iron Boomerang* provides the opportunity for substantially improving the sustainability of the Pilbara iron ore deposits, by providing access to surplus power from the Newman Steel Park for beneficiation upgrading of the very large magnetite deposits by blending with the depreciating primary hematite deposits in the region. For instance, local beneficiation of these ores, using the surplus power will provide complementary sustainable economic benefits by permitting more precise overall chemical balance and blending with the hematite ores, to operational cost and quality steelmaking advantage and make these ore bodies more usable and sustainable.

3.6.3 Environmental Benefits of *Project Iron Boomerang* to Australia

The construction of a transcontinental railroad and ten steel smelters with associated infrastructure will inevitably introduce some local environmental impacts that are negative, but there will also be positive environmental and economic impacts. *Project Iron Boomerang* is developing plans to mitigate the negative impacts. Most importantly, the negative local impacts are far outweighed by the favourable global impacts against the current operating systems.

Coke plants and steel smelters have potential for high local impacts, but sound management should mostly exceed current legislation emission standards, water quality and solid wastes. It is the aim of *Project Iron Boomerang* to develop, lead and set leading world's best practice in this area. The *Project Iron Boomerang* shared services and supply chain consolidations concept and strategy combine to make this prospect most achievable, practical and most importantly, collectively and cooperatively cost affordable.

Proximity of the Abbot Point precinct to the Great Barrier Reef and the coastal wetlands, adds a further sensitivity to managing the environmental impacts at these locations. The comprehensive Environmental Impact Study will assist in determining the requirements to manage, mitigate and/or eliminate environmental issues and to aid in determining the necessary conditions for environmental planning approvals. Our preliminary planning provides for full collection, treatment and reuse of all process water and rainfall runoff from the smelter park sites to prevent contamination of local waters and groundwater. The smelter parks and railway are located in sparsely populated regions, and will have minimal impact existing land uses and populations. Development will have low to medium environment impacts, which are readily manageable with current expertise and practices.

The sensitivity of some relatively fragile arid environments along the rail corridor will need to be managed carefully during the construction phase. Significant alignment planning undertaken to date, however, indicates that the railway requires limited major earthworks to achieve the required grading, and that construction impacts will be relatively low.

A key consideration in the precinct planning is to maximise the energy efficiency of the steelmaking process. A large power cogeneration plant is proposed as an integral element of the coke production process, using surplus heat and burning the released volatiles to produce electricity for internal precinct use, and for export to external users. A particular attraction in the Pilbara will be providing base load power for the beneficiation of iron ores, and for use in power for running slurry or water pipelines.

Another environmental consideration is the availability and effective management of water used in the production processes and maximising the total recycled use of this water. The proposed use of large quantities of groundwater to mine iron ores in the Pilbara should help reduce the negative

desert environmental impacts of disposing of this water on the surface.

By locating the first stage production in Australia, the volume of shipping from Australia will decrease significantly. Rather than ship iron ore and coal to overseas steel smelters, the 100 million tonnes of iron ore and coal are transformed to 44 million tonnes of slab steel, which is then shipped overseas for further processing. The consolidated takeout factor of locally consuming 116 million tonnes per year of steelmaking ores is 72 million tonnes of infrastructure not needed; Ships, trains wharves in both sending and receiving countries. This reduces the strain on infrastructure and resultant expenditure overexposure, and therefore financial risks overexposure.

In addition to the environmental and economic advantages of the reduced shipping volumes, *Project Iron Boomerang* will also reduce the need for port expansions in Australia and overseas. A further advantage to the Australian environment is the reduction in the amount of shipping that exposes the Great Barrier Reef to degradation or the possibility of a disaster.

Whilst the construction and operation of *Project Iron Boomerang* has some local negative environmental impacts that need to be effectively managed, the global environmental benefits are expected to be positive and extremely significant. Great progress is continuously being made in steelmaking environmental emission outcomes.

Project Iron Boomerang will deliver major global environmental benefits from improved transport efficiencies (especially avoidance of bulk ore carriers), modern first stage steel production techniques and efficient energy utilisation. The advantage of co locating smelters in shared service Steel Parks provides for superior environmental outcomes that are achievable and more affordable.

Environmental approvals will include consideration under the Commonwealth Environment Protection and Biodiversity Act, 1999 ("EPBC Act") and various state legislation and regulations relating to the natural environment, wildlife conservation, water, air and land conservation.

The environmental benefits include an estimated reduction in carbon emissions of 8.7 million tonnes annually. An economic dimension to emissions control is rapidly emerging. Carbon credits are a part of the international emissions trading schemes that are being developed. These schemes provide a way of moving the control of greenhouse gases into markets, and will be investigated during the Feasibility Study. EWLP intends to explore the potential for participating in such schemes as they develop.

Project Iron Boomerang could be well pleased with the aspirational environmental credentials. It provides a large and positive impact. Environmental laws will be regarded as the minimum standard; With international best practice standards used as a consideration to continually improve our performance and set new national and global standards for environmental outcomes.

3.6.4 Global Environmental Benefits

Whilst the construction and operation of *Project Iron Boomerang* has some local negative environmental impacts that need to be effectively managed, the global environmental net benefits are expected to be positive and extremely significant.

The major benefits include:

- Proper planning of the smelter Steel Parks to maximise environmental benefits from synergies between the various production processes, and particularly their energy inputs/outputs, and opportunity to use natural gas and coal seam methane gas as primary energy sources;
- Improved environmental outcomes by ultimately replacing inefficient steel smelters elsewhere with current, much lower environment impacting technology, purpose designed

to achieve best practice environmental performance (rather than the bolt on upgrades common with existing long-life coke ovens and steel smelters);

- Presence of sufficient production scale in the smelter parks to allow effective greenhouse gas capture and potential for CO₂ sequestration as this technology is proven, and the economic environment for its implementation is provided, including any carbon credit schemes; and
- Transport logistics efficiencies of *Project Iron Boomerang*, with reduced transport energy use and accompanying greenhouse gas emissions reductions (from consolidation and maximising back loading).

The global environmental benefits of the project are expected to be very large compared to the local environmental impacts. Realisation of the benefits will require the involvement of Commonwealth and State Governments affected to allow proper inter jurisdictional recognition and realisation. The emergence of markets for the trading of carbon credits will facilitate this benefit.

Project Iron Boomerang will have significant positive environmental benefits. The transportation efficiencies translate to substantial reductions in the use of fuel and there will be efficiencies in managing energy inputs/outputs. The CO₂ savings are estimated as 8.7 million tonnes annually. In addition to the favourable implications for the environment, the development of emissions trading markets and schemes is estimated to result in savings of US\$4 per tonne of slab steel.

3.6.5 Improving Social Equity, and Quality of Life

Project Iron Boomerang is to be a privately funded development, but it will provide a wide range of social benefits to the local communities, regions, states/territories, and the Commonwealth. The sustainable economic activities that will result from *Project Iron Boomerang* will provide commensurate income for the Federal and State Treasuries from corporate income tax, personal income tax, capital gains tax and import tax. The arrangements for railway passage and precinct land rights will generate economic activity cash flows to the governments, landowners and Aboriginal Land Councils.

The economic activity generated by *Project Iron Boomerang* will then create many opportunities for new capital investment, development, employment and growth in the regions. The Transcontinental Corridor will pass close to the settlements of Kynuna in Western Queensland, and Ti Tree, approximately 170 km north of Alice Springs on the Adelaide Darwin Railroad. The towns are both on major highways. The locations are proposed to be utilised as important railroad infrastructure maintenance centres, crew change points, and Ti Tree would be the major intermediate locomotive refuelling and service depot. The developments and employment opportunities are expected to have a very positive permanent impact for all communities and for Aboriginal communities. Whilst the growth in jobs is significant, we recognise that it will put demands and strain on community and regional infrastructures (roads, schools, etc.). We return to this issue in the section below on areas of facilitation and cooperation *Project Iron Boomerang* will require from governments.

Australia is rich in natural resources. Among the key resources in abundance are iron ore and thermal and coking coal; The key feedstock for steel. Queensland has an abundance of coal, while Western Australia has an abundance of iron ore. Australia has a small population with limited steel production, so these resources are shipped internationally to be used as inputs to steel production.

Strong growth in raw steel production and consumption, driven by the rapid industrialisation of China and India in particular, is expected to continue. This will necessitate substantial investment in new steelmaking capacity. Australia plays the significant leading role in the seaborne

steelmaking supply chain key materials, with an estimated 40% of the world's high grade iron ore and 60% of the world's coking coals.

The current supply chain for the production of steel has a number of negative features. With respect to Australia's resources, the current arrangements require the shipment of iron ore and coking coal to overseas locations where the resources are processed. The transportation costs to the steelmakers are considerable, with mostly empty returns for the world's biggest trains and ships; Transport is thus somewhat inefficient and environmentally damaging, and opportunities for adding value in Australia to the resources are lost. Processing these primary ores in first stage mills near the source, these ores are consolidated more than 2.5 times before shipment.

Project Iron Boomerang has been specifically developed by East West Line Parks Ltd ("EWLP") to explore the economic feasibility of establishing semi-finished steel production in Australia, close to the major raw materials inputs. The project can provide significant economic advantages to the steelmakers, the Financial Model has been developed to prove the theory and over the last six years the world's Steelmakers have accepted the economics that underpin this financial model. Should the enablers of this Project be in place the advantages are sufficient to enable the steelmakers to fund *Project Iron Boomerang*. We do not anticipate an equity involvement in the project by government. However a critical ingredient *Project Iron Boomerang* needs from the government is the political will to assure Australia is behind bringing the vision of *Project Iron Boomerang* into reality. This is not an assumption on our part; this is a conclusion after years of meetings with the executive management teams of the world's top steelmakers.

To the benefit of Australia and its major trading and investor steelmaking nations, *Project Iron Boomerang* can deliver economic, social and environmental advantages on a scale of national and global significance. We will set out in this report how the project provides nation building advantages on all dimensions. In addition, the efficiency and environmental attributes of the project are globally significant.

The Pre-Feasibility Study provides strong evidence that the construction of first stage smelter Steel Parks offers many cost effective investment capital and operational scale savings of consequence, and that a dedicated railroad with all supporting infrastructure is feasible and economically profitable for the steel makers and investors.

The details contained within this submission (and its referenced documentation) on *Project Iron Boomerang* should aid Infrastructure Australia in achieving its strategic nation building vision and objectives to:

- expand Australia's productive capacity;
- increase Australia's productivity and to significantly value add the mine and farm,
- Australia's natural resources;
- diversify Australia's economic capabilities, and enhance international relationships with our major trading partner nations.
- build on Australia's global competitive advantages developing leading world's best practice;
- develop our cities and regions;
- significantly reduce global greenhouse emissions; and
- improve economic, social equity, and quality of life in the Northern region.

4.0 Project Iron Boomerang

The *Project Iron Boomerang* asset life is in excess of 100 year's. There is a clear global need for

additional global steelmaking capacity in particular for the other 4.3 Billion people in Asia that are modernising. *Project Iron Boomerang*, being located in Australia, is uniquely suited to meet a portion of that demand as a result of five major advantages.

- proximity to the major global markets for steel, particularly in Asia;
- availability, reliability, and sustainability of major quality steelmaking raw material inputs;
- competitive supply chain for these resources;
- availability of large sites to accommodate the smelter Steel Parks; and
- stability and low sovereign risks involved in long term major investments.

The *Project Iron Boomerang* business case is focused on facilitating the construction of ten 4.4 million tonnes per year steel smelters, mills at each end) producing a total of 44 million tonnes per annum of slab steel. Iron ore and metallurgical coal will be transported to common points for processing iron ore will be transported to Queensland to be combined with the coal, while coal will be transported to Western Australia to be processed with the iron ore.

The steel smelters will be constructed in industrial Steel Parks in Queensland (Abbot Point) and Western Australia (near Newman in the Pilbara). EWLP will develop the Steel Parks to accommodate the steel smelters. Participating steelmakers will construct, own and operate the steel smelters. In addition to the investments of EWLP and the steelmakers, there are a number of support services which can be shared to great advantage under the precinct model. These include ore stockyard and blending facilities, ore stockpiles (iron ore and coal), stacker/reclaimers, conveyor, coke oven batteries, electricity production, water and other utilities, and steel slab export facilities. We anticipate that these will be undertaken by a range of infrastructure third party companies and investors.

4.1 Project Stages

There are five stages to the development of *Project Iron Boomerang*.

Prefeasibility: establishment of project concepts and operational requirements, financial models and major steelmakers and/or investor commitment to the Feasibility Study;

Feasibility Stage: proof of concept and definition of project operational requirements, detailed project scoping, preliminary engineering environmental impact assessment, cost estimates, market viability, planning and other regulatory approvals, risks assessments, management and allocation strategies, and confirmation of the business case;

Commitment and Financial Closing: gain commitments from steelmakers, reach necessary agreements with governments, develop major procurement contracts and call tenders for EPCM and/or DCM contracts, and completion of due diligence processes;

Implementation: acquisition of land and passageway rights, engagement of project managers, detailed engineering and environment management plans, procurement of design and construction, procurement of rolling stock and precinct plant and equipment; and

Operations: commissioning and commencement of operations.

We have concluded the Pre-Feasibility Study and are in the process of obtaining funding to proceed with the Feasibility Study via a Private Placement Memorandum utilising a convertible note structure. *Project Iron Boomerang* has benefited from three fiscal years of applying the R&D Tax Incentives. We are now into our fourth fiscal year of benefiting from the R&D Tax Incentive that sustains EWLP's cash burn rate on four core R&D experiments, they are:

1. Transcontinental Corridor Determination Process

2. The Steel Park Process;
3. Covered Aerodynamic Coal and Iron Ore Wagon; and
4. Roll On Roll Off (“RORO”) Slab and Coil Steel Ship

To achieve P90 (Infrastructure Australia requirement for Stage 7), and the equivalent private sector stage is bankability and that occurs on the completion of the Bankable Feasibility Study (“BFS”) and is an essential milestone to initiate the negotiations for Financial Close. To achieve P90 or BFS approximately A\$150 million expenditure and under the current Project timeline approximately 3.25 years prior to financial close and start of construction. The participating steelmakers and supporting investors with minority interests will be the primary funding sources for the BFS.

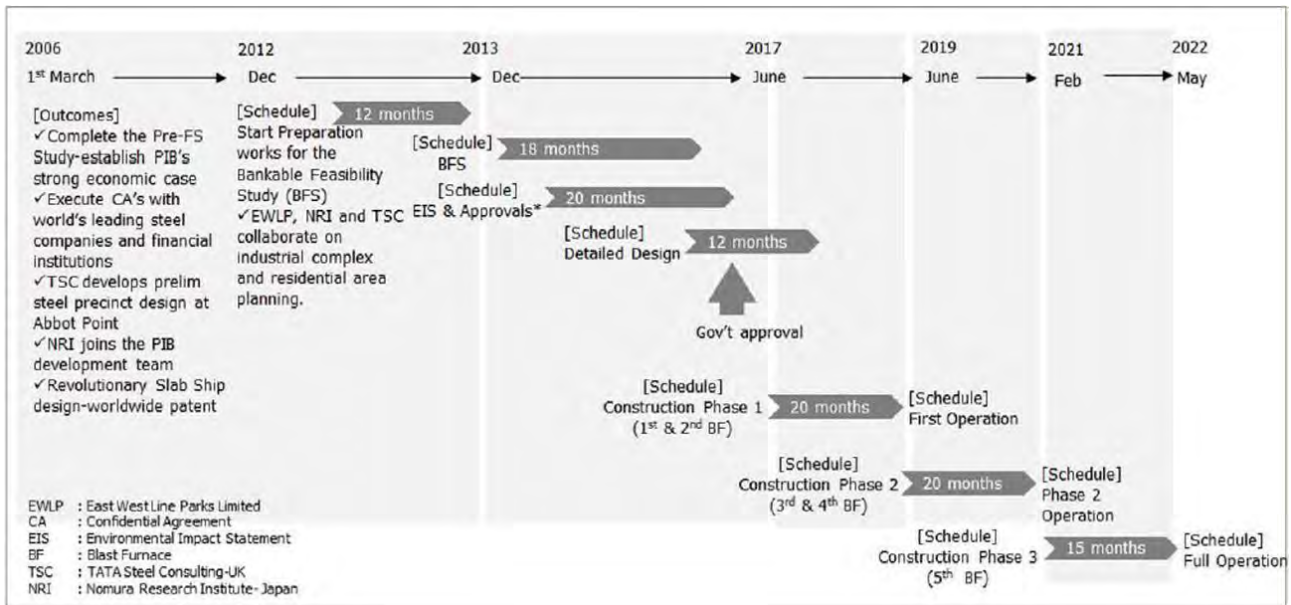
Eventual public listing will open up the projects ownership and investment to all Australian and International stakeholders.

4.2 Team Capability

EWLP has established a management group of experienced senior executives and specialists with many years of leadership and management experience. The senior management group has worked for major international and domestic companies across a number of different industry sectors and major projects including banking, consulting, finance, government, logistics, transport, supply chain management and information technology and communications. They have demonstrated superior capabilities, analytical, business and managerial skills at strategic levels in the requisite functional areas and will lead and conclude the project through the next phase, the Bankable Feasibility Study, and subsequent development plan stages, through to administration and operations, phase five.

4.3 Timeline of the Project

The timeline for the project is shown below. The bankable feasibility study should be completed by the end of 2017. Presuming that the bankable feasibility study confirms the benefits of *Project Iron Boomerang*, we will undertake the support of the participating steelmakers through equity contributions. Construction will then commence. The railway and the first four steel smelters will be completed in late 2021. The first rail shipments of iron ore and coal will then occur and steel mill production will begin. The first shipments of steel slabs overseas for further processing will occur in December 2022. The construction of the remaining eight steel smelters will continually progress in stages with final completion scheduled for 2026. Beyond the completion of *Project Iron Boomerang* as it is currently being scoped, it is likely that there will be ongoing developments in the use of the railway, including the duplication Phase 2 development of the smelter parks.



4.4 Timeline of Project Iron Boomerang

The Pre-Feasibility Study Report⁴⁶ is available to the Parliamentary Committee as a separate document submission, sets out in detail the projects economic advantages. The remainder of the Pre-Feasibility Study report focuses on the economic, social and environmental efficiency features of *Project Iron Boomerang* to Australia and the world.

4.5 Project Evolution and Finance

Project Iron Boomerang is wholly private funded. Initial sources of funding are from shareholders⁴⁷. Next stage funding arrangement is underway via a Private Placement Memorandum seeking to raise a minimum of A\$15 Mn via a convertible note.

In context to the Transcontinental Corridor and the PIB heavy haul rail the Benefit Cost Ratio is positive, and that is calculated only on *Project Iron Boomerang* tonnages an. The Benefit Cost Ratio is translated into an NPV equivalent on the Transcontinental Corridor rail component. Please refer to the Financial Model which encompasses the Transcontinental Corridor component and refer to sheet “Financed Income (Rail)” cell B69. This sheet is the cash flow analysis including interest and tax, the focus of this sheet is on ROE to shareholders.

4.6 Supportive Role for Governments

The key areas where *Project Iron Boomerang* will seek government cooperation and assistance include:

- Project of National Significance and Project of Irrevocable National Merit
 - Underway via current process of Infrastructure Australia and the Infrastructure Priority List submission 28 Nov 2013.
- Planning corridor and environmental approvals;
- Land acquisition;
- Project business environment; and
- Government support services from:

⁴⁶ Refer to Appendix 13

⁴⁷ See Appendix 1 for the shareholder list

- Department of Industry
- Department of Infrastructure and Regional Development
- Department of Foreign Affairs and Trade

There are four Australian governments involved (Commonwealth, Queensland, Western Australia and the Northern Territory) as well as numerous Local Authorities, Statutory Agencies, and Aboriginal Land Councils. In addition, the very large scale and global nature of the project will involve other national Governments in terms of trade matters, investment and global environmental outcomes.

4.7 Planning and Environmental Approvals

The project requires large construction workforces for an extended duration. Following current policy and practices, five year working visas will be sought for needed for relocated permanent specialised skilled workers from overseas.

Project Iron Boomerang entails major capital investments in the railroad and steel smelters by foreign owned companies, as well as in the long term operation of these industrial plants, primarily as value adding to basic major resource exports. Critical to attracting this investment and to the project proceeding are the obtaining of the various government progressive approvals and having in place the appropriate business policy settings to provide maximum certainty and timing over the project life cycle.

4.8 Land Acquisition

The land tenure and acquisition process for the rail corridor and smelter park Steel Parks will be subject to negotiation and agreement with the Queensland, Northern Territory and Western Australian Governments. The bulk of the rail corridor land is existing leasehold, vacant crown land, or Aboriginal reserve, and subject to native title considerations under the Native Title Act 1993 and relevant state legislation. Long term leases (99 year plus) or freehold titles in favour of *Project Iron Boomerang* are sought. The Queensland Government has acquired Abbot Point State Development Area. We will request from Western Australian Government that the Newman Steel Park be accommodated in a similar area.

We request that the Australian Governments involved (Commonwealth, Queensland, Northern Territory and Western Australia) follow similar procedures used to establish the environmental impact for the implementation of the Darwin Alice Springs rail line. This precedent included:

- Establishing an overall Framework Agreement with Governments and Land councils;
- Sacred site clearance and long term railroad corridor leases were negotiated within this framework with all affected parties including Aboriginal Land Trusts and Communities;
- Access rights were negotiated by Governments involved (Northern Territory, South Australia, and Commonwealth);
- Upon completed negotiations, conditional access rights were handed over to the consortium that owned and operated the line; and
- Environmental issues were identified and resolved.

A fully inclusive process of consultation and negotiation with the traditional owners of the land, assisted by each of the Governments, is proposed to facilitate agreement on the rail corridor and precinct lands.

Recent major mining and infrastructure projects in northern Australia have been able to progress more quickly when the key stakeholders are included in the negotiations from the beginning, and their historical traditions and roots are recognised. The aims of these negotiations with traditional

owners will be to create long term benefits that will positively impact on current and future generations.

4.9 Project Business Environment

The project and business model involves major investment by foreign owned steelmakers in the *Project Iron Boomerang* and in their own smelters and supporting industry. Foreign Investment Review Board approval of this investment is required for the project to proceed. Such approvals will be sought individually by each foreign owned company participating in the project.

The project will involve major procurement of plant and equipment and associated materials that cannot be supplied by Australian suppliers (due to availability, scale and technology). The biggest single threat to the project viability is the much higher construction and fabrication costs in Australia, compared to Asian and South American competitors in particular. This will be coupled with the skilled labour limitations in Australia, and the relative remoteness of the major construction sites at Abbot Point and Newman. Maximum tariff concessions and/or enhanced By-law Schemes covering the imported materials, equipment and prefabricated pre assembly modules is essential to minimise any competitive disadvantage.

4.10 Government Support Services

The project will require significant community infrastructure in regional centres, particularly at Bowen and Newman, with lesser requirements at a number of other support centres, to support the large construction workforce and permanent employees. Major investment by Government Owned Trading Corporations will also be required to meet the requirements of the project.

Support from Government in the timely provision of essential services to support the local communities and Local Authorities is requested. This includes availability of developed sites for housing, water supply and sewage, roads, power, telecommunications, schools, and so on.

The project credentials for positive global environmental outcomes and major investment and regional job creation, should ensure strong bipartisan support for the project from all levels of government in Australia.

Current problems, issues or challenges that EWLP considers will limit the ability to achieve the goals and objectives are listed below:

1. The situation assessment is the costs of building inwards loading port facilities in already overcrowded and congested out loading ports that are not currently meeting expansion growth needs is a major constraint issue. The method of transportation will be a new transcontinental railroad. The economics and cost benefits of a heavy haul railway are supported because the notional alternative, coastal shipping around Australia in many aspects is economically and environmentally inferior to a railroad.
2. The situation assessment is unrelieved and exacerbated should all blast furnaces be located at either Abbot Point or Newman.
3. The extent and nature of *Project Iron Boomerang* necessitates a particular form of non-capital investment and that potentially is the appointment of a Special Minister of State whose role is to prioritise and coordinate the Australian government departments and develop the special relationships required with the Minister's counterparts in the Asian governments, in the first instance with the Ministers' counterparts in China, Japan and Korea.
4. We note the Special Minister of State is likely to be an ongoing role as the *Project Iron Boomerang* business model is modular, scalable and extensible. We point out that 4.3

Billion⁴⁸ people live in Asia and we note that Asian economies, in particular Indonesia, Vietnam and others are in the throes of modernisation and lack the basic steelmaking ingredients, technologies and skills and are prospective participants.

5. To achieve the goals and objectives of *Project Iron Boomerang* is required to obtain the following from Infrastructure Australia:
 - a. listing on the Infrastructure Priority List;
 - b. recognition as a project of national significance; and
 - c. recognition as a project of irrevocable national merit.
6. Once the requirements under points 3 to 5 above have been satisfied, *Project Iron Boomerang* will require the following matters to be addressed to assist *Project Iron Boomerang* in achieving its goals and objectives in a timely and cost effective manner:
 - a. streamlined foreign investment assessment and approval process, keeping in line with the requirements under the Foreign Acquisitions and Takeover Act 1975;
 - b. *Project Iron Boomerang* will also require a large number of 5 year renewable high skilled employment visas to adequately provide for the skilled labour requirements; and
 - c. streamlined environmental assessment and approval process applied to *Project Iron Boomerang*, similar to the endorsement and support given for the building of the Darwin to Alice Springs Railway Line. The national interest established protocols and criteria applied to the Darwin to Alice Springs Railway Line may be considered as illustrative of principles that could be applied to *Project Iron Boomerang*. The difference between the Darwin to Alice Springs Rail Line and the *Project Iron Boomerang* proposal is that *Project Iron Boomerang* will not require funding from Federal, State or Territory Governments.

The Financial Model is a prescriptive approach that caters for all variables that underpin the Business Model. The Financial Model contains all the artefacts of the Business Model. The Financial Model has evolved over seven years of iterative research and consultation with subject matter experts in their field of domain competence. The Financial Model has a multitude of purposes; Two elemental aspects one of which is investor focus on the ability to achieve 15% ROI and underpinning the ROI are the key beneficial estimated outcomes for the Steelmakers. First and foremost *Project Iron Boomerang* is a Steelmakers project.

⁴⁸ <http://www.worldpopulationstatistics.com/asia-population-2013/>