



EAST WEST LINE PARKS PTY LIMITED

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Date: Monday 13th September 2021

PIB Document-1

PIB Key Word Points within Manufacturing Senate Economics Committee

By: PIB EWLP MD & Founder Shane Condon

Manufacturing Key Terms of Reference Points

The Australian manufacturing industry, with specific regard to:

- a. **what manufacturing capacities Australia requires for economic growth, national resilience, rising living standards for all Australians and security in our region;**
 - i. *The PIB steel makers consortium plan represents to Australia a unique resource positioned/located 1st stage steel mill to a 2nd stage geo-mass-market located rolling mill model investment, that will value-add, secure and anchor both of Australia's principal steel making resources and enhance the industrial steel manufacturing efficiencies. A key aim is to produce, market and supply sustainable competitive CO² neutral market entry Green Steels to both the Australian domestic and global worldwide steel markets to a competitive and sustainable cost edge scale, along with a distinct positioning and market advantage sustainable opportunity.*
 - ii. *PIB is a nation building logical common sense Big-Picture Plan and Regional Leadership Model requiring bipartisan political support, in a Whole-of-Government framework commitment, that **is something all Australian's can collectively Believe in, Hope for, and Aspire too!***
 - iii. *PIB will positively anchor the Manufacturing Re-Industrialisation of Australia towards a sustainable Industrial, Mine & Farm value-added economic future and trade prosperity!*
 - iv. *The PIB Steel (and cement) engagement will help and assist our regional trading nations developing economies with their early treaty compliance on climate change CO², ie., by 2040 -2045 instead of 2060!*
 - v. ***The PIB model presents Australia with a unique economic world, once in a century "time and place Asian Century" geo-market leadership opportunity!***
 - vi. ***We seek the Senate Committees Unliteral Wholehearted Support and Commitment!***
- b. **the role that the Australian manufacturing industry has played, is playing and will play in the future;**
 - i. *The PIB model and plan is squarely based on the successful Australian Industrial/Manufacturing history of BHP as The Great Australian Mining Resource & Steel Co as the world's biggest miner (ref BHP History) which was then one of the most efficient steel and cement producers pre 2nd world*



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war; in back freighting and utilising Australia's coastal Coking Coal and Iron Ore to make Steel, in purpose designed ships; even competitively exporting slab steel across the Pacific to California in the mid 1930's, which USA subsequently tariffed against.

c. the drivers of growth in manufacturing in Australia and around the world;

- i. Subsequently on the back of such BHP Steel Global Cost Leadership Success during and after the 2nd WW, the Holden Car was produced in the post war economic recovery Mine, Farm, City and Regional Logistics and Infrastructure developments including the post war Snowy Mountains Scheme development that all successfully occurred.
- ii. The post war 1950's onwards Australian cost of energy was a key driver of Australia's manufacturing competitiveness until open trade and tariff applied regimes applied and influenced different directions and outcomes that we have realised today.

d. the strengths of Australia's existing manufacturing industry and opportunities for its development and expansion;

- i. Sadly in OECD manufacturing terms Australia is at the very back of the manufacturing queue over the last 30-40 years. In reflected manufactured steel sector terms dropping from 9m tpy to 5.5m tpy (The EEC is similar). This is sadly reflected and evidenced in our annual Empty Container Return Terms (Ref: PIB Associates Credit Suisse Global Analysts Sydney Team - Transport Logistics & Infrastructure) **with 83% of annual dry containers returning empty out of 2.3m py!**

e. the sectors in which Australian manufacturers enjoy a natural advantage in energy, access to primary resources and skilled workers over international competitors, and how to capitalise on those advantages;

- i. The PIB Plan & Model program clearly identifies Australia's distinct opportunities for a strategic shared mutual market development and for a sustainable future for manufacturing growth in strengthening our trade relationships and regional prosperity.
- ii. The greenfield 22m tpy 1st stage PIB Green Steel Complex each in WA & Qld is primarily a High Teck Professional Employer where 1,200 are employed in each 4.4m tpy PIB modular designed steel mill; 15-20 years ago that number was around 12,000 per mill.
- iii. Greenfield steel mills are fully or highly automated today, as much as possible, even in China. Labour cost per t comparisons to are not at all a mitigating comparison investment factor in the PIB model.
- iv. Finally, with PIB's Phase-1 10-Steel Mills, primarily from the top 10-20 PIB Consortium investor major global steel Companies, we do expect to create one of the world's biggest technological transfers in history to the PIB WA & QLD Steel sites, to Australia's permanent intellectual personnel management asset transfer great advantage, most of whom will stay and become



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permanent citizens along with their families as highly paid tax paying professionals.

f. identifying new areas in which the Australian manufacturing industry can establish itself as a global leader;

- i. As China, Japan, S-Korea, India & EEC's majority steel mills said to us during our many visits "Under the PIB Steel Model/Plan along with the Resource Rich Lucky Country Australia, Australia will be the best place on earth to make competitive sustainable global steels". Australia has the unique opportunity and responsibility to do this, not only for our country but also for the regional developing nations and for the world.*

g. the role that government can play in assisting our domestic manufacturing industry, with specific regard to:

- i. research and development;**
 - a. Again, at the bottom of the OECD list in the R&D Innovation index – we are good at innovation but poor in support and on capitalising R&D – we do need to do much better, however we have some great success stories of course, which we can be all proud of. The tall poppy syndrome is part of our culture which needs some survival instinct culture corrections, we would say!*
- ii. attracting investment;**
 - a. The average Australian would in the vast majority, I propose support a scheme where their collective Super Investments of \$3.3T supported R&D and National Infrastructure & Manufacturing identified nation building projects (ie Sydney Harbour Bridge) where 10-15% of that was invested in Australia's future for our next generations under a Govt supported 10 year Govt Bond type scheme and/or consider a 10 year maximum negative gearing property type Government Discount Tax Infrastructure Support type Scheme, as both a protection and investment incentive of the Super Investment Accounts, on approved and identified State projects.*
- iii. supply chain support;**
 - a. PIB has already developed a innovative Purpose Designed Fully Integrated Suite of IP Assets - 2x 22m tpy Steel Complex's 10 mills – 2X4 berth Dock Lock Ports – 55 100k t ea. Dual-Purpose RORO Slab Steel & Container Ships - 3,300k Continental HH Rail & unique designed Rolling Stock. Delivering WBP efficiencies.*
 - b. Australia's PIB is by comparison China's Belt & Road Plan on steroids. Alt least China has a Government committed plan!*
- iv. government procurement;**
 - a. Whole of Government Commitment to PIB as Dr Peter Shergold originally stated!*
 - b. Apply Under a specific PIB WoG Legislation as specifically and historically applied to the major National Projects 2 X NW Gas Shelf Contracts by both LNP & Labour Govt's and the Darwin to Alice*



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Springs half Continental Rail Construction (completed under budget in 2004) to acquire both the PIB E-W Continental Rail Ports and Industrial Steel Complex Land Sites on a 99 year renewable Lease Basis to the PIB Steel Consortium Investors through to 4 Phases of 176m tpy of 1st stage steel investments.

v. trade policy;

- a. *The Sen Econ Committee to Work with PIB to identify the PIB Steel Investment model, under a cost of slab steel transfer price model where a national or global steel mill operator will build own & operate their own steel mill, buy shares in the rail and ports (1st Phase investors only) and own the ships necessary to deliver the 1st stage steel to their located 2nd stage rolling mill located near the mass market geo distribution hub!*
 - *This is a world game changer cost and supply chain logistics production model for the future of world steel.*
- b. *Conservative PIB Australian Government Taxable Growth Revenues py applied on this model suggest a revenue stream of US\$23Bn py (per-pandemic prices Q-2 2020 at slab steel transfer price values}. Please note that at current average world steel slab inflated pandemic variable values on this return would currently yield around USD\$44 – 52Bn PIB Total Taxation Growth return to our Governments.*

vi. skills and training; and

- a. *PIB has established detailed programs in this key sector in which Australia would have great difficulty to fulfill within PIB's time frame of 7-8 years, to build construct, to first trains and steel production time frame delivery 2029-30!*
- b. *For Example, Say Nippon Steel Japan (87m tpy steel) commits to their maximum PIB allotment of 2 steel mills. They would advertise in Australia for 400 per mill suitable graduate and trade trainees to go to the Nippon Steel Plants in Japan for say a 2-year period and train with a similar number of 400 high end steel plant operations specialists identified for the PIB plant Nippon Steel Operations executives. They will then work together as a unified team in Japan before coming to the PIB sight mill to start and commission their PIB Steel Plant operations. Another 400 of local employee or contractors will be employed to make up the 1,200 total steel mill team. An eloquent plan!*
- c. *We expect such major steel companies to produce mainly high quality steels in their latest most modern PIB steel plants; only about 10-15 % of world steel is of such high quality usually! If so, the Economic Benefit Steel Returns will be of much higher value, we predict!*

h. the opportunity for reliable, cheap, renewable energy to keep Australia's manufactured exports competitive in a carbon-constrained global economy



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and the role that our manufacturing industry can play in delivering the reliable, cheap, renewable energy that is needed.

- i. *PIB's 2 X 22m tpy steel complex's will each have their own 1,260 MW 24/7/365 day coke oven gas fired power stations which will be benefited by co-gen secondary and "rare" tertiary heats (because of the huge scale efficiencies available) which will deliver around 1,500 MW's each with 900 MW's of continuous base load export competitive power industrial manufacturing exponentials.*
- ii. *This offers the PIB Project and its investors a huge opportunity and development potential in linking to a direct "smart" industrial precinct and city (ie., Bowen QLD Econ Benefit City of 42k to a complete city of 200k within 10 years of first steel) linked economic development which our associate Nomura Research Institute (MOU with PIB Japan's biggest Research Institute) has previously proposed. We expect this base load power to be the most cost competitive base load power in the world.*
- iii. *Our PIB Carbon Desk Department run by our CUBIC Technology partners and its identified program **will capture and use all PIB CO² industrial outputs** from our steel complex and that of all associated industries ie., Cement, Fertilizer and Explosives and Refractory Brick Plants, Titanium Refining and Sulphate of Potash Fertilizer etc., to name a few. The two PIB steel complex sights will also produce turbine fuel gasses for our integrated ship fleets and continental Loco Trains to CO² neutral accreditation compliance.*
- iv. *The total PIB Project is costed to a known competitive steel cost per tonne unlike many domestic and international current concept proponents in this key sector field area. **PIB is a Steelmakers lead project.***

Finally; We at Project Iron Boomerang do respectfully request and invite the Senate JS Economics Manufacturing Committee to engage in further Video Q&A Meetings on PIB's 4 main integrated sections, and separately on the unique financial business models, for more complete understanding, each of which is in itself would be deemed a major subject and/or project of national significance.

Document 1 End – Senate Economic JS Committee Manufacturing.

Yours faithfully,

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Shane Condon - EWLP PIB MD& Founder

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Monday 13th September 2021

Senate Standing Committees on Economics

**Committee Office
Department of the Senate**

RE: Manufacturing in Australia

Dear Committee Senators,

This submission addresses your Terms of Reference in the light of the opportunities presented by Project Iron Boomerang (**PIB**) and the Associated Manufacturing Opportunities arising from PIB under the banner of a new company to be formed called “Unus” (from old Latin, meaning “One” or “Single”).

Attached to this response is **Appendix 1**, explaining the most significant of the downstream manufacturing opportunities facilitated by PIB. It is planned for these opportunities to be marketed under the Unus banner, with Unus purchasing the rights to do so from PIB via a licensing fee.

Your Terms of Reference are repeated below in red, with our comments after each paragraph in black.

The Australian manufacturing industry, with specific regard to:

- a. what manufacturing capacities Australia requires for economic growth, national resilience, rising living standards for all Australians and security in our region;**

Australia’s manufacturing capacity will be determined by market factors, but the best outcomes are driven by the availability of a reliable supply of low cost steel. This is because steel is often a consumable material in manufactured goods and if not, is a component in the machines doing the manufacturing and a component in the buildings where the manufacturing takes place.

Lowering the cost base of manufacturing shifts the equilibrium point in the market to facilitate an increase in activity. Australia can only benefit from an increase in manufacturing provided such is market based and not dependent on subsidies. There are no downsides to increasing manufacturing capacity where such capacity is self sustaining.

Project Iron Boomerang (**PIB**) will provide a reliable source of steel at a price expected to be 25% less than current costs. This is partly because the newer technology used in the steel smelters will produce steel at a cost 15% less than current world’s best practice, and partly because Australian steel producers are about 10% more expensive than world’s best practice.

As PIB will be manufacturing steel in Australia, there is less risk to an interruption to supply. Australia currently produces nearly 5 MTPA of steel and imports a similar amount. A lot of Australia’s imported steel comes from China, which is currently seeking to reduce its trade with Australia. It is possible that China could constrain the Australian economy by stopping

the sale of steel in the same way as it has attempted to impact Australia's economy by stopping the purchase of Australia's coal.

Australia's other trading partners would of course step up if China sought to block steel sales to Australia, but if our other trading partners had to increase their production to match the shortfall in steel supply, this could take time and problems from a lack of steel could arise for an unknown period of time.

b. the role that the Australian manufacturing industry has played, is playing and will play in the future;

The Committee would be aware of the contribution of GDP and employment that manufacturing delivers to the Australian economy. Whilst this is currently significant, it is far less than it once was as a proportion of our economy. The Covid 19 Pandemic has revealed just how exposed Australia is to its external supply chains for many goods that could easily be manufactured here in Australia at competitive prices.

Whilst PIB on its own will generate 75,000 jobs during construction, 35,000 during operation for just Phase 1 of 4 Phases and a boost to taxation revenue at Pre-Covid steel prices of \$23B, the downstream opportunities identified could contribute just as much again and perhaps even more. These opportunities are outlined in the attached **Appendix 1**.

Annual production of 44 MTPA of quality green steel slab is equivalent to around \$25B per annum. With a 3:1 economic benefit ratio on GDP based on steel revenue, this equates to an expected \$100B per annum or a 5.3% increase to Australia's GDP compared to the \$1.9T in 2020.

Appendix 2 contains the transcript from Saul Eslake's (one of Australia's most respected economists) introduction to PIB's submission to the Standing Committee on Trade and Investment Growth that outline the \$23B taxation benefit referenced above.

c. the drivers of growth in manufacturing in Australia and around the world;

The primary driver is the cost of raw materials. Australia is blessed with a wide range or world class deposits of most minerals so raw materials are not a barrier to growth.

The second driver is access to markets of a scale that justify investment in the manufacturing process. Australia's proximity to the Asian Market in this Asian Century is a huge advantage.

PIB combines the abundance of raw materials with a strategy that reduces domestic steel prices by 25% and the transport cost to market by 75%. If the currently viable mineral resources are not enough, the stranded assets along the railway line route that will benefit from viable logistical solutions add even more mine development opportunities. This is particularly the case with the vast Sulphate of Potash resources in Western Australia.

The third driver is the investment environment which is to a large effect an outcome of Government Policy. This is why Senate Committees are established—to determine if Government Policy can be improved in order to drive better Environmental, Societal and Financial outcomes for Australian Citizens.

Australian labour costs are historically higher than those prevailing in competing nations, but the progressive reduction of unionised workplaces that fought hard to retain out of date restrictive work practices over the last 30 years, has restored Australia's ability to compete, in part at least. There is however "momentum" in the belief that Australian labour costs are too high to support manufacturing. This is old thinking that is no longer applicable in Greenfield sites, because Australia's productivity and the ability to improve this even more with training and automation, offsets the effects of those historical high labour costs. It should also be noted that the quality of the Australian made goods makes them preferred to imported goods of a similar price.

One barrier to increased manufacturing capability that can be removed is the cost of steel arising from sending the raw materials for its manufacture overseas, for others to value add and sell back to us. PIB will solve this problem, more than levelling the playing field in Australia's favour. Just as importantly, the momentum created from the demonstration of new large scale manufacturing arising from the downstream processing of PIB by-products will give confidence to smaller manufacturers to grow their operations in both scale and diversity. Innovation will find new ways to exploit the many opportunities created by PIB.

d. the strengths of Australia's existing manufacturing industry and opportunities for its development and expansion;

The potential strength of Australia's existing manufacturing industry was well and truly demonstrated when Australian companies rapidly adapted and stepped up to supply critical products sourced from overseas prior to Covid 19. This ability to adapt is one of Australia's greatest strengths and is exemplified in its manufacturing industry.

The ability to adapt goes hand in hand with our well known ability to innovate—a characteristic recognised world wide as a good reason to employ Australians.

We have the raw materials, a smart and well educated labour force that is trained to think for itself. This is not a well recognised advantage in our workforce, despite being one of the best recognised attributes and strengths of our defence force personnel.

Another strength exhibited by the Australian worker is that they require less supervision than is normally needed in other countries. Training could be improved to achieve even better outcomes, but there is already an effective adherence and understanding of the need to work with quality controls, working to specification, and working within regulatory requirements.

If there are any weaknesses, these would include the steel cost compared to that applying in China. There is also a lack of confidence in labour costs being manageable as a carry over perception from several decades ago when restrictive union practices artificially inflated labour costs which contributed to the downfall in manufacturing at that time. PIB resolves the steel cost problem, and the labour cost issue is now more of a perception than a reality.

e. the sectors in which Australian manufacturers enjoy a natural advantage in energy, access to primary resources and skilled workers over international competitors, and how to capitalise on those advantages;

Australia is blessed with enormous reserves of cheap energy sources including coal, gas, Uranium and Thorium to generate nuclear power. Hydro power is limited, but not yet fully exploited.

There is no doubt that whilst Australia has advantages with Solar compared to other parts of the world due to cleaner air and a substantial portion of the continent being above the Tropic of Capricorn, Solar energy on its own, or even in combination with wind power will not provide sufficiently reliable supply at a competitive cost to stimulate manufacturing capacity. This is however not necessarily a bar to increasing manufacturing capacity. Global warming is a Global problem, so if Australia can do something with a much lower Greenhouse Gas emissions rate than another country, the best outcome for the world is achieved if that activity is undertaken in Australia.

If the manufacturing processes are analysed through an objective lens seeking to identify new technology that further reduces Greenhouse Gas emissions, applying Australia's well known innovation can achieve substantial improvements in Greenhouse Gas reduction.

PIB provides an opportunity in this respect in several ways.

- The advantages start with the logistical advantages that reduce transport based energy to deliver finished goods to markets and hence emissions by 75%.
- Adopting the latest steel making technology results in an immediate reduction of a further 15%.
- Aggregating several steel smelters into a single industrial park provides a concentration of heat that makes Primary, Secondary and Tertiary co-generation possible.
- Looking at "waste streams" as potential "by-products" and how Carbon Dioxide can be captured and re-used with these by-products results in further reductions in Greenhouse gas emissions.

PIB's current research suggests that it may be possible to produce and export steel with Green Credits.

If new heavy industry can be proven to have much less impact than that arising if undertaken elsewhere, and particularly if new techniques can be demonstrated that result in that industry being emissions neutral or close to it, Australia not only has an economic opportunity to exploit, but a social obligation to ensure that those environmental gains are achieved. PIB fits this narrative.

Australia has an abundance of most primary resources for most commodities and the safest, most efficient mining industry in the world to mine these materials. Unfortunately, in many instances, our raw materials are sent overseas, first increasing the logistical cost to the manufacturer and the logistical cost for the final products to be shipped back to us at much higher costs than would apply if we processed the raw materials here in Australia.

Australia's proximity to the Asian market means that there is less energy required to trade with these countries than would apply to Europe for instance. Adding value within Australia

and shipping finished goods results in a much lower cost to market than the current one way full empty return shipping of bulk raw materials that currently prevails with respect to the exploitation of most of Australia's natural resources.

PIB will unlock stranded assets by providing logistical solutions for mineral deposits along the railway line route, boosting the mining industry in northern Australia with the obvious downstream benefits for Australia manufacturing to support that potentially significant expansion.

f. identifying new areas in which the Australian manufacturing industry can establish itself as a global leader;

The key here is to analyse current and proposed processes to ensure that waste streams are minimised. The old adage "one man's waste is another man's treasure" is well exemplified within PIB. What PIB has done is identify how waste streams can be converted into by-products that facilitate the capture and re-use of CO₂. Some examples are inclusion of Carbon into fertiliser and explosive products, entrainment into blast furnace slag to manufacture light weight concrete aggregate, manufacture of cement and so on. Many of these opportunities are explained in a little more detail in **Appendix 1**. The energy requirement for these downstream treatments can in part be provided by co-generation opportunities arising from aggregating 5 steel smelters into an industrial park. Waste gases can also provide energy and PIB will provide a logistical solution to the vast natural gas resources around Ti Tree in the Northern Territory.

g. the role that government can play in assisting our domestic manufacturing industry, with specific regard to:

i. research and development;

Government can encourage this and has done in the past, but in some instances, a "Claw back" of research grants has caused financial distress. PIB is one such example where the Government has sought to claw back funds granted where a claw back was not expected. This sends a bad message.

Innovation in big and small entities is important if we want to move forward in any aspect of our society. There appears to be double standards applied to how some research grants are governed with grants to smaller organisations being "clawed back" to a greater extent than the grants to larger organisations.

PIB's research has been successful, but the Project has not yet started. If a research grant is to be clawed back, it should be done as a portion of profits in the same way as University Students repay their HECS debts. This should apply to all research funding, regardless of the scale of the entity.

ii. attracting investment;

The Australian Government has a major role to play in this regard. There is a problem in attracting investment for mining and heavy industry due to the perceptions created arising from the delays in Adani receiving approvals.

Foreign investors are hesitant about investing in larger projects that attract attention from the Greens. Australia's long approvals processes straddle election cycles, meaning that

one Government can support a project while the next doesn't. This hesitancy can only be overcome by Government having some "skin in the game". A commitment in both cash and recognition of major Projects as being of State and National Significance will solve this problem.

In PIB's case, the total investment required is \$US70B. This will be provided by ten investors paying \$US7B for each steel smelter, and a portion of the steel park, ports and railway line. The interest generated to date suggests that 25 such places could be sold at a rate that will allow continuous construction of these 25 smelters.

Tata Steel Consulting had advised that building 10 mills in a production line process would reduce the cost per mill by \$US1B. Building 25 such mills in a continuous process will further reduce construction costs beyond the \$US1B saving per steel mill advised by Tata Steel Consulting. This reduction in capital for a steel smelter that will produce steel at a price 15% below current world's best practice is a major attraction for investment.

The world's biggest survey system provider, Quantm Trimble has designed the railway line route taking into account environmental, cultural, geographic and geological considerations. The route avoids negative impacts on regional communities whilst at the same time providing logistical and communications support to them. There is however a need to confirm foundation conditions before the design specifications can be finalised.

To consider the scale of the challenge in context, there are only 8 north south "highways" along the whole 3,370 kms route that cross the railway line corridor. There is no access along the route. A 4wd access needs to be constructed just to carry out the foundation review.

The PIB's proposal is for the Government to own the corridor, steel parks and dock lock ports land and lease that land to PIB on a 99-year renewable lease basis.

The surveying and on ground foundation investigations and the approvals required for the Project will cost \$US240M. PIB is seeking either 10-year Government Bonds or a Grant from the Australian Government to cover this cost. The Government will own the land as security. This seed capital constitutes just 0.35% of the total capital for a return of \$23B per annum in tax revenue once just 10 steel smelters are operational. Just as importantly, provision of this initial seed capital will provide the "skin in the game" required for the investors to commit.

iii. supply chain support;

The fundamental advantages provided by PIB are significant reductions in supply chain costs. Steel in Australia will be 25% cheaper than at present. This is because of the newer technology in the steel smelters themselves.

The transport component of the cost to sell steel into the Asian market will be 75% less than currently experienced. This is because the current system of one way full empty return of bulk shipping is replaced by backhauling.

A fleet of PIB designed 55 Roll On Roll Off (**RORO**) Dual-Purpose Boomerang Class Ships (**BCS**) will be built to carry 1st Stage steel to foreign markets, returning with full containers carrying imported goods to Australia. The backhaul of containers is expected to reduce container shipping costs to Australia from a long-term average of \$1,250 per box to \$750

and still clear a profit of around 30%. Note: Current (Dec 2020) escalated dry box rates are at around \$2,200 to 2,400 ea.

PIB's 55 purpose designed ships are expected to replace 200 world fleet bulk carriers and container ships currently hauling iron ore and coking coal to other countries for them to process. This is because producing 44 MTPA of steel offshore would otherwise require 66 MTPA of Iron Ore and 40 MTPA of Coking Coal, replacing 106 MTPA of raw materials with just 44 MTPA of 1st Stage Steel product.

The world's biggest bulk ore ships and heavy haul trains in QLD and WA currently return empty on a usual 7-9 thousand km one way journey primarily to China, South Korea & Japan.

Unlike the bulk carriers, the new dual purpose BCS ships can backload a full load of containers to Australia at ultra competitive container rates. The quantified economic competitive benefit to the Australian economy alone on container freights alone is estimated to be \$3-4Bn annually.

iv. government procurement;

Governmental purchase assessments need to take tax revenue into account when selecting between foreign and domestic suppliers. The cost comparison should not be based just on the tendered price. The assessment should be extended to include other offsets against prices from Australia companies.

There is an opportunity for the Government to use strategic purchasers to assist in boosting domestic production. With PIB for instance Whyalla has one of only 4 or 5 rolling mills in the world that can produce the 68 kgs case hardened rail needed for PIB and is well located strategically to support defence industry contracts.

There are 520,000 tonnes of railway line in Phase 1 of PIB. To put this in context, there are only 52,800 tonnes of structural steel in the Sydney Harbour Bridge and just 12,000 tonnes in Brisbane's Story Bridge.

OneSteel at Whyalla had originally advised that due to timing constraints combined with their productive capacity, that they could supply just one third of the railway line if an order was placed after approvals were received. If an order was placed prior to approvals being received, it may be possible with the extra lead time for Whyalla to provide all of the railway line. If the Australian Government were to prepurchase the railway line for PIB, this would be a significant boost to manufacturing in South Australia.

There are 7 million concrete railway sleepers in Phase 1. Each one weighs about a tonne and is about 20% reinforcing steel, so the weight of steel in the sleepers will be about 1.4 MT. All of this steel could potentially be supplied by Bluescope if an order for this steel was also placed prior to approvals. The Illawarra region would benefit significantly from a pre-purchase of the steel for the sleepers, as would the successful bidder for the sleeper manufacturer who could also start building early.

PIB has been advised that a pre-purchase order for railway line was done for the Inland Rail Project and suggests something similar could be done for PIB. This would further improve investor perceptions by demonstrating even more "skin in the game".

v. trade policy;

Trade should be focused on markets where trade is efficient and balanced. This is because the transport of goods can be backhauled provided the same ships can be used for each type of goods traded.

This is again an advantage arising from pursuing PIB. Bulk carriers can't handle containers and vice versa. PIB's Boomerang Class Ships can carry steel slabs and containers with Aussie products to foreign markets and backhaul containers to Australia. Obviously, the shorter the distance, the lower the transport cost and the more efficient the trade. This means that trade from Australia should be focused primarily on the Indo Pacific region and less on the long hauls like the east coast of the USA and South America and Europe.

Trade policy should have a target to replace the transport of bulk goods with that of finished products, manufactured in Australia, from Australia's raw materials. This is not only because of the economic benefits for Australia, but also for more efficient transport reasons.

vi. skills and training; and

Australia already has a highly skilled workforce, but can do even better. Paul Keating had introduced a tax offset for training that has since been abolished. If that policy was combined with a refund of the cash benefit when the training benefits have increased profits, it could become something akin to the HECS system.

PIB will be undertaking one of the biggest training programmes ever conceived in Australia's history. Whilst some experienced workers could be drawn from Whyalla and Port Kembla, there will be a need to send prospective steel workers to Japan and Korea to train ahead of the steel smelters being commissioned. There will also be a need to bring experienced foreign steel workers to Australia to make up the numbers. Something akin to a HECS debt for training these people could provide a win: win scenario, where the tax breaks or grants up front are repaid once the resultant benefits are received.

(h) the opportunity for reliable, cheap, renewable energy to keep Australia's manufactured exports competitive in a carbon-constrained global economy and the role that our manufacturing industry can play in delivering the reliable, cheap, renewable energy that is needed.

There are ways to work within a Carbon-constrained economy. The constraint is not the generation of Carbon Dioxide, it is the ability to capture and reuse it in an economic manner or otherwise that will limit any industry. This is less of a constraint within Australia than our competitor nations because of our enhanced ability to adapt and innovate to come up with technical solutions, as opposed to taxing certain industries out of existence.

PIB's locomotives are a good example. All of the Pilbara's current locomotives are GE type diesel electric hauling full to coast with an empty return. These have a diesel engine powering and electrical generator that in turn powers electrical motors in the wheels.

PIB's locos will initially be gas turbines driving the same electric generators. The thermal efficiency of the turbine is double that of the diesel engine, so the greenhouse gases generated are halved. Whilst the gas is double the price, only half is used so this does not affect the operating cost of the train.

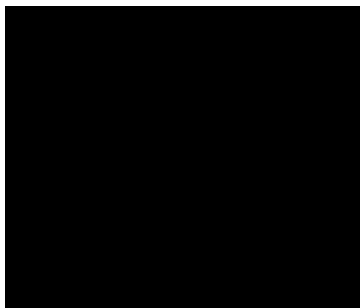
The GE electric drives can be easily modified to work like Toyota Hybrids—just by adding batteries. Whilst the maximum grade in PIB's design is 1:300, even this requires significant braking on the downhill run with a 4 kms long train and a gross weight of 40,000 tonnes. Using the wheel motors for regenerative braking on the downhill run charges the batteries to provide a reduction of an estimated 20% of the energy required for the uphill work. This means that greenhouse gases are down to 40% of current Pilbara standards.

Once PIB has these locos operating as standard, the rest of the Pilbara will progressively upgrade their fleets to match.

Adopting a backhaul arrangement reduces the greenhouse gas generation per unit hauled by a further 40%, making the total amount generated just 24% of the current Pilbara standard.

If the rest of the Pilbara adopts PIB's loco design, their reduction in greenhouse gases will go close to offsetting the remaining 24% of PIB's greenhouse gas emissions.

Obviously, as new drive systems become viable that provide an even better outcome, they will also be adopted by PIB.



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A Boost in Manufacturing in order to Reindustrialise Australia

There are eight distinct manners within which Project Iron Boomerang (PIB) will contribute to the re-industrialisation of Australia by providing a boost in manufacturing. These are:

- Construction
- Availability of cheaper steel
- Availability of cheaper electricity
- Downstream opportunities from the steel manufacture other than Agriculture
- Agriculture
- Communications
- Mining; and
- Defence Industries

PIB's construction will create and sustain 75,000 total jobs whilst ever steel mills are being built. The worldwide enthusiasm for the Project suggests this could happen with operations in the first mills commencing after 7-8 years to first steel production and trains running.

Once operations reach full capacity in Phase 1 (10 mills), there will be 35,000 permanent operations jobs created. Each additional PIB phase expansion will result in an additional 25-30,000 additional permanent jobs.

1. Construction

PIB is a \$US70B project that involves the construction of a 3,370 kms, transcontinental heavy haul railway, hauling iron ore to the east and coking coal and limestone to the west. Phase 1 of the project will use these raw materials to manufacture first stage steel slab in 10 steel smelters, 5 each side of the country. The steel making capacity of each smelter will be 4.4 MTPA, or 44 MTPA in total. The resource base of both Iron Ore and Coking Coal in Australia appears sufficient to build a further 3 Phases of the same scale.

The construction for Phase 1 includes:

Item	Measure	Quantity	Cost Each (\$USM)	Cost (\$USB)
Railway	kms	3,370	4,748	16
Wagons	Number	2,500	0.1	0.25
Locomotives	Number	50	9	0.45
Steel Parks	Number	2	2,000	4
Steel Smelters	Number	10	3,500	35
Dock Lock Ports	Number	2	2,000	4
Boomerang Class Ships	Number	55	100	5.5
Contingency				4.8
Total				70

The railway will be built with 68 kgs per metre case hardened rail. There are only four rolling mills in the world that make this type of railway line, one of which is Whyalla.

There are 520,000 tonnes of railway line in Phase 1 of PIB. To put this in context, there are only 52,800 tonnes of structural steel in the Sydney Harbour Bridge and just 12,000 tonnes in Brisbane's Story Bridge.

OneSteel had originally advised that due to timing constraints within their productive capacity, that they could supply just one third of the railway line if an order was placed after approvals were received. If an order was placed prior to approvals being received, it may be possible with the extra lead time for Whyalla to provide all of the railway line.

There are 7 million concrete railway sleepers in Phase 1. Each one weighs about a tonne and is about 20% reinforcing steel, so the weight of steel in the sleepers will be about 1.4 MT. All of this steel could potentially be supplied by Bluescope if an order for this steel was also placed prior to approvals, but the likelihood is that a substantial part of this order, for Phase 1 only, will be provided by one of the PIB investors from their existing mills.

PIB Construction Steels infrastructures; rail bridges, Communications Towers every 20km's 2-steel plant complex's, ports and towns will be considerable estimated at + 300,000 t's.

It should be noted that once Phase 3 of PIB commences, that the railway line will need to be duplicated, and these massive steel orders repeated. The duplication of the railway line will however be at a much slower build rate, with the likelihood that all of the steel and cement for the second line will be manufactured in Australia from a more competitive PIB 1st stage steel source.

The railway line and its associated light vehicle access road will require thousands of concrete pipes, culverts and bridging beams, providing opportunities for precast concrete manufacturers in all States.

A lot of the cement for Phase 1 will come from the countries of PIB's investing partners, but as PIB will create a large capacity export cement business, subsequent PIB Phases will be built with Australian cement.

The Steel Parks and Steel Smelters will require an enormous amount of structural and reinforcing steel. Whilst it is expected that our Korean and Japanese investing partners will provide most of this steel (made from Australian IO & Coking Coal) as part of the incentive to participate in PIB's Phase 1, almost all of Phase 2 and thereafter would be built with Australian steel.

The first of the 55 Boomerang Class Ships (BCS) will be built in Korea and Japan as further incentives for our investing partners to participate in PIB's Phase 1. It was originally planned to build most of these ships in China for 70% of the price after building the prototypes in Korea and Japan, but a

potential Korean investor has advised that if PIB can produce 5 metre wide slabs, (which it can), that it can be cost competitive to build the bulk of the fleet, not just in Korea and Japan, but also in Australia after Phase-1. PIB believes that 25% of these ships could be built in Whyalla and or Perth.

The construction of PIB Phase 1 will require 75,000 people and these people will need to be housed and fed in remote areas. PIB plans to utilise Saudi Smart City technology NEOM to build this accommodation in Northern Australia. Building materials suppliers will be able to expand the utilisation of existing productive capacity or even expand productive capacity to meet the demand.

PIB's locomotives and ships will be transition fuelled predominantly by LNG sourced from Central Australia and the PIB Steel Complex's, at least until such time as alternative energy systems for the locos and ships become viable.

PIB will use NT LNG instead of diesel, 40-50% more CO² efficient.

The turbine engines will be connected to a standard General Electric (GE) type electric drive. This will be supplemented with battery wagons that will enable a Toyota style hybrid drive using regenerative braking to charge the batteries when braking on the downhill runs and then using the batteries to supplement the power required to go up the hills. This is expected to reduce fuel consumption and greenhouse gas generation by a further 20%, reducing the total greenhouse gas generation that would apply to just 40% of that of a normal diesel powered loco.

When the backhaul arrangement is factored in, the greenhouse gases generated from an empty return haul are no longer required. The fuel consumption and greenhouse gas generation will be only about 25% of what currently occurs per tonne of material transported using the conventional diesel drive systems on the Pilbara railway lines with their one way empty hauls. This significantly reduces the haulage cost as well as improving the environmental outcomes.

Coke oven gases may be used as a top up as they can be burnt just as effectively in these turbines, but the Coke Oven gases appear at this time to offer greater value as feed stock for fertiliser and explosive manufacture. The development of a large LNG industry around Ti Tree in the Northern Territory will provide many direct and indirect jobs during construction. For comparison purposes, look at the boost to employment that occurred at Gladstone to service the LNG export industry. It should be noted that PIB can draw on the training and experience from that investment in a way that will result in safer and lower cost outcomes at Ti Tree. The PIB CO² viable Capture & Use fuel transition program will be applied to the Ti Tree NT LNG mini Plant. PIB's Investors will enjoy it's own 10 year renewable contract fuel security, somewhat unique to PIB and in Australia.

It seems likely that the transport of LNG to the Steel Parks and Ports at each end of the railway line for electrical power generation and fuel for the

Boomerang Class Ships will be of such a scale that the “bleed off” could provide most of the fuel required by the locos in the same way as the LNG bulk carriers are in the main powered by the bleed off that occurs during ocean transport. This adds even more efficiency to the railway system, and in return provides a market for the Ti Tree based resource that makes them economically viable to develop.

GE has formerly partly manufactured and assembled its locomotives in Melbourne, and it is believed that the partial manufacture of PIB’s locomotives could be undertaken in Melbourne.

Australia has formerly built rail wagons in both Newcastle and Melbourne in large quantities. China rail had been selected to build the wagons using steel made from Australian Iron Ore and Coking Coal, but as China is currently seeking to reduce its trade with Australia, the initial supply of wagons could come from Korea and Japan until PIB starts producing 5 metre wide slab in Australia, which will help make Australian manufacture of wagons competitive.

Large projects like PIB create many opportunities for job growth and manufacturing during their construction phase. PIB will be no different and the expected opportunities listed above are just a small subset of what can be achieved.

2 Availability of Cheaper Steel

Australia used to produce and export low cost, quality steel, but the intransigence of the unions at the Newcastle steel works and the demands to retain expensive demarcation and seniority rules maintained the cost of Australia’s steel when the rest of the world was reducing its costs through improvements in manufacturing efficiencies. This resulted in the Newcastle steel works becoming progressively less and less viable and ultimately closing in 1999.

Australia’s steel was initially cheaper than the rest of the world because of the advantages of high quality local resources that BHP transported by backhauling raw materials around Australia.

The Kwinana steel works had previously closed in 1982. Australia now has just the Illawarra steelworks (3 MTPA) owned by BlueScope, and the Whyalla Steelworks (1.2 MTPA) owned by the Liberty Group (formerly OneSteel) still operating.

Today Australia, imports about as much steel as it manufactures. Its manufacturing facilities are old and need refurbishment to remain competitive or the closures of the past will be repeated.

The production cost of steel in Australia is about 10% above the world’s average manufacturing cost. In contrast, PIB will produce steel at about 15% below the world’s average cost, making steel in Australia 25% cheaper than the current price. This lower cost steel will reinvigorate manufacturing in the

equipment described above for PIB as well as white goods and other goods dependent on a supply of cheap steel.

3 Availability of Cheaper Electricity

It is likely that the by-product gases from the Coke Ovens in the Western Australian Steel Park will be used to supply electricity to the iron ore mines in the vicinity.

The Coke Oven gases can be burnt in turbines with steam tails that have double the thermal efficiency and hence produce half of the greenhouse gases per unit of electricity.

Gridding the mines mitigates the peaks and troughs within the areas supplied.

There does not appear to be any viable alternative at present that can effectively halve the greenhouse gases generated in the Pilbara Region. PIB will use this as one of its CO₂ offsetting strategies, without increasing the cost of the electricity to existing suppliers, whilst at the same time providing electricity that will support new manufacturing/processing within the Steel Park at affordable costs.

There will be some surplus gases available which could be used to generate additional electric power to support growth industries in the area, but it is more likely that the Hydrogen and Carbon Monoxide will be separated, the Hydrogen mainly used as a basis for explosives and fertiliser manufacture and the Carbon Monoxide used as a base load fuel.

There will be LNG being hauled into and through the Mt Newman Steel Park as PIB's locos and Boomerang Class ships will use this fuel. If there is an increase in demand for electricity from the Steel Park, LNG can be used to very efficiently meet any shortfall.

In the east, the situation is a little bit different due to the access to the National Energy Market (NEM) Grid. The connection to the NEM means that there is little purpose in running base load power as this is provided much cheaper from the coal fired power stations in the grid. The NEM is also connected to many Solar and Wind Farms, which at times produce so much electricity that costs fall significantly. When the sun is not shining and the wind is not blowing, the shortage of electricity in the grid results in much higher prices.

If the Carbon Monoxide was husbanded to fuel gas turbines to meet peak supply, this will result in sales of electricity at higher prices, whilst at the same time mitigating those prices somewhat for other grid users. This principle would be applied to electricity consumption within the Steel Park as well. If the NEM price exceeds the local production cost from the Coke Oven Gases, the gas turbines will be fired up. In this way, the Steel Park users are always running on the cheapest possible electricity, whilst also selling electricity produced at the highest possible price.

The overall cheaper electricity cost arising provides an opportunity for new manufacturing investment where the production cost is strongly linked to electricity cost.

Another way of reducing electricity cost is through co-generation. PIB's scale will facilitate, not just primary and secondary heat recovery, but tertiary as well. A good example of primary cogeneration would be the steam tail behind the gas turbines. The turbine exhaust gases are hot enough to boil water to steam, with the steam driving a steam turbine to produce additional electricity. Secondary co-generation will have enough heat, to run a thermal desal plant, which is much cheaper to run than a reverse osmosis plant. Tertiary cogeneration can be preheating materials prior to feed into other processes or low temperature drying of wet final products.

Running the electricity generation and energy management in this manner also has an effect in reducing greenhouse gas generation as the use of Solar and Wind power is maximised.

Maximising PIB's consumption of electricity in this manner allows it to reduce the greenhouse gases generated for electricity consumption within the Steel Park. This will also be used as an offset against greenhouse gases produced.

4 Downstream opportunities from the steel manufacture other than Agriculture

4.1 Fertiliser, AdBlue & Explosives

It is not just the lower cost steel that will contribute to Australia's re-industrialisation.

The scale of PIB's Steel Parks provides a unique opportunity to capture and use not just waste heat, but other wastes and by-products as well as using recognised value streams for higher value purposes.

The Coke Ovens produce "Town Gas", a 50:50 mix by volume of Hydrogen and Carbon Monoxide. This gas was once reticulated around cities in Australia for domestic cooking and heating but was ultimately replaced by Natural Gas because of the toxicity of the Carbon Monoxide. It is captured and burnt to produce energy at most steel smelters around the world and PIB will certainly utilise a proportion of this gas for this purpose.

Australian Coking Coals are typically 30% volatiles, and the volatiles are the gases produced in the Coke Ovens. As Phase 1 will consume 44 MTPA of Coking Coal, there will be 13.2 MTPA of town gas produced. Whilst the volumes are about 50:50, Hydrogen has a molecular weight of 2, but Carbon Monoxide (CO) has a molecular weight of 28, so there is 14 times as much CO produced as Hydrogen on a weight basis. This means that there will be 880,000 tonnes of Hydrogen produced by PIB each year.

Each PIB Steel Pak will have the world's biggest Oxygen Plant, which Air Liquide have advised will be half the capital and half the operating cost per Oxygen unit compared to existing operations. Instead of throwing away what others consider "waste" Nitrogen, some of this will be combined with the Hydrogen from the Coke Ovens to manufacture Ammonia (NH_3). Adding Nitric Acid (HNO_3) made up of more Hydrogen, Nitrogen and Oxygen makes Ammonium Nitrate (NH_4NO_3)—the base for many fertilisers and explosives. From 2002 to 2017, the average annual sales of fertilizer in Australia were 5.4 million tonnes. This provides around 1,000,000 tonnes of nitrogen, 400,000 tonnes of phosphorus and 200,000 tonnes of potassium. About half of this is manufactured in Australia, including superphosphate, which is manufactured from imported phosphate rock.

PIB has been advised that if the use of fertiliser was doubled in Australia, that the current average yield as a proportion of the potential yield could increase by 50%.

There are 4 Hydrogen atoms in Ammonium Nitrate (AN), which has a molecular weight of 80. This means that if all of the 880,000 tonnes of Hydrogen were used to make AN, that the tonnage produced would be 20 times this amount or 17.6 MTPA. Australia consumes less than 10% of this amount of AN per annum and 95% of that is generally used in explosives for the mining and quarrying industries.

The USA on the other hand has a 50:50 split between explosives and fertilisers. This suggests that Australia's agricultural industry could consume 10 times as much AN based fertiliser as it does at present, which would effectively double Australia's AN consumption. There are of course other Ammonia based products that can be produced instead of AN, each with its own specialty market.

The proportions of these by product gases directed to fertiliser, or explosive manufacture, or energy production will depend on the financial netback for each. With its substantial scale, PIB could flood certain markets, such as that for AN, meaning that producing more of a particular commodity would reduce the sales price if production quantities were increased. This will be managed by determining the best overall result from using the different materials for different applications.

Adding the Carbon Monoxide to the Ammonium Nitrate makes Urea ($\text{CO}(\text{NH}_2)_2$), the best means for sequestering Carbon in the soil to increase plant yields. Urea is also known as "AdBlue", an additive that improves diesel engine efficiency and reduces diesel emissions.

The fertilisers and explosives manufacture will occur within the Steel Parks or adjacent to them, in order to minimise transport costs of raw materials and ensure low-cost production for high volume manufacture.

It is almost certain however that Australia will become a major exporter of both explosives and fertilisers, compared to its current reliance on imports. We will keep enough here, in combination with the soil Carbon initiatives to help

increase Australia's agricultural yield, significantly boosting Australia's agricultural exports as well as its manufactured goods.

This also means that these commodities which suffer from variable pricing due to the exposure to export markets, will have a much more stable price for domestic consumption than what has occurred in the past. Stable pricing means better planning. Better planning means better outcomes.

There will need to be a significant investment in manufacturing capacity to achieve this outcome, but PIB is already receiving enquiries regarding investment in such facilities. It may be necessary to accept foreign investment in Phase 1 of PIB for these facilities, but once the ability to produce is demonstrated, this type of investment would be very attractive to Australia's \$3T Superannuation Funds, boosting the proportion of manufacturing in Australia that will be Australian owned.

PIB's railway line crosses the massive Sulphate of Potash (K_2SO_4) resources at Lake Disappointment and Lake Mackay in Western Australia, providing economically viable logistics solutions for the development of these resources. These resources would be processed to value add in Western Australia, for support of the Australian agricultural industry and export. The PIB railway also passes close to many Phosphate (P_2O_5) resources in Queensland. The first step in producing Phosphate based fertilisers is to mix Phosphate Rock with Sulphuric Acid. The Southern Hemisphere's biggest acid plant is based at Mt Isa in Queensland. Whilst the PIB main line will not be handling this material, PIB will help provide logistics support to facilitate a large Phosphate fertiliser manufacturing industry in Mt Isa and branch lines could be built if economically viable.

The commissioning of a major Phosphate based fertiliser plant in MT Isa will not just create jobs directly in MT Isa. The increased activity of the acid plant will help reduce processing costs, which could mean lower grade ore can be mined. This will extend the life of the Mt Isa mines.

4.2 Cement & Light Weight Concrete Aggregate

The slag from the steel works will be used to make both cement and lightweight concrete aggregate. The light weight aggregate is made by creating Carbon Dioxide bubbles in the slag, another way to sequester Carbon Dioxide, but one that adds value to the product, instead of costing money for no offsetting gain.

Light weight concrete aggregate is of particular interest to the building industry. If an aggregate is used that reduces the weight of a building by 10%, 10% more floors can be added for the same foundation and land purchase cost, significantly increasing profits that can be earned. There is a lot of Carbon Dioxide that can potentially be sequestered into light weight concrete aggregate.

Our research as it stands suggests that it may be possible using the many sequestration ideas possible regarding Carbon capture and reuse, because of

the scale of PIB, to export steel with Green credits. This could be the case if the CO₂ collected by the plants in the increased agricultural production created by the fertilisers produced is counted in the assessment.

4.3 Refractory Manufacture

The scale of the operation justifies a very large refractory business, whose export earnings are projected to match the wine industry. PIB has been approached by a refractory manufacturer with the proposal to build a single large plant in Australia to support PIB and export refractory bricks to the rest of the world.

4.4 High Purity Metal Manufacture

On the East coast at least, it is likely that water required will be sourced from the ocean and run through a desal plant. Ocean water is 3.7% salt. Desal plants produce 50% pure water and 50% brine. The brine is therefore 7.4% salt. The metals in the salt in decreasing order are Sodium, Calcium, Magnesium and Potassium.

If Carbon Dioxide is bubbled through the brine, carbonates of these metals are precipitated at different temperatures and pressures. It is possible to then process the carbonates to produce very high purity metals that sell at premium prices. This is also another form of Carbon capture and reuse. The sale of the metals subsidises the desal operating cost.

5 Agriculture

PIB will help increase agricultural production in two ways. The first is by the supply of low cost fertiliser. The second is the reduced transport cost to export market for containerised goods.

With respect to fertiliser, the Australian farmer on average manages his farm to minimise financial risk instead of maximising financial return. This has resulted in average farm yields being <50% of what would be possible if the farm was managed to maximise return.

Australia currently exports about \$66B in agricultural products. If just half of the yield uptake possible was secured, Australia's agricultural exports would reach \$100B.

There are other plans afoot to provide insurance schemes in the form of proposals by Aussie Farmer's Mutual, to help change the philosophy of the Australian farmer to instead seek the highest possible returns.

In addition to fertilisers increasing farm yields, the fleet of PIB designed, 55 Roll On Roll Off (RORO) Dual-Purpose, Boomerang Class Ships (BCS) built to carry 1st Stage steel to foreign markets, can also carry containers. Their capability on the outward run is for up to 2,000 containers, either empty

returns or carrying packaged as opposed to bulk agricultural goods and returning with up to 5,000 containers carrying imported goods to Australia. The backhaul of containers is expected to reduce container shipping costs to Australia from a long-term average of \$1,250 per box to \$750 and still clear a profit of around 30%. Note: Current escalated dry box rates are many times this amount due to Covid impacts, but the long term costs referenced above are expected to be restored.

The access to low cost containerized goods provides an opportunity to the Australian Agricultural Industry to value add to its products by processing and packaging here in Australia. This on its own is a sufficient justification for PIB. The advantages arising by offering first rights to the increased trade to PIB investors is substantial, because it facilitates the competitiveness of their countries' products for sale in Australia as well as the reverse for the sale of Australia's products in their countries.

6 Communications

PIB already holds Communications Licence 312. PIB has been advised that the corridor can be used for a fibre optic cable linking stations that will interact with satellites that will in turn provide high speed broadband across all of Northern Australia. There will be a boost to manufacturing to provide the hardware for these services as well as the ability for those in remote regions to access more mainstream products, that can be delivered via PIB, that will also boost manufacturing of the consumer goods purchased on line.

7 Mining

There are many "stranded assets", that is, mining projects that are currently without viable logistical solutions along PIB's route or sufficiently close to it. These include the Lake Mackay and Lake Disappointment Sulphate of Potash resources mentioned in the section on Fertilisers above, as well as the eastern Pilbara Iron Ore.

The Ti Tee Natural Gas resources that will be used to fuel the trains and Boomerang Class ships would also fall into this category. No doubt there are many more.

PIB will provide the viable logistical solutions required. Spur lines can be built for bulk haulage requirements. Parcel Freight/container transport will provide logistical solutions for higher value products.

Mining has a significant multiplier effect with respect to services and the manufacturing created in providing those services.

8 Defence Industries

PIB's rail will facilitate rapid deployment (45 hours one side of the country to the other) of land based combat assets, support equipment and ammunition across the top of Australia—the place where such need is most likely.

The railway line crosses the Ghan, linking it to the Indian Pacific and hence to Perth, Sydney, Adelaide and Melbourne, all with standard gauge line.

The Roll On Roll Off Boomerang Class Ships (BCS) could be configured to transport strategic assets around Australia. It is expected that Australia will have two of the ten mill places, and this will result in 11 Australian flagged BCS ships. These could have seaman trained as merchant marines for support services to the ADF. The BCS could easily be equipped to carry several 300 tonne landing craft that could be deployed from the ramp.

Steel is the basis of any defence industry and PIB will result in domestically produced steel, 25% below the imported steel cost and not subject to logistical threats.

Opening up the Ti Tree gas field will contribute towards Australia's energy security. It is likely that there are strategic minerals critical to Australia's independence that will be "unlocked" by PIB.

PIB proposes to build 25% of the BCS ships in Whyalla, boosting the defence force industries capabilities as well as providing ship building work for those industries for commercial assets in between building naval ships. The boost to Australia's GDP is expected to be 5.3% for PIB projects alone for each of the 4 Phases of the Project. Such a boost to GDP, with the same proportion spent on defence would ultimately increase defence force spending by 20%.

PIB will result in Australia having a broader spread of industries and a greater volume within those industries. This will reduce the reliance on imported goods that became so apparent at the start of the Covid 19 pandemic. Perhaps the most important defence aspect of PIB is however the increased trade that will arise with close neighbours and the potential by inviting China to participate, to resolve the short term diplomatic issues that have arisen between Australia and China. China had expressed a lot of interest in participating in PIB prior to Covid. PIB could be a catalyst to restoring the relationship with them.

Moving Forward

PIB has many investors eager to contribute. The model is that each one will buy a steel mill place and a share of the supporting infrastructure for \$US7B. The only hesitancy holding back these investors is the international perception arising from projects like Adani and New Acland.

The Investors are asking to see Government "skin in the game". PIB is not eligible for NAIF funding because it doesn't have the approvals in place. If the Australian Government was to provide a grant to cover the cost of the approvals, estimated to be \$US240M, the Government could own the railway corridor, steel park land, and dock lock port areas as security, making the land available to PIB on a 99 year renewable lease basis. There are more

than enough investors willing to commit if this were to occur—enough in fact, to allow PIB’s Phase 1 of 10 mills to seamlessly extend into Phase 2. In his introduction to the Joint Standing Committee on Trade and Investment Growth, Saul Eslake stated that:

Taxation “growth” revenue to Australian Governments is expected to increase by an estimated \$23B annually when full production capacity is reached within about 8-9 years.

PIB believes that there is no other project on the drawing books in Australia that could deliver this type of outcome.

We look forward to your expected further dialogue on this important national manufacturing future interest matter.

Yours Faithfully
The PIB Team

