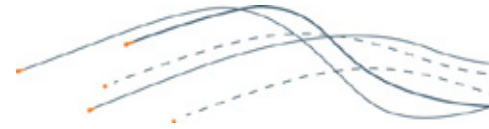


Central Eyre Iron Project Environmental Impact Statement



CHAPTER 2 PROJECT JUSTIFICATION



COPYRIGHT

Copyright © Iron Road Limited, 2015

All rights reserved

This document and any related documentation is protected by copyright owned by Iron Road Limited. The content of this document and any related documentation may only be copied and distributed for the purposes of section 46B of the *Development Act, 1993 (SA)* and otherwise with the prior written consent of Iron Road Limited.

DISCLAIMER

Iron Road Limited has taken all reasonable steps to review the information contained in this document and to ensure its accuracy as at the date of submission. Note that:

- (a) in writing this document, Iron Road Limited has relied on information provided by specialist consultants, government agencies, and other third parties. Iron Road Limited has reviewed all information to the best of its ability but does not take responsibility for the accuracy or completeness; and
- (b) this document has been prepared for information purposes only and, to the full extent permitted by law, Iron Road Limited, in respect of all persons other than the relevant government departments, makes no representation and gives no warranty or undertaking, express or implied, in respect to the information contained herein, and does not accept responsibility and is not liable for any loss or liability whatsoever arising as a result of any person acting or refraining from acting on any information contained within it.

2 Project Justification..... 2-1

2.1	Project Objectives.....	2-1
2.2	Market Demand and Supply for Iron Concentrate.....	2-1
2.2.1	Current and Predicted Iron Ore Demand.....	2-2
2.2.2	Magnetite vs Hematite.....	2-3
2.3	Iron Road’s Competitive Advantage.....	2-3
2.4	Consequences of Not Proceeding.....	2-5
2.4.1	Specific Benefits Forgone.....	2-6
2.4.2	Strategic Opportunity Costs.....	2-7

List of Figures

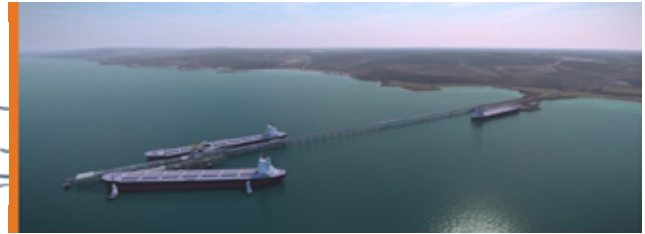
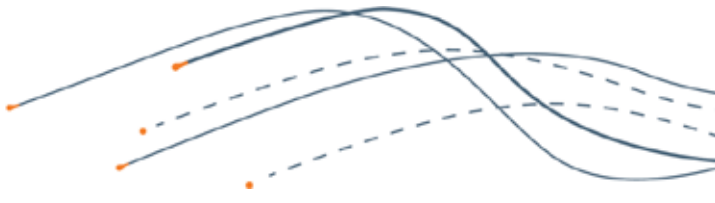
Figure 2-1	Projected Iron Ore Demand.....	2-2
Figure 2-2	Price Adjusted Cost of China’s Iron Ore Supply (62% Iron Reference Basis).....	2-4
Figure 2-3	High Grade Concentrate Cash Costs.....	2-4
Figure 2-4	CEIP Competitive Advantage.....	2-5

List of Tables

Table 2-1	Potential Benefits of CEIP.....	2-6
-----------	---------------------------------	-----



This page has been left blank intentionally.



2 Project Justification

This chapter provides the justification for developing the CEIP Infrastructure. It discusses the demand and supply for magnetite concentrate and the competitive advantage of the CEIP as a whole. The consequences of not proceeding with the project (the 'do nothing' option) are outlined.

The CEIP Infrastructure is required to support the proposed mining operation by providing power, water and suitable transport of the iron concentrate, via a deep sea port capable of accommodating Capesize vessels. Existing infrastructure assets available on the Eyre Peninsula are not capable of supporting the CEIP mine in either a timely, efficient or economic manner. Other proposed infrastructure options currently being considered by third parties cannot be relied on to be developed and available for Iron Road's use within the Company's project timelines.

A detailed description of the CEIP Infrastructure is provided in Chapter 4 and the rationale for developing the proposed CEIP Infrastructure as opposed to using either existing assets or other infrastructure planned by third parties is discussed in Chapter 3.

2.1 Project Objectives

Iron Road's vision is to become a trusted and reliable supplier of premium magnetite concentrates to the Asian marketplace. The proposed CEIP Mine is Iron Road's flagship project and the primary pathway in realising the Company's corporate vision. Iron Road has established the following objectives:

- To develop a profitable mine, supplying premium iron concentrates to the Asian marketplace.
- To provide multi-user infrastructure (port, rail, transmission line, water supply) maximising the benefits of the CEIP to the Eyre Peninsula and South Australia.
- To positively contribute to the economic development of the Eyre Peninsula and South Australia.
- To positively contribute to the social development of the Eyre Peninsula through the provision of additional employment opportunities, the establishment of community facilities and the protection of the unique environmental assets in the region.
- To develop the CEIP as a socially acceptable, environmentally responsible and economically feasible mining development.

2.2 Market Demand and Supply for Iron Concentrate

The global demand for raw materials, services and infrastructure has grown significantly in the last decade and although this trend is anticipated to continue into the foreseeable future, there has been inconsistency in the demand and price of commodities and in particular for iron ore over the 2013-14 period. This has largely occurred due to increases in iron ore supply combined with slower growth in China's steel production. Although softness in commodity prices is predicted to continue in the short term, world iron ore trade is forecast to grow by 4.2 per cent to 1.38 billion tonnes in 2015 (Bureau of Resources and Energy Economics, 2014).

Much of the future growth in demand for raw materials is attributed to the ongoing economic development and urbanisation of developing countries, particularly those located in Asia. The global population is projected to increase to 9.6 billion people by 2050 (United Nations, 2013), compared with current population levels of approximately 7.1 billion (Department of Commerce, 2013), with a significant proportion of this growth anticipated in the Asian region. There has also been a strong trend towards investment in hard infrastructure in China, as a result of increased government spending and a need to improve underdeveloped infrastructure.

2.2.1 Current and Predicted Iron Ore Demand

Australia is the world's largest exporter of iron ore, accounting for approximately 40% of global exports in 2011 (DFAT 2012). Between 2001 and 2011, Australia's export of iron ore increased in value from \$5.2 billion to \$64.1 billion, a growth of more than 31% per annum. China, Japan and the Republic of Korea are Australia's major export markets, accounting for more than 96% of total iron ore exports in 2011.

Higher exported volumes of iron ore and coal continued as the principal drivers of export growth in Australia in 2013. China remained Australia's top trading partner with iron ore exports rising 27.6% to a record \$69.5 billion in 2013, exhibiting continued growth in the sector. Export of all metal ores and minerals rose 18.8% to \$91.3 billion, and was largely attributed to the growth in iron ore demand driving overall exports (DFAT 2013). The value of Australia's commodity exports forecast by DFAT (DFAT 2013) for the 2013-14 to 2014-15 period outlines a growth of 3.1% for iron ore. The strength of demand for iron ore is projected to continue in the medium to longer term as a result of continuing growth and urbanisation in the Asian region as shown in Figure 2-1.

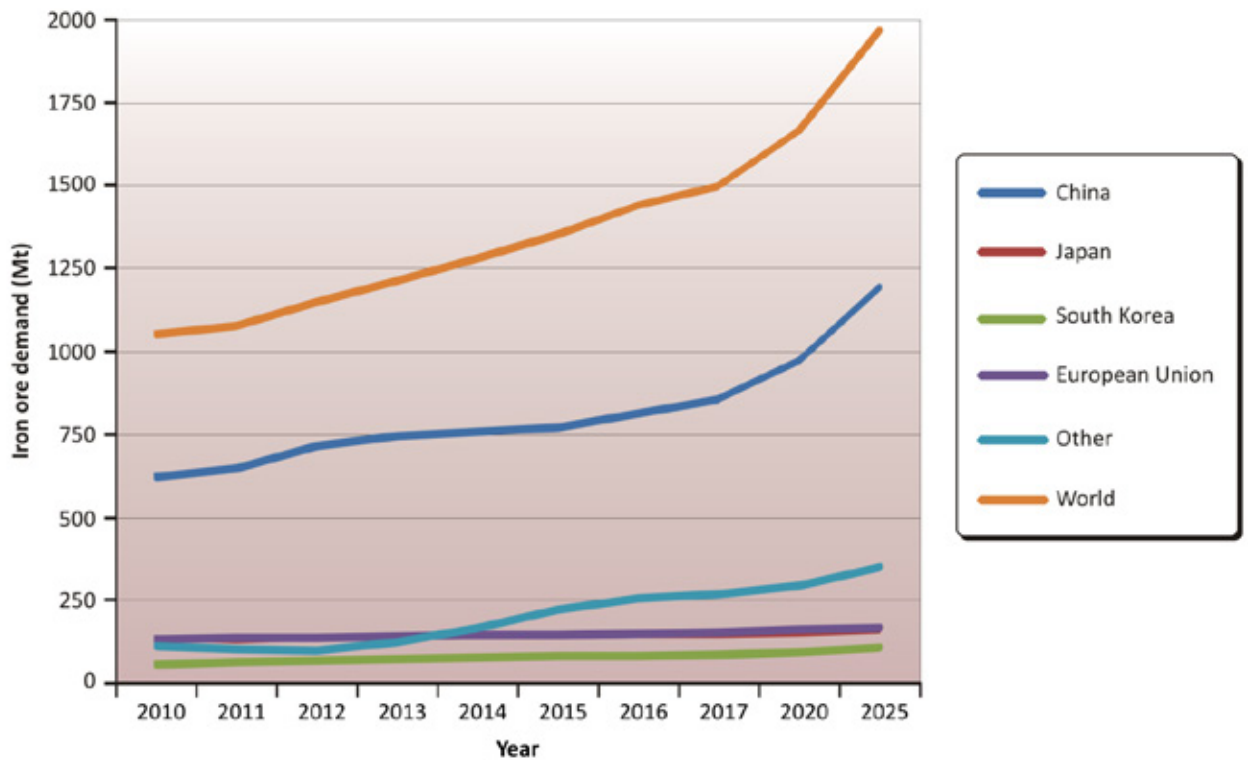


Figure 2-1 Projected Iron Ore Demand

2.2.2 Magnetite vs Hematite

Magnetite is a leading source of the domestic iron supply in North America, Europe and China with growing global demand. Unlike hematite, magnetite typically has a much lower ore grade and therefore it has to be concentrated via an additional processing phase before it can be used in the production of iron and steel. Despite the extra costs associated with the production of magnetite ore, it has two key advantages when compared to hematite:

- Consistently high iron content: after processing, the iron content of magnetite is consistently higher with lower impurities than hematite. Since this is a manufactured product the specification remains largely the same over the life of the mine.
- Less carbon emissions: the purity and high iron content of processed magnetite results in lower carbon emissions during the production of iron in comparison with hematite. In addition magnetite is exothermic and allows for lower fuel usage.

2.3 Iron Road's Competitive Advantage

Iron Road has demonstrated that the iron ore present at the proposed CEIP Mine can be readily upgraded into a premium high grade magnetite concentrate by the simple processing methods of crushing, grinding and magnetic/gravity separation. In-situ iron grades at the mine are below that of some other Australian magnetite projects under consideration however this is more than offset by the very coarse-grained nature of the magnetite mineralisation and the distinctive geology of the orebody. Due to its coarseness, the magnetite concentrate does not require pelletising before being fed into smelters and contains lower impurities than comparable sources of iron ore found elsewhere. As such, the concentrate is easily processed to a standard suitable for the market using proven, off-the shelf technologies applied in innovative ways.

Metallurgical test work indicates that a coarse-grained, high grade, blast furnace quality concentrate with approximately 67% iron is achievable following processing. This means that the magnetite concentrate is suitable for use in sinter plants as sinter feedstock without additional processing into pellets before use. Sinter plants feed the majority of blast furnace based steel mills around the world. The available market for product from the CEIP Mine is therefore significantly larger than for many other proposed magnetite projects.

The range of iron ore available to the market varies greatly in terms of grade and quality. Ores of lower grade or quality are accompanied by commensurate pricing discounts, whilst ores of a higher quality attract a price premium. The introduction of stricter environmental regulations in key markets such as China has resulted in an increased demand for higher quality ores, including those that may be blended into sinter feed. Metalytics (2014) have generated a price adjusted cost curve for iron ore supply into China in 2020 from both imported and domestic sources. A price adjustment is applied to each source of supply, normalising costs back to a standard reference basis of 62% CFR iron fines. The 2020 price adjusted cost curve of China's iron ore supply is presented in Figure 2-2. It can be observed that the CEIP magnetite concentrate represents a highly competitive product in the global marketplace. This is significant in that the CEIP will be able to continue deliver concentrate to customers during all stages of the pricing cycles.

Iron Road expects that the demand for premium quality products will increase, which will enable steel makers to:

- Improve efficiencies
- Reduce power consumption
- Meet new environmental standards

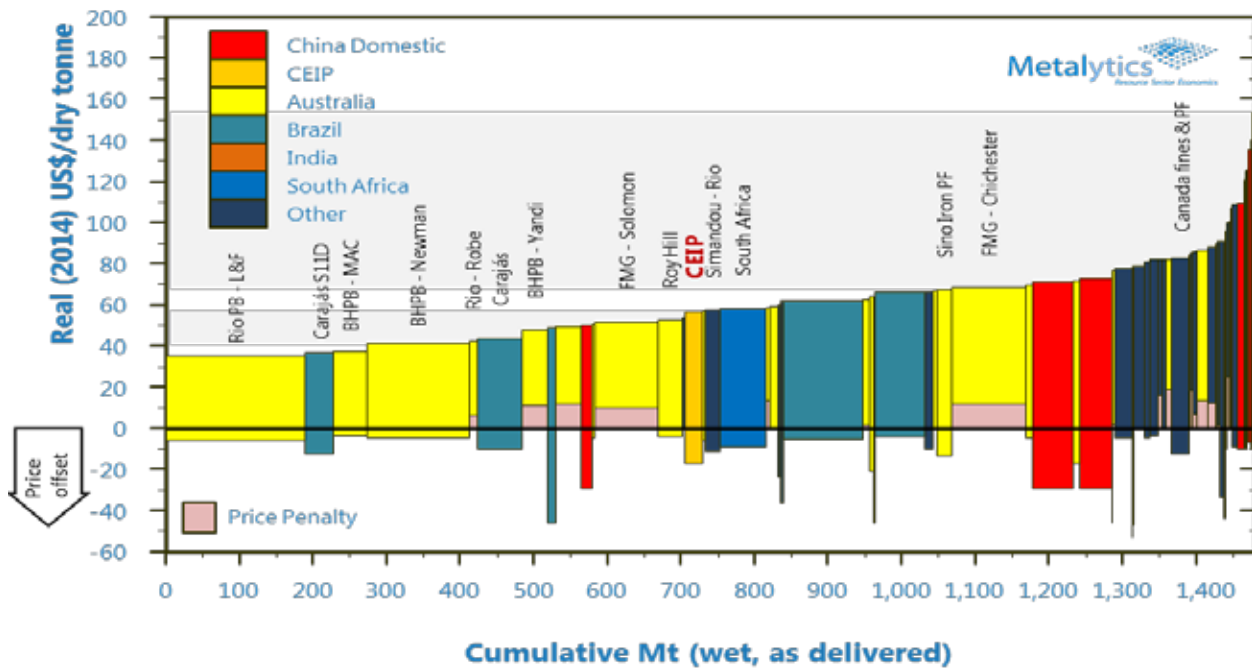


Figure 2-2 Price Adjusted Cost of China's Iron Ore Supply (62% Iron Reference Basis)

When compared to other high grade iron ore projects, the CEIP continues to represent a highly competitive market offering. The comparative cash costs associated with a range of other high grade iron ore projects is presented in Figure 2-3. Despite relatively high mining costs, the CEIP delivers a highly competitive premium product through relatively low processing, inland transportation and sea freight costs. When product from stalled or shelved projects is removed, including product under contract, then a significantly reduced quantity of high grade magnetite concentrate remains available in the market.

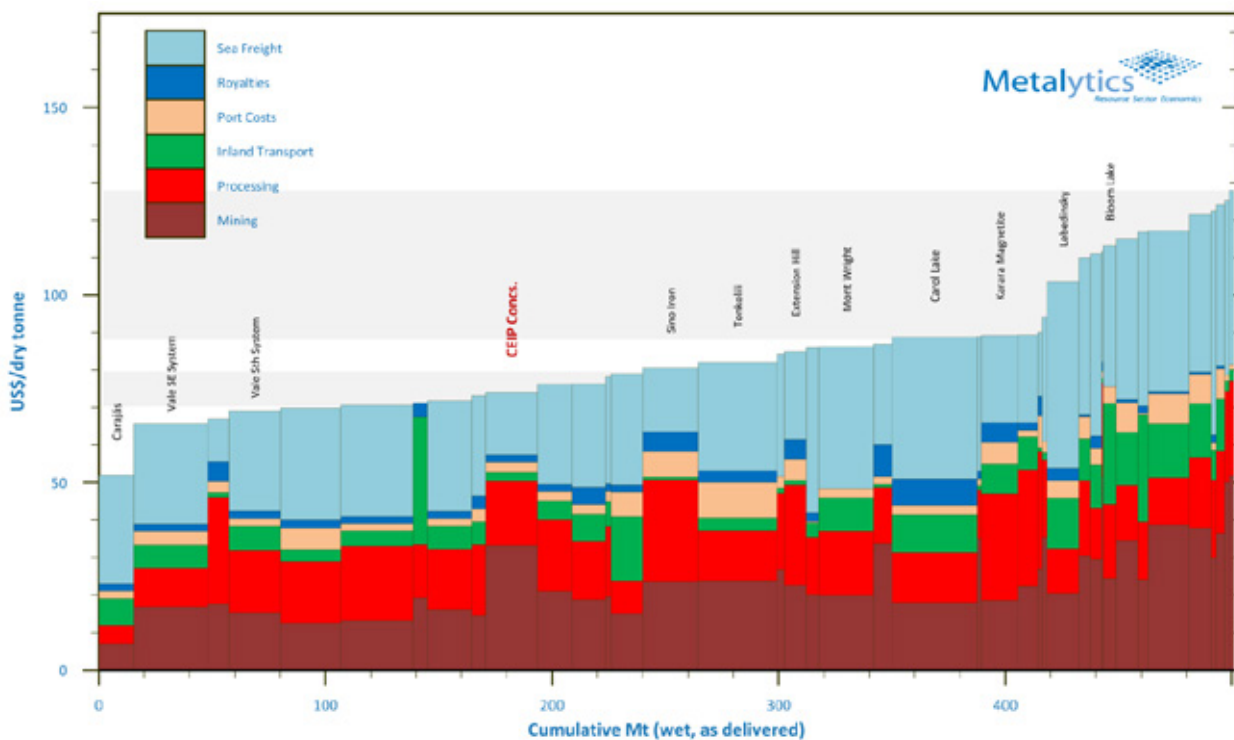


Figure 2-3 High Grade Concentrate Cash Costs

In addition to the geological advantages at the mine site, the CEIP Infrastructure has advantages when compared to infrastructure required to support other mining operations. The railway line connecting the mine and port site is significantly shorter than comparable Pilbara and Brazilian routes and requires less structures such as bridges. The shorter route means less time and expense in the transport of the magnetite concentrate and lower energy requirements for transportation. In addition, the proposed port is situated in a sheltered location free of cyclones, with access to water depth suitable to accommodate Capesize vessels. The comparative advantages of the CEIP are summarised graphically in Figure 2-4.

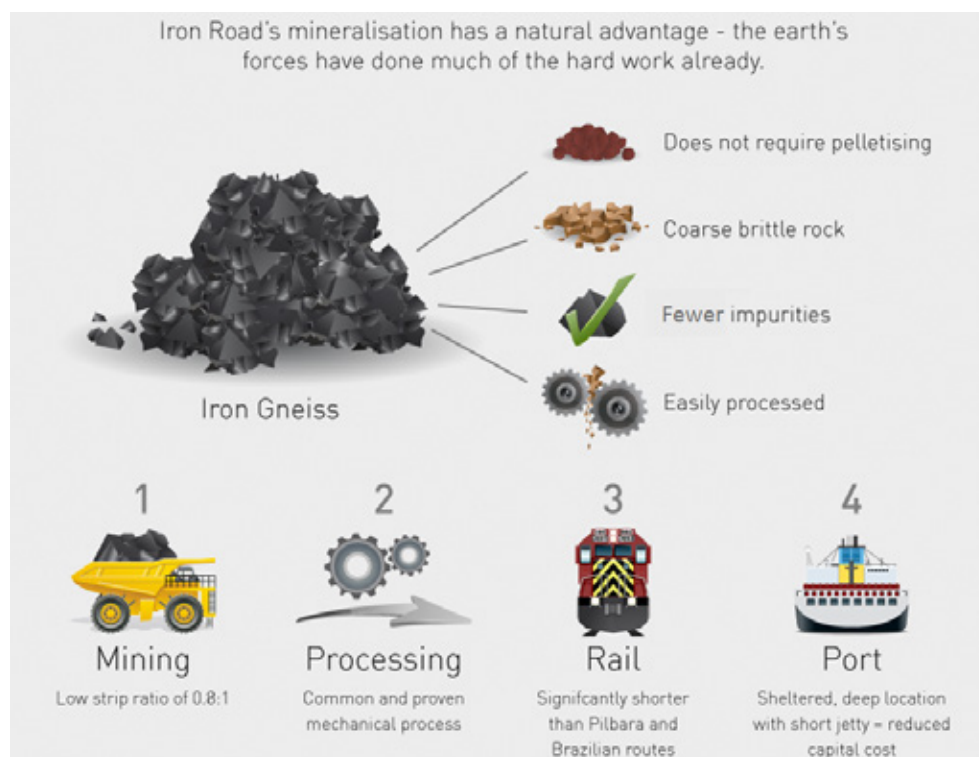


Figure 2-4 CEIP Competitive Advantage

2.4 Consequences of Not Proceeding

Not proceeding with a feasible project generally results in the envisaged benefits and impacts not being realised. If the CEIP Mine does not proceed as planned, the magnetite resource will remain as a future development option with the potential benefits being deferred for an unspecified period of time. This will also result in the CEIP Infrastructure not being developed. The consequences of not proceeding with the CEIP within a preferred timeframe include:

- Loss of the project's collateral benefits in the short term.
- A 'missed opportunity', with demand for the product possibly being fulfilled by another development.
- The trend of population decline on the central Eyre Peninsula may continue, threatening the viability of businesses and social services such as police, health and education.
- Loss of third party access to the CEIP Infrastructure and subsequent loss of potential benefits across multiple industries, including:
 - Potential shared usage of the proposed port for other mining companies or as an alternative export pathway for the grain industry.
 - Reinforcement of the Eyre Peninsula electricity network, supporting future development for energy intensive projects (e.g. mining) and the local establishment of alternative electricity generation sources (e.g. renewables).

- Potential shared usage of the proposed railway line as a route to market for other mining developments and grain on the Eyre Peninsula.
- Recycled stormwater and wastewater from the proposed long-term employee village for irrigation purposes (landscaping and ovals) within Wudinna.
- Airport upgrade at Wudinna and establishment of a regular commercial air service.
- Local road upgrades (e.g. those required for the module haul route) facilitating the movement of agricultural machinery or stock in the region.
- Skilled labour relocating to new opportunities/industries.

2.4.1 Specific Benefits Forgone

Development of both the CEIP Mine and supporting infrastructure will provide a number of benefits to the local and regional communities, including:

- Job opportunities during construction and operation
- Improved regional infrastructure providing a catalyst to additional development on the Eyre Peninsula
- Increased royalty payments to the State Government

A summary of the relevant benefits is provided in Table 2-1 with additional information provided in subsequent chapters.

Table 2-1 Potential Benefits of CEIP

Extent of Benefit	Potential Benefit	Relevant EIS Chapter
Local	The CEIP is anticipated to provide significant local employment opportunities with 2,490 positions being directly generated during construction and 760 ongoing positions during operation.	Chapter 21
	Significant upgrades and investment into Wudinna are proposed to support the CEIP, including the upgrade of Wudinna airport to support commercial flights (subject to a separate approval process being undertaken by Wudinna District Council).	Chapter 4
	The long-term mine workforce is proposed to be accommodated within a designated long-term employee village immediately adjacent to the township of Wudinna, providing a significant population boost to the immediate area and long-term support to local businesses and services.	Chapter 4 Chapter 21
	The stimulus of local population growth and employment opportunities will provide a range of opportunities for supporting business to provide goods and services to the CEIP, CEIP staff and service providers associated with the CEIP.	Chapter 21 Chapter 22
	A series of upgrades to local road infrastructure will be undertaken to facilitate safe vehicle movement surrounding the CEIP Infrastructure, thereby improving the condition and safety of local roads throughout the region.	Chapter 4 Chapter 18
	Improvements to the local natural environment through the delivery of a Significant Environmental Benefit (SEB).	Chapter 13
Regional	The proposed port represents a viable export alternative to the central Eyre Peninsula with sufficient capacity to accommodate third party exports (subject to necessary consents). In addition, there are opportunities for future modification of the proposed port to support the export of grain from the central Eyre Peninsula. The importation of agricultural products, containers and other goods may be possible by utilising the Module Offloading Facility (MOF) (subject to necessary consents).	Chapter 3 Chapter 4

Extent of Benefit	Potential Benefit	Relevant EIS Chapter
	The regional electricity network is required to be reinforced to support the electricity requirements of the mine and port. The improved network will provide greater reliability in supply, and will support the connection of additional industries.	Chapter 4
	Direct employment opportunities will be available to support the CEIP from the mine site near Warramboob to the port site south of Port Neill. The CEIP represents a significant geographical footprint from which employees may be sourced. Similarly, the CEIP will generate opportunities throughout the region for supporting business to provide goods and services to the CEIP.	Chapter 21
	An additional \$2.4 billion per annum in gross regional product for the Whyalla and Eyre Peninsula region during operation.	Chapter 21
	Population stimulus required for construction/operation of the CEIP to halt the continuing trend of population decline on the central Eyre Peninsula, which may threaten the viability of businesses and social services.	Chapter 22
	An upgraded, commercial airport in central Eyre Peninsula, reducing commuter time for residents and workers currently reliant on Port Lincoln, Ceduna or Whyalla airports (the upgrade to Wudinna airport is not included as part of this EIS as it is being pursued by the Wudinna District Council).	Chapter 22
State	The CEIP will result in significant upgrades to critical infrastructure (e.g. road, rail, port, electricity) at no cost to the State that may in turn support the growth and development of additional industries.	Chapter 3 Chapter 4
	An average direct and indirect employment in South Australia of 2,490 full-time equivalent jobs during construction and 760 during the operational years of the project.	Chapter 21
	Development of business opportunities for contractors and service providers to supply goods and services to the CEIP, with preference given to local, South Australian providers.	Chapter 21
	Development of business opportunities regionally and in South Australia, as Iron Road work with business groups to identify local business opportunities and maintain the existing register of businesses with an interest in supplying goods and services to the project.	Chapter 21
	During construction the CEIP will contribute an annual average of \$518 million to South Australia's Gross State Product (GSP). During operation, the CEIP will contribute \$2.7 billion per annum to South Australia's GSP.	Chapter 21
National	During construction the CEIP will contribute an annual average of \$1.2 billion to Australia's gross domestic product. During operation, the CEIP will contribute \$2.8 billion per annum to Australia's Gross Domestic Product (GDP).	Chapter 21

2.4.2 Strategic Opportunity Costs

The immediate opportunity costs of the 'no project' option have been set out above however, there are broader associated consequences of the project not proceeding.

For Iron Road, the proposed CEIP represents a prime opportunity for the company to become a premium supplier of iron ore to the Asian region and to expand its operations significantly. Iron Road currently has the capacity to undertake a project of this scale however, if the project does not go ahead, then the opportunity cost in economic and human capital of not proceeding will be lost or deferred.

The loss of the CEIP would forgo an opportunity for stability in the Eyre Peninsula region with the CEIP mine already shown to have a minimum 25 year mine life, with a high possibility that it will extend beyond that time. There is also the potential loss of upskilling workers from the region in the mining sector, as the CEIP would result in a significant employment opportunity, allowing for a significant investment in training and development. Finally, the infrastructure improvements associated with the CEIP have the capacity to support a range of additional mining projects and agricultural activities and may act as a catalyst to growth in the industry.

An additional loss of the 'no project' option would be to other industries that would have benefited and be able to utilise the multi-user infrastructure, including the airport, port, rail, transmission line, communications and water supply, representing a large opportunity cost in economic losses to other industry sectors. A key example of this would be the lost opportunity for a third party to further develop the port site for additional regional exports and imports.

For the broader community, the CEIP not going ahead would mean an opportunity lost to provide a more diverse and resilient regional economy that is not predominantly reliant on agriculture, as well as access to improved community infrastructure on a local and regional scale.