

TABLE OF CONTENTS

17.1 INTRODUCTION	501	17.4.2.4 Unemployment	519
17.1.1 Scope of Works	501	17.4.2.5 Migration of Workers	519
17.1.2 Project Costs, Revenues and Timings...	501	17.4.3 Impacts to Factor Incomes	520
17.2 ASSESSMENT METHOD	502	17.4.3.1 Compensation of Employees	520
17.2.1 Existing Economic Environment.....	502	17.4.3.2 Gross Operating Surplus	521
17.2.2 Economic Impact Modelling	502	17.4.4 Impacts on Property Values.....	522
17.2.3 Economic Impact Assessment	503	17.4.5 Impacts to Households	522
17.2.4 Development of Mitigation and Enhancement Strategies	503	17.4.6 Implications of the Project for Future Development.....	523
17.3 EXISTING ECONOMIC ENVIRONMENT	503	17.4.6.1 Beneficial Implications	523
17.3.1 EIS Study Area	503	17.4.6.2 Potential Forgone Opportunities ..	523
17.3.1.1 Broader Service Area	503	17.4.7 Additional Economic Implications	524
17.3.2 Summary of Key Economic Values	504	17.4.7.1 Impacts on Export Revenues and Balance of Trade	524
17.3.3 Description of the Economy.....	505	17.4.7.2 Impacts on Government Revenues.....	524
17.3.3.1 Population Size and Growth	505	17.5 CONCLUSION	525
17.3.3.2 Gross Regional Product.....	505	17.6 COMMITMENTS	526
17.3.3.3 Structure of the Economy	505	17.6.1.1 Address Skills Shortages.....	526
17.3.3.4 Key Regional Markets.....	505	17.6.1.2 Minimise Draw Down on Labour from Other Sectors	527
17.3.3.5 Regional Resources and Competitive Advantages	509	17.6.1.3 Develop the Local Supply Chain...527	
17.3.3.6 Key Industries.....	510	17.6.1.4 Minimise Disruption of Agricultural Practices	528
17.4 ECONOMIC ASSESSMENT	511	17.6.1.6 Develop Supporting Infrastructure.....	528
17.4.1 Impacts on Industry	511	17.6.1.7 Minimise Adverse Impacts of Increased Traffic	528
17.4.2 Impacts on Employment.....	513		
17.4.2.1 Employment Generation	513		
17.4.2.2 Skills Requirements	518		
17.4.2.3 Skills Development and Attraction.....	519		

LIST OF FIGURES

Figure 2. Annual Percent Change in Real Wages Resulting From the Project, 2010 / 11 to 2036 / 37	520
Figure 3. Annual Percent Change in Gross Operating Surplus Resulting From the Project, 2010 / 11 to 2036 / 37	521

LIST OF TABLES

Table 1. Historical and projected population, 2004 to 2031	505
Table 2. Gross state / regional product at factor cost, 2008 / 09.....	505
Table 3. Percent industry contribution to GRP, 2008 / 09	506
Table 4. Labour force and employment, December Quarter 2009	506
Table 5. Employment by industry, 2006	507
Table 6. Employment by occupation, 2006	508
Table 7. Average weekly individual income by industry, 2006	508
Table 8. House and land prices, Broader Service Area, December Quarter 2009.....	508
Table 9. New residential building approvals, YE December 2008 to YE 2009	510
Table 10. Residential rental Market, YE December 2009	510
Table 11. Construction price index, December Q 2009	510
Table 12. Average annual impact on total industry output within the Broader Service Area and in Queensland, deviation from the baseline (without project) scenario	512
Table 13. Average annual impact on industry output in Queensland, deviation from the baseline (without project) scenario	512
Table 14. Average annual impact on industry output in the Broader Service Area, deviation from the baseline (without project) scenario	514
Table 15. Average annual impact on employment at the Broader Service Area and in Queensland, deviation from the baseline (without project) scenario	515
Table 16. Average annual impact on employment by Industry in Queensland, deviation from the baseline (without project) scenario	515
Table 17. Average annual impact on employment by industry in the Broader Service Area, deviation from the baseline (without project) scenario.....	517
Table 18. Average annual impact on employment by occupation grouping within the Broader Service Area, deviation from the baseline (without project) scenario, 2010 / 11 – 2012 / 13	518
Table 19. Average annual impact on employment by occupation grouping within the Broader Service Area, deviation from the baseline (without project) scenario, 2013 / 14 – 2036 / 37	518
Table 20. Key occupations during construction and operation	519
Table 21. Estimates of employment generation by place of work and place of usual residence.....	520
Table 22. Average annual Queensland Government revenues from the project (2010 / 11 to 2036 / 37)	524
Table 23. Average annual Australian Government revenues from the project (2010 / 11 to 2036 / 37)	525

17.1 INTRODUCTION

This chapter examines the beneficial and adverse economic impacts of the project anticipated to occur in the context of the rail development's local and regional economies (i.e., proximal to the rail corridor), as well as the State and national economies as relevant. All components of the project should be considered in aggregate when assessing economic impacts at a local, regional, State or national level.

Given the large area to be covered by the rail line, and the dependent activity of rail on both the mine and coal terminal, defining a relevant catchment to examine the local and regional impacts can be difficult. The most appropriate catchment is considered to be the entire EIS Study Area (refer to **Figure 1**), which encompasses the entire rail line from the mine to the coal terminal, as well as the key regional service areas of Mackay and Rockhampton. However, parts of the rail line are incorporated in the catchment areas examined for the mine development and coal terminal and, for clarity and to avoid double counting, these catchments are excluded from the analysis of economic impacts in the rail line's regional economy reported in this chapter. Thus the catchment examined in this chapter aligns with the Broader Service Area catchment identified in **Figure 1**.

The chapter also discusses and outlines Waratah Coal commitments to mitigation and enhancement strategies as well as monitoring regimes to be established to ensure regional economic values are enhanced or, at least, maintained once the project commences.

The economic impact assessment was prepared in mid-2010. While some aspects of the project have changed (Waratah Coal now intend to utilise the proposed Multi-Cargo Facility rather than construct a stand-alone jetty), the general findings and conclusions are still considered relevant and provide a reasonable assessment of the project's economic impact on the local, regional, state and national economies.

17.1.1 SCOPE OF WORKS

This chapter has been prepared to address the ToR developed for the project EIS. The scope of works undertaken for the Economic Impact Assessment includes:

- description of the local and regional economies that may be affected by the project;
- analysis of the potential economic impacts of the project at the regional, state and national level, as appropriate to the scale of the project, including impacts on small regional communities. This should include:
 - assessment of direct economic impacts, including property values, industry output, employment and factor incomes;
 - assessment of forgone industry output resulting from the project, forgone opportunities and impacts to households, and indirect impacts likely to flow to other industries;
 - an outline of strategies for local participation in the project, in terms of local supply of goods and services as well as local employment strategies, as well as strategies to respond to government policy (where relevant);
 - assessment of the impact of the project on current and future management processes for adjacent properties during construction and / or operation; and
 - developing and proposing mitigation and enhancement strategies and monitoring regimes to minimise disruption or alleviate costs resulting from the project.

17.1.2 PROJECT COSTS, REVENUES AND TIMINGS

The project will result in considerable investment in, and revenue generation from, developing the above infrastructure to extract high value coal resources for sale to export markets.

Construction of the mine, railway and coal stockyard and transfer infrastructure is estimated to take approximately three years to complete, indicatively requiring approximately \$8.1 billion in capital investment. Direct employment for construction activities is estimated to average approximately:

- 2,500 employees for construction of the mine over a three year period;
- 1,000 employees for construction of the rail infrastructure over a three year period; and

The construction workforce does not include the workforce for constructing the multi-cargo facility at Abbot Point, which will be undertaken by North Queensland Bulk Ports Corporation.

First coal exports are targeted for July 2013, with full export capacity of 40 Mtpa expected to be reached in 2015 / 16, generating an estimated \$4.6 billion in export revenues per annum. Direct employment during operation is estimated to be approximately:

- 1,900 employees for operation of the mine;
- 460 employees for operation / maintenance of the rail infrastructure and operation of the port facilities; and

In addition to the above direct employees, a range of goods and services will be procured locally, providing contracting opportunities for local businesses and generating additional employment.

In addition to the mine, rail line and port facilities, a range of utilities infrastructure will be developed by third parties to support the project and the overall development of the Galilee Basin, including a new 275 kV transmission line from the Lillyvale substation to the mine (to be owned by Powerlink), fibre optic telecommunications infrastructure and, potentially, a new water pipeline from Moranbah to the Galilee Basin (currently being planned by SunWater).

Waratah Coal also propose to invest in developing local road infrastructure as well as or upgrading the Alpha airstrip for the transportation of FIFO workers to the mine site.

17.2 ASSESSMENT METHOD

The economic impact assessment was prepared in mid-2010. While some aspects of the project have changed (such as the intended use of the proposed multi-cargo facility rather than the construction of a separate jetty by Waratah Coal), the general findings and conclusions are deemed to remain relevant and provide a reasonable assessment of the project's economic impact on the local, regional, state and national economies.

17.2.1 EXISTING ECONOMIC ENVIRONMENT

The existing economic environment section describes the existing economic profile of the EIS Study Area, and provides a baseline for assessment of the significance of potential impacts of the proposed development. This section has been developed based on data and information sourced from:

- the Australian Bureau of Statistics (ABS), Queensland Treasury, Office of Economic and Statistical Research (OESR), DIP, Real Estate Institute of Queensland, Residential Tenancies Authority and other public sector agencies;
- consultations with local businesses and peak industry bodies;
- private sector data providers and company websites; and
- AECgroup propriety economic models.

Economic data collected during this stage is used to develop economic models, and forms the 'base scenario' against which the project's impacts are assessed.

17.2.2 ECONOMIC IMPACT MODELLING

Economic impacts of the project have been modelled using a Computable General Equilibrium (CGE) modelling technique. CGE modelling estimates the net increase in demand generated by the project after taking into account resource constraints. An example would be the necessity to pay higher wages to attract workers from other businesses or regions in a tight labour market. By taking into account resource constraints CGE modelling is considered to provide a more realistic assessment of the impacts of a project of the scope and scale of the project on the regional and State economies given the currently constrained labour market in the region and more broadly throughout Queensland. A detailed description of CGE modelling is provided at Volume 5, Appendix 24.

A labour mobility constraint has been applied within the CGE modelling, with labour mobility assumed to be motivated by real wage differentials. Labour mobility assumptions include both inter-industry labour movement within regions as well as inter-regional and interstate labour movement. Labour is assumed to not be sufficiently mobile to remove these real wage differentials (i.e., in order to attract labour, real wages will increase).

17.2.3 ECONOMIC IMPACT ASSESSMENT

This section uses information from the existing economic environment and the economic impact modeling to analyse, assess and discuss the economic impacts of the project in relation to the ToR.

The economic impact assessment includes input and information from:

- consultation with business, industry and key industry organisations to identify potential economic impacts;
- interpretation of modelling output in the context of the regional and state economies, and analysis of other, non-quantified changes to the economic environment; and
- evaluation of the significance of impacts in relation to economic resources.

17.2.4 DEVELOPMENT OF MITIGATION AND ENHANCEMENT STRATEGIES

This section identifies strategies to avoid, reduce or mitigate the negative economic impacts and enhance and facilitate the capture of the positive impacts identified in previous sections. This includes the development of strategies for local participation in the project. Key elements of strategies will include:

- defining and describing the objectives of the task / strategy;
- identifying practical methods to protect and / or enhance economic values; and
- identifying practical monitoring measures.

17.3 EXISTING ECONOMIC ENVIRONMENT

17.3.1 EIS STUDY AREA

Three catchments have been used to establish and analyse the existing economic environment of the project and surrounding regions, the Mine Catchment, Abbot Point Catchment and Broader Service Area. Combined, these three catchments represent the study area for examining the regional economic impacts of the project.

The Broader Service Area catchment consists of the Isaac Regional Council, to include the section of rail line that passes through that Local Government Area and the Mackay and Rockhampton Regional Councils to encompass the regional centres adjacent to the mine

and export point sites from which workers and supplies will be sourced. The Mine Catchment incorporates the Barcaldine and Central Highlands Regional Councils, while the Abbot Point Catchment consists of the WRC.

Figure 1 shows the different catchment boundaries used in the economic assessment.

A brief summary of the main economic characteristics of the Broader Service Area is presented in **Section 17.3.1.1**. It should be noted that the Broader Service Area has a well-developed mining support services sector, and will likely supply inputs to mining activity in the Mine Catchment as well as provide support to the rail and coal terminal developments.

17.3.1.1 Broader Service Area

17.3.1.1.1 Isaac Local Government Area

Isaac Local Government Area (LGA)'s population has grown at a rate of 2.6% per annum on average since 2004, to 22,417 residents in 2009. Isaac LGA's population is projected to grow by 2.0% per annum on average through to 2031, to 34,580 residents.

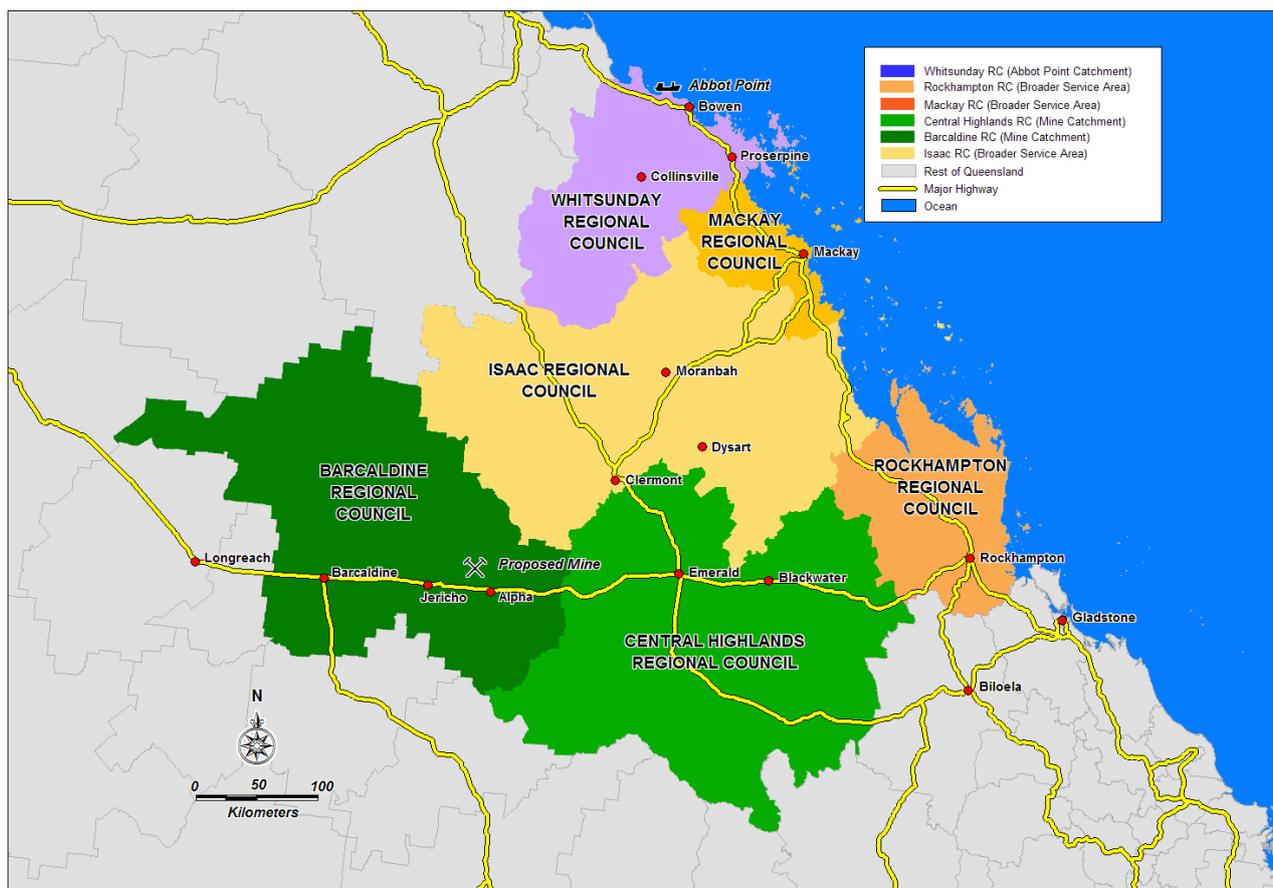
Isaac LGA encompasses a large proportion of mining operations in the Bowen Basin. As a result, the local economy is dominated by the mining industry, with this industry accounting for 82.8% of Gross Regional Product (GRP) and 49.2% of employment.

17.3.1.1.2 Mackay Local Government Area

Mackay LGA is the most prominent and fastest growing population centre within the Study Area, recording population growth of 3.3% per annum between 2004 and 2009, to 116,123 residents. Mackay LGA is projected to continue to grow rapidly through to 2031, averaging growth of 1.8% per annum to 172,993 residents.

As the major service centre to the Bowen Basin, Mackay LGA has a relatively diverse economy compared to most other regions in the Study Area. Mining is the main contributor to GRP (13.5%), while key mining support service sectors such as transport, postal and warehousing (11.5%) and manufacturing (8.3%), are also major contributors to the local economy. Mackay LGA also has a sizable construction industry, contributing 9.8% of GRP and 8.9% of employment.

Figure 1. Map of the Project Study Area and Catchments



Source: ABS (2003).

17.3.1.1.3 Rockhampton Local Government Area

Rockhampton LGA is the second largest population centre in the Study Area, recording a population of 114,105 residents in 2009. This represented growth of 2.0% per annum between 2004 and 2009. Rockhampton LGA’s population is projected to grow at 1.3% per annum to 2031, to 153,256 residents.

Rockhampton LGA is an industrial hub, with significant goods based sectors such as transport, postal and warehousing and manufacturing, with these industries contributing 12.6% and 8.6%, respectively to GRP and 12.9% and 9.0% to employment, respectively.

17.3.2 SUMMARY OF KEY ECONOMIC VALUES

Key values of the economic environment of the Broader Service Area include:

- **high reliance on the mining and resources sector:** IRC incorporates a large portion of the Bowen Basin, which is home to a significant number of coal mining operations and gas resources. The mining sector contributed 34.6% of the Broader Service Area’s GRP in 2008 / 09;

- **trade exposure:** Because of the strong reliance on coal mining and exports in the region, fluctuations in global resource markets can potentially have considerable adverse impacts on the region;
- **high proportion of FIFO / DIDO workers in regional centres:** Mining operations in the Bowen Basin utilise a high proportion of FIFO / DIDO workers from other regions, affecting the region’s ability to retain workers, incomes and associated population and household-based services (e.g., retail, community and recreational services); and
- **competition for labour:** Recent activity throughout the Central Queensland region highlights that demand for mining commodities and higher wages paid by the mining sector has drawn labour from other sectors, particularly agriculture, which the region has historically been heavily involved with.

17.3.3 DESCRIPTION OF THE ECONOMY

17.3.3.1 Population Size and Growth

Over the past five years the Broader Service Area has recorded average annual growth of 2.6% per annum, reaching 252,645 in 2009. This was in line with the Queensland average annual population growth over the five year period. The Broader Service Area is predicted to grow at an average annual rate of 1.6%, which also compares equally to the Queensland figure of 1.6%, equating to an additional 108,184 people between 2009 and 2031.

The historical and projected population for the Broader Service Area and Queensland are shown in Table 1.

17.3.3.2 Gross Regional Product

17.3.3.2.1 Size of the Economy

GRP for the Broader Service Area was estimated at \$18.2 billion in 2008 / 09, which represented approximately 7.5% of Queensland’s Gross State Product (GSP). The Catchment’s GRP grew at an average annual rate of 6.5% for the four years to 2008 / 09. Notwithstanding, the Catchment showed a lower average annual growth rate in GRP compared to Queensland, which recorded an average annual rate of 8.6%.

Estimates of GRP and GSP for the Broader Service Area and Queensland are presented in Table 2.

17.3.3.3 Structure of the Economy

Mining is also a major contributor for the Broader Service Area, with over a third of GRP produced from the mining sector. Transport, postal and warehousing is also a more prominent industry in the Broader Service Area than in Queensland. The industry contribution to GRP percentage for 2008 / 09 is shown in Table 3.

17.3.3.4 Key Regional Markets

17.3.3.4.1 Labour Market and Employment Characteristics

Labour Force and Employment

The Broader Service Area had an unemployment rate of 5.4% in the December Quarter 2009, which was in line with the Queensland figure (5.4%) (see Table 4). The unemployment rate increased by 1.1 percentage points from the same period a year prior, driven by the effects of the global economic downturn. However, this was below the increase in the Queensland rate over the year (1.7 percentage points), reflecting the resilience of the regional economy and potentially a reflection of the diversity of the Broader Services Area’s economy relative to the other Catchments in the study area.

Table 1. Historical and projected population, 2004 to 2031

CATCHMENT	2004	2009	2031	% AV. ANN. GROWTH 2004-09	% AV. ANN. GROWTH 2009-31
Broader Service Area	222,091	252,645	360,829	2.6%	1.6%
Queensland	3,900,910	4,425,103	6,273,885	2.6%	1.6%

Sources: ABS (2010a), Queensland Treasury (2008).

Table 2. Gross state / regional product at factor cost, 2008 / 09

GROSS STATE / REGIONAL PRODUCT	BROADER SERVICE AREA	QUEENSLAND
2008 / 09 (\$M)	\$18,222.7	\$243,903.0
2005 / 06 (\$M)	\$15,068.2	\$190,518.0
Av. Ann. % Growth (2005 / 06 – 2008 / 09)	6.5%	8.6%

Source: AECgroup

Table 3. Percent industry contribution to GRP, 2008 / 09

INDUSTRY	BROADER SERVICE AREA	QUEENSLAND
Agriculture, forestry and fishing	1.6%	2.0%
Mining	34.6%	9.5%
Manufacturing	5.7%	7.8%
Electricity, gas, water and waste services	2.0%	1.9%
Construction	6.9%	7.6%
Wholesale trade	3.1%	4.5%
Retail trade	4.5%	5.4%
Accommodation and food services	2.2%	2.9%
Transport, postal and warehousing	8.5%	6.7%
Information media and telecommunications	0.9%	2.2%
Financial and insurance services	1.6%	6.4%
Rental, hiring and real estate services	2.0%	3.2%
Professional, scientific and technical services	2.1%	4.6%
Administrative and support services	0.9%	2.0%
Public administration and safety	2.8%	5.2%
Education and training	2.5%	3.7%
Health care and social assistance	3.0%	5.7%
Arts and recreation services	0.3%	0.6%
Other services	2.4%	2.1%
Ownership of Dwellings	6.1%	7.7%
Total Gross Value Added	93.6%	91.6%
Taxes less Subsidies	6.5%	8.4%
Gross State / Regional Product	100.0%	100.0%
Gross State / Regional Product (\$M)	\$18,222.7	\$243,903.0

Source: AECgroup

Note: Gross Value Added (GVA) is equal to Gross State / Regional Product (GSP / GRP) minus taxes plus subsidies.

Table 4. Labour force and employment, December Quarter 2009

LABOUR FORCE	PARTICIPATION RATE	UNEMPLOYED PERSONS	UNEMPLOYMENT RATE	CHANGE 2008-09 (A)
134,246	69.5%	7,050	5.4%	1.1%
2,354,400	68.7%	127,400	5.4%	1.7%

Notes: (a) The % figures presented in this column are percentage point change figures.

Sources: Office of Economic and Statistical Research (2010).

Employment by Industry

Employment by industry data for the Catchments highlights the differences in composition of the economies. The Broader Service Area's economy has a large proportion of workers employed in mining, with many residents working as FIFO or DIDO

employees working in the Bowen Basin (Table 5). The Broader Service Area has the highest proportion of manufacturing workers of the three Catchments that make up the Study Area, reflecting Mackay's strong mining-related manufacturing base and industrial activity in Rockhampton.

Table 5. Employment by industry, 2006

INDUSTRY	BROADER SERVICE AREA	QUEENSLAND
Agriculture, forestry and fishing	4.5%	3.5%
Mining	8.5%	1.7%
Manufacturing	8.9%	10.1%
Electricity, gas, water and waste services	1.7%	1.1%
Construction	7.8%	9.0%
Wholesale trade	4.1%	4.1%
Retail trade	11.9%	12.0%
Accommodation and food services	7.3%	7.1%
Transport, postal and warehousing	5.8%	5.1%
Information media and telecommunications	0.9%	1.5%
Financial and insurance services	2.0%	3.0%
Rental, hiring and real estate services	1.8%	2.2%
Professional, scientific and technical services	3.9%	5.9%
Administrative and support services	2.1%	3.1%
Public administration and safety	5.4%	6.9%
Education and training	8.5%	7.9%
Health care and social assistance	9.7%	10.6%
Arts and recreation services	0.7%	1.4%
Other services	4.5%	3.9%
Total (%)	100.0%	100.0%
Total Number	92,012	1,737,619

Source: ABS (2007).

Employment by Occupation

The Broader Service Area has a considerably higher proportion of technicians and trades workers and machinery operators and drivers than Queensland, reflective of the region's highly developed mining and heavy industry manufacturing sectors (Table 6). The Broader Service Area also has a higher proportion of professionals when compared to the other catchments; however, the catchment has a lower proportion of professionals compared to Queensland.

Average Income by Industry

Employees in key sectors within the Broader Service Area, such as mining, transport, postal and warehousing and manufacturing, earn more on average per week than employees in these industries elsewhere in Queensland. By comparison, employees in business and consumer related services typically are paid less per week than their counterparts elsewhere in Australia (Table 7).

17.3.3.4.2 Housing and Land Market

Property Sales and Prices

Median house prices in the Broader Service Area declined marginally (0.8%) between December 2008 and December 2009. Conversely unit / townhouse sales in the Broader Service Area grew marginally by 0.8% during the same period. Vacant land prices grew by 6.6% to December 2009 (Table 8).

Data from the Real Estate Institute of Queensland (2010) indicates that over the five years to December 2009, house prices in Isaac LGA have increased by approximately 166.7%. Some towns have recorded an increase of above 300% over this period, including Clermont (328.0%) and Dysart (341.6%). Vacant urban land prices have also increased significantly in Isaac LGA, by 281.0% over the past five years. Property prices in the Mackay LGA and Rockhampton LGA have also increased considerably over the past five years. In the Mackay LGA, house prices, unit / townhouse prices

Table 6. Employment by occupation, 2006

OCCUPATION	BROADER SERVICE AREA	QUEENSLAND
Managers	11.3%	12.6%
Professionals	13.5%	17.5%
Technicians and trades workers	19.2%	15.6%
Community and personal service workers	8.0%	9.3%
Clerical and administrative workers	13.4%	15.0%
Sales workers	9.4%	10.5%
Machinery operators and drivers	12.2%	7.4%
Labourers	12.9%	12.1%

Source: ABS (2007).

Table 7. Average weekly individual income by industry, 2006

INDUSTRY	BROADER SERVICE AREA	QUEENSLAND
Agriculture, forestry and fishing	\$662	\$622
Mining	\$1,837	\$1,722
Manufacturing	\$861	\$832
Electricity, gas, water and waste services	\$1,126	\$1,241
Construction	\$1,019	\$938
Wholesale trade	\$1,044	\$844
Retail trade	\$463	\$527
Accommodation and food services	\$436	\$463
Transport, postal and warehousing	\$907	\$886
Information media and telecommunications	\$519	\$943
Financial and insurance services	\$679	\$1,065
Rental, hiring and real estate services	\$973	\$939
Professional, scientific and technical services	\$930	\$1,105
Administrative and support services	\$578	\$672
Public administration and safety	\$812	\$968
Education and training	\$743	\$829
Health care and social assistance	\$665	\$793
Arts and recreation services	\$413	\$632
Other services	\$719	\$640
Total	\$810	\$877

Source: ABS (2007).

Table 8. House and land prices, Broader Service Area, December Quarter 2009

CATCHMENT	HOUSE		VACANT LAND		UNIT / TOWNHOUSE	
	VALUE (\$)	ANNUAL % CHANGE	VALUE (\$)	ANNUAL % CHANGE	VALUE (\$)	ANNUAL % CHANGE
Broader Service Area	\$370,437	-0.8%	\$157,400	6.6%	\$262,273	0.8%

Source: Real Estate Institute of Queensland (2010).

Note: Queensland medians are not commonly reported by REIQ. Figures were unavailable for some areas of the catchment due to the small number of sales.

and vacant urban land prices have increased by 71.9%, 78.8% and 66.3%, respectively, while in Rockhampton LGA these types of property have increased in price by 107.9%, 89.7% and 52.6%, respectively.

By comparison, over the past five years in the Brisbane Statistical Division:

- house prices have increased by 38.2%;
- unit / townhouse prices have increased by 42.5%; and
- vacant urban land prices have increased by 38.7%.

Residential Approvals

The Broader Service Area saw a decrease in residential approvals over the year to December 2009, with the decreased number of approvals matched with a fall in value. Residential approvals decreased by over 18% in the Broader Service Area, with approvals in Queensland down by almost a quarter, as the global economic downturn stalled a number of residential developments across Queensland and Australia (Table 9).

Median Weekly Rents

Median rent for houses in the Broader Service Area remained steady, while the number of new bonds fell. Rents for units and townhouses grew slightly, while the number of new bonds fell by over 6% (Table 10).

17.3.3.4.3 Construction Services and Building Inputs Market

Comparison of Queensland's construction price index with Australia (refer to Table 11) indicates that over the past six years construction prices in Queensland have generally increased at a faster rate across house, other residential building, non-residential building and road and bridge construction prices, with roads and bridges experiencing the largest index point change over the period.

Generally the construction materials market is highly global with many materials imported from interstate and overseas. Employment in construction in Queensland has generally been steadily growing over the past six years; however, at a regional level is highly variable and fluctuates depending on short-term contracts and investment occurring at a particular point in time. This is a reflection of the relatively mobile nature of construction workers.

On a regional level the Rawlinsons Building Price Index indicates that the price of building inputs in Mackay is 5% higher than the cost for building inputs in Brisbane (Rawlinsons, 2010), while in Rockhampton the price of building inputs is 3% higher.

17.3.3.5 Regional Resources and Competitive Advantages

17.3.3.5.1 Easily Accessible Coal

The Bowen Basin is one of Australia's principal black coal producing basins, with an estimated 24 gigatons of demonstrated and inferred reserves lying under a thin layer of younger sediments (Geoscience Australia *et al.*, 2010). The Galilee Basin is one of Australia's largest relatively unexplored resource regions, and has attracted significant interest and exploration in recent years. In December 2008, the Galilee Basin was estimated to have around six gigatons of demonstrated and inferred thermal coal reserves (Geoscience Australia *et al.*, 2010).

17.3.3.5.2 Emerging Coal-Seam Gas Industry

The Surat and Bowen Basins are the centre of Queensland's emerging coal-seam gas (CSG) industry, with proposed projects across Queensland potentially generating over 50 Mtpa. In December 2008, Economic Demonstrated Resources (EDR) of CSG reached 15,714 petajoules (PJ) in Queensland, with the Surat Basin accounting for 61% or 10,273 PJ and the Bowen Basin accounting for approximately 34% or 5,441 PJ (Geoscience Australia *et al.*, 2010). Considerable exploration is currently underway in both the Bowen and Galilee Basins.

17.3.3.5.3 Skilled and Available Workforce

The Broader Service Area's established manufacturing and construction industries have created a large pool of skilled workers for the development of infrastructure projects, with many workers basing themselves in Mackay and Rockhampton and operating as FIFO / DIDO workers on remote jobs. This gives the area a competitive advantage in sourcing labour.

17.3.3.5.4 Existing Port Infrastructure

The proximity of the Bowen Basin to port facilities at Abbot Point, Hay Point, Dalrymple Bay and Gladstone gives it a competitive advantage over more remote coal supplies in Queensland, cutting transport costs for coal.

Table 9. New residential building approvals, YE December 2008 to YE 2009

CATCHMENT	NO. OF NEW APPROVALS			VALUE OF NEW APPROVALS (\$'M)		
	YE DEC 08	YE DEC 09	% CHANGE	YE DEC 08	YE DEC 09	% CHANGE
Broader Service Area	1,707	1,390	-18.6%	\$465.5	\$398.0	-14.5%
Queensland	36,651	28,261	-22.9%	\$10,000.5	\$6,985.2	-30.2%

Source: ABS (2010b).

Table 10. Residential rental Market, YE December 2009

CATCHMENT ^(a)	MEDIAN WEEKLY RENTS		NEW BONDS	
	VALUE (\$)	ANNUAL % CHANGE	NUMBER	ANNUAL % CHANGE
Broader Service Area				
House	\$330	0.0%	478	-4.4%
Unit / Townhouse	\$250	2.0%	710	-6.1%

Source: Residential Tenancies Authority (2010).

Note: Data provided is for 3 bedroom houses and 2 bedroom units. ^(a) Data was not available for some catchment areas – the figures above should be treated as a guide only.

Table 11. Construction price index, December Q 2009

CATCHMENT / PRICE INDICATOR	DECEMBER 2009	INDEX POINT CHANGE 2008-09	INDEX POINT CHANGE 2003-09	CATCHMENT / PRICE INDICATOR	DECEMBER 2009	INDEX POINT CHANGE 2008-09	INDEX POINT CHANGE 2003-09
Queensland				Australia			
House	167.7	0.4	30.7	House	156.3	4.0	26.5
Other Residential	150.5	-18.2	20.7	Other Residential	149.7	-8.5	18.4
Non – Residential	156.8	-16.8	26.3	Non – Residential	153.0	-5.2	22.7
Road and Bridge	169.7	-5.0	42.7	Road and Bridge	158.8	0.6	33.6

Source: ABS (2010c).

17.3.3.6 Key Industries

17.3.3.6.1 Broader Services Area

Mining

Mining is a major producer in the Broader Service Area, in particular in Isaac LGA, which encompasses the majority of coal operations in the Bowen Basin. Mining produced approximately \$6.3 billion of the Broader Service Area's GRP in 2008 / 09, accounting for over one third of total GRP. Of this, approximately \$5.2 billion was produced in Isaac LGA.

The mining industry employs approximately 8.5% of workers in the Broader Service Area, with the average wage for mining workers the highest within the Study

Area and above the Queensland average. The higher salaries paid in the Primary Catchment can be partially attributed to recent increases in demand for mining employees and resultant skills shortages in the region, which has placed upward pressure on wages and salaries in the region (Rolfe *et al.*, 2007; Petkova *et al.*, 2009).

Transport, Postal and Warehousing

The transport, postal and warehousing sector is a major contributor to the Broader Service Area's economy. The central geographic location of the Broader Service Area as well as the established port infrastructure gives the transport and warehousing sector competitive advantages over other regions.

The sector is estimated to have contributed 8.5% (\$1.5 billion) to GRP in the Broader Service Area in 2008 / 09, and 5.8% of total employment. The average wage in the Broader Service Area for transport, postal and warehousing workers is higher than for transport workers in the other catchment areas and Queensland.

Manufacturing

The Broader Service Area has a sizable mining support sector, in particular mining-related manufacturing in Mackay. Rockhampton has a well-developed industrial sector catering to food manufacturing and minerals processing, while there is some sugar cane milling and processing in Sarina. The manufacturing sector contributed an estimated \$1.0 billion to GRP in 2008 / 09 (5.7% of GRP), and accounted for 8.9% of total employment.

Agriculture

Agriculture contributed an estimated \$294.5 million to the Broader Service Area's GRP in 2008 / 09, and 4.5% of employment. Beef cattle grazing and sugar are the key agricultural activities in the Broader Service Area.

17.4 ECONOMIC ASSESSMENT

17.4.1 IMPACTS ON INDUSTRY

Impacts of the project on industry output within the Broader Service Area and Queensland across three stages – the initial three-year construction period, the first five years of operation and steady-state operations from 2018 / 19 to 2036 / 37 – are outlined in **Table 12**. The table indicates:

- the Queensland economy is estimated to receive a benefit of an additional \$231.9 million per annum on average in industry output above what would be achieved without the project during the three year construction period between 2010 / 11 and 2012 / 13;
- construction activity is estimated to result in an increase above the base (without project) scenario in industry output between 2010 / 11 and 2012 / 13 of approximately \$173.7 million per annum on average in the Broader Service Area;
- the extraction and export of 40 Mtpa of coal is estimated to provide a \$5.2 billion per annum on average boost to industry output in the Queensland economy over the first five years of operation, increasing to \$5.7 billion per annum on average thereafter to 2036 / 37; and

- the vast majority of industry output benefits in Queensland during operation will be generated by extraction of coal resources in the Mine Catchment, rather than the Broader Service Area, which will primarily provide mining and mining-related support to the project. In the Broader Service Area, the provision of support services for the project is estimated to result in an additional \$599.6 million in industry output per annum on average, increasing to \$603.0 million in the longer term.

In terms of impacts by industry, the project is estimated to have the following impacts on industry output in Queensland (refer to **Table 13**):

- an increase in activity within the construction sector during the initial three year construction period, averaging approximately \$568.6 million above what the sector would otherwise produce if the project does not proceed;
- business, finance and insurance services, trade and ownership of dwelling are also anticipated to record an increase in activity during the three years of construction, driven by a combination of increased demand for these services to supply the project as well as through additional household incomes and spending in the State;
- during operation (2013 / 14 to 2036 / 37), an increase in Queensland's mining sector output (above what would be achieved without the project) of approximately \$4.5 billion per annum on average during the first five years of operation and approximately \$4.8 billion per annum on average thereafter;
- an increase in demand for a range of goods and services in Queensland, both in terms of support sectors supplying mining operations (e.g., transport and storage, business, finance and insurance services) as well as a range of services to support the workforce and Queensland population, primarily as a result of flow-on industry activity, additional household incomes and expenditure, and Queensland Government revenues;
- a reallocation of some constrained resources, in particular labour, resulting in a potential overall "draw-down" on some sectors (e.g., agriculture, public administration, defence, health and education, recreation and other services), particularly during the early stages of the project, during which the Queensland economy is adjusting to changes in its economic structure; and

- a considerable decline in manufacturing industry output during operation. It is expected that the mining-related manufacturing sub-sector will benefit from the project through demand for and provision of goods and services to support the project once operational. However, offsetting this it is anticipated the manufacturing sector will be one of the hardest hit sectors in terms of the reallocation and draw of labour to the project given the relatively similar skills sets employed. Further, the export of \$4.6 billion per annum of coal will place upward pressure on

Australia's exchange rate, and may impact on the global competitiveness of manufacturing goods produced in Australia (although this impact, if any, is likely to be small). As a result, overall manufacturing output is estimated to decline in Queensland relative to what would be achieved if the project does not proceed.

Within the Broader Service Area, the project is assessed to have the following additional key impacts on industry and local business (refer to **Table 14**):

Table 12. Average annual impact on total industry output within the Broader Service Area and in Queensland, deviation from the baseline (without project) scenario

INDUSTRY	CHANGE IN INDUSTRY OUTPUT		
	2010 / 11 – 2012 / 13	2013 / 14 – 2017 / 18	2018 / 19 – 2036 / 37
Change in Industry Output (%)			
Broader Service Area	0.5%	1.5%	1.1%
Queensland	0.0%	0.8%	0.7%
Change in Industry Output (\$M)			
Broader Service Area	\$173.7	\$599.6	\$603.0
Queensland	\$231.9	\$5,221.5	\$5,728.3

Source: Prime Research (unpublished).

Table 13. Average annual impact on industry output in Queensland, deviation from the baseline (without project) scenario

INDUSTRY	CHANGE IN INDUSTRY OUTPUT (\$M)		
	2010 / 11 – 2012 / 13	2013 / 14 – 2017 / 18	2018 / 19 – 2036 / 37
Agriculture	-\$42.0	-\$38.0	-\$15.2
Mining	-\$247.2	\$4,506.8	\$4,807.1
Manufacturing	-\$209.3	-\$1,249.4	-\$1,050.8
Electricity and water	-\$38.1	-\$19.9	\$23.7
Construction	\$568.6	\$92.5	-\$82.7
Trade	\$82.8	\$331.2	\$348.4
Transport and storage	-\$64.0	\$837.7	\$890.6
Business, finance and insurance services	\$176.1	\$176.6	\$155.4
Public administration, defence, health and education	-\$7.7	\$233.3	\$231.1
Recreation and other services	-\$3.6	\$47.3	\$58.1
Ownership of dwellings	\$16.2	\$303.4	\$362.7
Total Change in Industry Output (\$M)	\$231.9	\$5,221.5	\$5,728.3

Source: Prime Research (unpublished).

- industry output is estimated to increase by approximately 0.5% (or \$173.7 million) on average during the 36 months of construction, primarily through the supply of manufacturing goods (increase of 4.1% from the baseline scenario, or \$163.1 million) and business services (1.6% or \$47.8 million) to support construction of the project;
- construction activity in the Broader Service Area is also estimated to increase during the three year construction period (approximately 1.7% on average, or \$32.4 million). The Broader Service Area's construction sector will be supported by construction of the proposed rail line crossing through Isaac Regional Council, although it is anticipated that some construction employees that would otherwise be working in the region will be drawn to the Mine Catchment and Abbot Point Catchment for development of the mine and port facilities;
- once operational, the Broader Service Area economy is estimated to record an increase in industry output of approximately \$600 million between 2013 / 14 and 2036 / 37, representing an increase of 1.5% per annum on average during the first five years of operation and 1.1% per annum on average thereafter;
- transport and storage is estimated to record the most significant increase in activity in the Broader Service Area of approximately 32.1% (or \$544.1 million) on average during the first five years of operation and approximately 26.0% (or \$570.1 million) on average thereafter. This increase will be driven by direct impacts through the transportation of coal from the mine to export facilities at Abbot Point, as well as through increased transportation of goods and services from and within the Broader Service Area to support mining and export activities;
- the industries of electricity, gas and water, trade and business, finance and insurance and ownership of dwellings are all estimated to benefit during operation of the project, primarily as a result of providing support services to mining, transportation and export activities, as well as through increased incomes and consumption within the region; and
- Mackay provides a strong mining support services sector that has developed over many years to support mining activity in the Bowen Basin, in particular for engineering, heavy manufacturing and equipment needs. Development of the project will provide these industries with an opportunity to expand to meet supply requirements of the project. However, as with

the experience in Queensland overall, the Broader Service Area's manufacturing sector is estimated to record a slight decline in overall industry output during operation, primarily as a result of a reallocation of skilled labour from some manufacturing sub-sectors to the project.

17.4.2 IMPACTS ON EMPLOYMENT

17.4.2.1 Employment Generation

Impacts of the project on employment within the Broader Service Area and Queensland are outlined in **Table 15**. In interpreting the employment estimates presented, it should be recognised that a large proportion of the project's construction and mining workforces are anticipated to operate on a FIFO basis, with many of these workers having a permanent residence in major service centres such as Brisbane, Mackay, Rockhampton or Emerald. The table outlines:

- in consideration of an anticipated reallocation of labour resources between sectors, the project is estimated to support, on average, an additional 2,975 Full Time Equivalent (FTE) employment positions per annum above what would otherwise be achieved in Queensland during construction (between 2010 / 11 and 2012 / 13). During the construction phase, employment in the Broader Service Area is estimated to increase by approximately 723 FTE employment positions per annum on average;
- during the first five years of operation (2013 / 14 to 2017 / 18) the project is estimated to support an additional 4,464 FTE employment positions per annum on average in Queensland above the base (without project) scenario, and approximately 3,954 FTE employment positions per annum on average thereafter; and
- employment in the Broader Service Area is estimated to increase by approximately 669 FTE employment positions per annum on average above the base (without project) scenario during the first five years of operation, and approximately 451 FTE employment positions per annum on average thereafter.

Table 14. Average annual impact on industry output in the Broader Service Area, deviation from the baseline (without project) scenario

INDUSTRY	CHANGE IN INDUSTRY OUTPUT		
	2010 / 11 – 2012 / 13	2013 / 14 – 2017 / 18	2018 / 19 – 2036 / 37
Change in Industry Output (%)			
Agriculture	-0.4%	-0.4%	-0.1%
Mining	-0.6%	-0.6%	-0.3%
Manufacturing	4.1%	-0.3%	-0.6%
Electricity and water	-0.4%	2.9%	2.2%
Construction	1.7%	0.9%	0.1%
Trade	0.6%	0.7%	0.4%
Transport and storage	-0.1%	32.1%	26.0%
Business, finance and insurance services	1.6%	1.8%	1.1%
Public administration, defence, health and education	-0.3%	-0.1%	0.0%
Recreation and other services	-0.8%	-0.5%	-0.2%
Ownership of dwellings	-0.2%	0.4%	0.3%
Total Change in Industry Output (%)	0.5%	1.5%	1.1%
Change in Industry Output (\$M)			
Agriculture	-\$11.4	-\$12.5	-\$4.6
Mining	-\$59.1	-\$68.3	-\$64.8
Manufacturing	\$163.1	-\$14.3	-\$27.9
Electricity and water	-\$4.2	\$37.0	\$40.8
Construction	\$32.4	\$18.2	\$2.1
Trade	\$23.9	\$32.7	\$29.3
Transport and storage	-\$1.3	\$544.1	\$570.1
Business, finance and insurance services	\$47.8	\$59.4	\$50.7
Public administration, defence, health and education	-\$10.1	-\$1.7	\$0.3
Recreation and other services	-\$3.9	-\$2.7	-\$1.6
Ownership of dwellings	-\$3.4	\$7.7	\$8.6
Total Change in Industry Output (\$M)	\$173.7	\$599.6	\$603.0

Source: Prime Research (unpublished).

Table 15. Average annual impact on employment at the Broader Service Area and in Queensland, deviation from the baseline (without project) scenario

INDUSTRY	CHANGE IN EMPLOYMENT		
	2010 / 11 – 2012 / 13	2013 / 14 – 2017 / 18	2018 / 19 – 2036 / 37
Change in Employment (%)			
Broader Service Area	0.6%	0.5%	0.3%
Queensland	0.1%	0.2%	0.1%
Change in Employment (FTEs)			
Broader Service Area	723	669	451
Queensland	2,975	4,464	3,954

Source: Prime Research (unpublished).

Note: Employment estimates presented in the table above are based on place of work, not place of usual residence.

Impacts of the project on Queensland's employment by industry are outlined in **Table 16**. The table shows that industries that are estimated to record an increase in demand and output (as identified in **Table 13**) are also expected to record an increase in employment to meet additional production requirements, while industries that are estimated to record a decline in output can be attributed at least partially to a draw of labour resources from these industries.

Of note, the project will support a considerable number of employment positions in the trade sector and the public administration, defence, health and education sector in Queensland. This can be largely attributed to the considerable additional government revenues generated by the project, supporting employment in government funded services, as well as additional household incomes and expenditure on goods and services.

Table 16. Average annual impact on employment by Industry in Queensland, deviation from the baseline (without project) scenario

INDUSTRY	CHANGE IN EMPLOYMENT (FTEs)		
	2010 / 11 – 2012 / 13	2013 / 14 – 2017 / 18	2018 / 19 – 2036 / 37
Agriculture	-126	-192	-120
Mining	-258	772	788
Manufacturing	-188	-2,215	-1,666
Electricity and water	-97	-70	20
Construction	2,564	575	-65
Trade	504	1,961	1,763
Transport and storage	-47	662	643
Business, finance and insurance services	617	718	607
Public administration, defence, health and education	5	1,964	1,698
Recreation and other services	3	254	255
Ownership of dwellings	0	35	32
Total Change in Employment (FTEs)	2,975	4,464	3,954

Source: Prime Research (unpublished).

Note: Employment estimates presented in the table above are based on place of work, not place of usual residence.

Within the Broader Service Area, the project is assessed to have the following additional key impacts on employment (refer to **Table 17**):

- the project is estimated to support additional employment in not only the construction industry within the Broader Service Area, but also key supply sectors to the construction industry such as manufacturing, trade and business, finance and insurance services;
- as the service centre to the project, the Broader Service Area is estimated to record a relatively diverse impact on employment during operation of the project, with most sectors in the region estimated to experience an increase in employment above what would otherwise be achieved without the project;
- the draw of labour to the mining and transport and storage sectors during operation, as well as their key support sectors, is estimated to result in some other sectors recording a decline in employment compared to what would be achieved without the project (e.g., agriculture, manufacturing and mining); and
- manufacturing employment in the Broader Service Area is also estimated to be adversely impacted by the project's influence in terms of strengthening Australia's exchange rate and subsequent impacts on trade exposed industries.

Table 17. Average annual impact on employment by industry in the Broader Service Area, deviation from the baseline (without project) scenario

INDUSTRY	CHANGE IN INDUSTRY OUTPUT		
	2010 / 11 - 2012 / 13	2013 / 14 - 2017 / 18	2018 / 19 - 2036 / 37
	Change in Industry Output (%)		
Agriculture	-0.4%	-0.4%	-0.1%
Mining	-0.6%	-0.6%	-0.3%
Manufacturing	4.1%	-0.3%	-0.6%
Electricity and water	-0.4%	2.9%	2.2%
Construction	1.7%	0.9%	0.1%
Trade	0.6%	0.7%	0.4%
Transport and storage	-0.1%	32.1%	26.0%
Business, finance and insurance services	1.6%	1.8%	1.1%
Public administration, defence, health and education	-0.3%	-0.1%	0.0%
Recreation and other services	-0.8%	-0.5%	-0.2%
Ownership of dwellings	-0.2%	0.4%	0.3%
Total Change in Industry Output (%)	0.5%	1.5%	1.1%
	Change in Industry Output (\$M)		
Agriculture	-\$11.4	-\$12.5	-\$4.6
Mining	-\$59.1	-\$68.3	-\$64.8
Manufacturing	\$163.1	-\$14.3	-\$27.9
Electricity and water	-\$4.2	\$37.0	\$40.8
Construction	\$32.4	\$18.2	\$2.1
Trade	\$23.9	\$32.7	\$29.3
Transport and storage	-\$1.3	\$544.1	\$570.1
Business, finance and insurance services	\$47.8	\$59.4	\$50.7
Public administration, defence, health and education	-\$10.1	-\$1.7	\$0.3
Recreation and other services	-\$3.9	-\$2.7	-\$1.6
Ownership of dwellings	-\$3.4	\$7.7	\$8.6
Total Change in Industry Output (\$M)	\$173.7	\$599.6	\$603.0

Source: Prime Research (unpublished).

Note: Employment estimates presented in the table above are based on place of work, not place of usual residence.

17.4.2.2 Skills Requirements

Employment by occupation requirements during the three year construction period within the Broader Service Area are presented in **Table 18**, and indicate that the increase in demand for skilled labour will be relatively mild in the region, with technicians and trade workers, sales workers, labourers, and clerical and administrative workers recording the highest demand over the period.

During operation, no occupational groupings in the Broader Service Area are estimated to record an increase in employment demand of more than 0.8% above what would otherwise occur without the project throughout the operational period (refer to **Table 19**).

Table 18. Average annual impact on employment by occupation grouping within the Broader Service Area, deviation from the baseline (without project) scenario, 2010 / 11 – 2012 / 13

OCCUPATION GROUP	CHANGE IN EMPLOYMENT
	2010 / 11 – 2012 / 13
Managers	0.4%
Professionals	0.4%
Technicians and trades workers	1.3%
Community and personal service workers	0.1%
Clerical and administrative workers	0.7%
Sales workers	0.8%
Machinery operators and drivers	0.4%
Labourers	0.7%

Source: Prime Research (unpublished).

Table 19. Average annual impact on employment by occupation grouping within the Broader Service Area, deviation from the baseline (without project) scenario, 2013 / 14 – 2036 / 37

OCCUPATION GROUP	CHANGE IN EMPLOYMENT	OCCUPATION GROUP	CHANGE IN EMPLOYMENT
2013 / 14 – 2017 / 18		2018 / 19 – 2036 / 37	
Managers	0.3%	Managers	0.2%
Professionals	0.5%	Professionals	0.3%
Technicians and trades workers	0.7%	Technicians and trades workers	0.2%
Community and personal service workers	0.4%	Community and personal service workers	0.2%
Clerical and administrative workers	0.8%	Clerical and administrative workers	0.4%
Sales workers	0.8%	Sales workers	0.4%
Machinery operators and drivers	0.6%	Machinery operators and drivers	0.3%
Labourers	0.4%	Labourers	0.2%

Source: Prime Research (unpublished).

Key occupations that will be in highest demand in the Broader Service Area during the construction and operation periods are outlined in Table 20.

Table 20. Key occupations during construction and operation

KEY OCCUPATIONS DURING CONSTRUCTION	KEY OCCUPATIONS DURING OPERATION
Fabrication engineering trade workers	Sales support workers
Bricklayers, carpenters and joiners	Rail operators
Floor finishers and painting trades workers	Truck drivers
Glaziers, plasterers and tilers	Freight handlers
Wood trades workers	Miscellaneous factory process workers
Machine operators	

17.4.2.3 Skills Development and Attraction

Waratah Coal will seek to utilise local labour to the extent possible and practical during both construction and operation of the project. However, during construction and operation Waratah Coal will utilise a primarily FIFO workforce, as it is anticipated that local labour will be insufficient to meet project requirements due to:

- Existing constraints in terms of labour availability in the project’s Catchment Area and the nature of the project, which will require some specialist skills for both the construction and operation of the project that are currently in short supply in the region; and
- Anticipated competition for labour resources from other major infrastructure, resource and industry projects expected to be developed throughout Central Queensland over the next five years.

While the project will not provide any direct employment opportunities within the Broader Service Area during operation, the project will likely source some labour from within the region operating on FIFO arrangements. Waratah Coal will also instigate policies and practices to develop the skills base throughout the Study Area to support mining activities and improve local participation over time.

17.4.2.4 Unemployment

The project will provide job opportunities for people currently unemployed through the following avenues:

- through the generation of job opportunities directly related to developing and operating the project;
- through flow-on job generation to support the project; or

- through the creation of job openings to replace workers attracted to the project from other sectors.

While not all of the positions generated by the project will be filled by an unemployed person – a large proportion will also likely be filled by people re-entering the workforce or migrating to Queensland from elsewhere in Australia or overseas – it is anticipated that unemployment will decline as a result of jobs created by the project.

Impacts on unemployment in Queensland are anticipated to be highest in the Mine Catchment and Abbot Point Catchment where construction and operational activity will primarily be centred, as well as in Southeast Queensland where many of the FIFO workers and a range of services are anticipated to locate.

17.4.2.5 Migration of Workers

A high proportion of construction and mining workers for the project are expected to be engaged on FIFO arrangements, with permanent residences outside the Study Area. Table 21 presents employment estimates as outlined by CGE modelling results based on where those jobs will be located and the permanent residence of workers, to outline the anticipated level of local labour content compared to FIFO workers. The table shows that the vast majority of workers in the Broader Service Area are anticipated to be locally residing workers during both construction and operation, reflective of the relatively low impact on skilled labour demand in the region compared to existing levels.

Table 21. Estimates of employment generation by place of work and place of usual residence

REGION	PLACE OF WORK	PLACE OF USUAL RESIDENCE	NET FIFO COMPONENT
2010 / 11 to 2012 / 13			
Broader Service Area	723	538	184
Rest of Queensland	-983	1,836	-2,818
2013 / 14 to 2017 / 18			
Broader Service Area	669	608	60
Rest of Queensland	1,643	3,346	-1,702
2018 / 19 to 2036 / 37			
Broader Service Area	451	451	0
Rest of Queensland	2,128	3,114	-986

Source: Prime Research (unpublished).

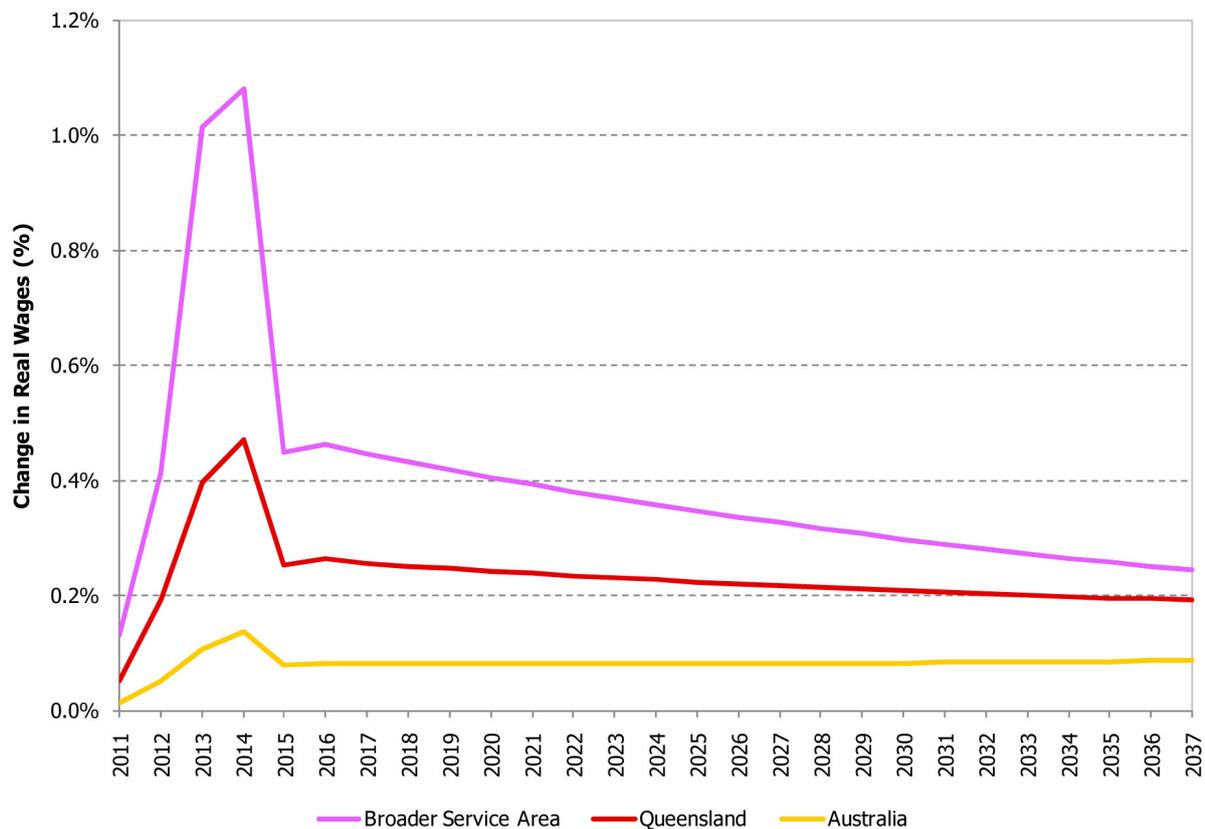
17.4.3 IMPACTS TO FACTOR INCOMES

17.4.3.1 Compensation of Employees

Demand for labour by the project place upward pressure on wage rates throughout the regional, State and national economy as labour is attracted to the mining sector and other industries are forced to increase wages and salaries paid in order to retain and attract workers.

Modelling results presented in Figure 2 indicate that the project could contribute to an increase in real wages of approximately 0.1% per annum on average in Australia and 0.2% per annum on average in Queensland between 2010 / 11 and 2036 / 37. Impacts on real wages are expected to be more acute in the Study Area. In the Broader Service Area, real wages are estimated to increase by approximately 0.4% per annum on average between 2010 / 11 and 2036 / 2037.

Figure 2. Annual Percent Change in Real Wages Resulting From the Project, 2010 / 11 to 2036 / 37



Source: Prime Research (unpublished).

This increase in the average real wage is over and above any increases in the cost of living, and therefore represents a real increase in household incomes in the Catchment Area, Queensland and Australia. Increases in real wages are most acute during the construction period where labour demand is highest.

17.4.3.2 Gross Operating Surplus

The project will:

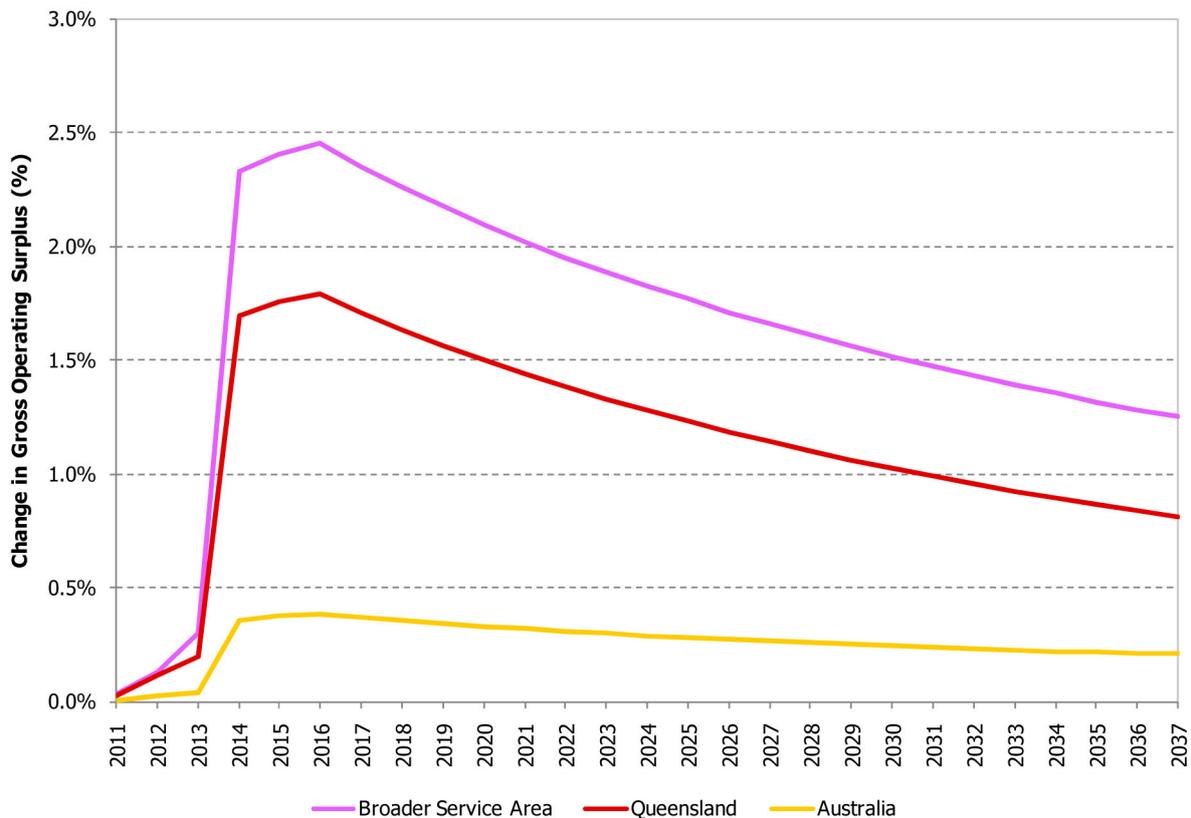
- generate additional confidence in Australian capital markets, encouraging increased capital injection into the Australian economy, in particular in the construction and mining industries and their value chain;
- provide a potential benefit in relation to access and cost of finance for capital investment. The development of a 40 Mtpa coal mine with a stable

contract in place for the supply of coal may lead to increased business confidence and improve access to (and reducing the cost of obtaining) finance throughout the region;

- generate additional expenditure by industry and households which will benefit businesses through additional turnover and business profits; and
- increase demand for industrial and commercial land, with an associated increase in values and rents for this land.

Modelling results presented in **Figure 3** indicate that the project could contribute to an increase in gross operating surplus in the Broader Service Area of up to 2.5% above what would be achieved without the project between 2010 / 11 and 2036 / 37, with milder increases in Queensland and Australia.

Figure 3. Annual Percent Change in Gross Operating Surplus Resulting From the Project, 2010 / 11 to 2036 / 37



Source: Prime Research (unpublished).

17.4.4 IMPACTS ON PROPERTY VALUES

During construction, it is anticipated that the majority of the workforce will be engaged on FIFO arrangements, and accommodated in construction worker camps located near the mine site, along the rail line and near the APSDA.

Given the use of worker camps it is not anticipated that there will be any noticeable impacts on property markets within the Broader Service Area during construction, although there may be some potential for construction workers and their families to migrate to major centres in the Broader Service Area such as Mackay, and then stay at worker camps during their rostered shifts. Where this occurs, some additional demand will be placed on these property markets.

During operation, the majority of property market impacts in the Broader Service Area are expected to be generated by flow-on impacts of the project, in particular as a result of additional demand in the mining services and support sector.

Mackay has a well-developed mining services sector that supports mining activity in the Bowen Basin, in particular engineering, heavy manufacturing and mining related equipment. Development of the project will provide these industries with an opportunity to expand to meet supply requirements of the project. Consultation suggests additional opportunities exist to support the mining industry, in particular in terms of hospitality services catering to the needs of employees accommodated in the worker camps, such as food services, laundry, cleaning and maintenance of worker camps, as well as other assets.

Demand for household and consumer related services are also likely to increase as a result of the additional employment opportunities and incomes generated both directly and through the supply chain for the project. The majority of these services will likely develop in the major service centres in the project's Study Area, Mackay in particular.

Modelling suggests that the project could generate approximately 669 additional employment positions in the Broader Service Area during the first five years of operation, and 451 thereafter. It is expected that some of the flow-on labour demand generated will be filled by existing local residents, providing jobs for some local unemployed people, people currently out of the labour force, as well as a reallocation of labour between

business and industry. However, given the currently constrained labour market in the region, it is anticipated that some positions will need to be filled by people migrating to the Study Area, particularly in regional hubs and population centres where the majority of services are located such as Emerald (in the Mine Catchment) and Mackay (in the Broader Service Area).

Increased demand for property in these localities without increased supply of housing will place upward pressure on property and rental prices. Most of the additional 669 FTE employment positions in the Broader Service Area during the first five years of operation are expected to be located in the major service centre of Mackay. With over 40,000 dwellings in the Mackay Regional Council area in 2006 and in consideration that only a portion of employment positions will be filled by people migrating to the region, it is unlikely the operation phase of the project will have a significant impact on property values and rental prices in the Broader Service Area.

17.4.5 IMPACTS TO HOUSEHOLDS

The project will contribute to an increase in household incomes in the Broader Service Area of approximately \$71.8 million per annum on average between 2010 / 11 and 2012 / 13, and approximately \$77.8 million per annum on average between 2013 / 14 and 2036 / 37. The relatively high impacts to household incomes in the Broader Service Area compared to employment impacts is reflective of the high use of FIFO workers during construction of the project as well as operation of the mine, some of which are expected to have a permanent residence within the Broader Service Area (in particular Mackay, and potentially Rockhampton). An even larger proportion of wages and salaries generated by the project will be attributed to FIFO workers with a permanent residence outside the project's Study Area, with additional wages and salaries to Queensland households of approximately \$452.7 million per annum on average between 2010 / 11 and 2012 / 13 and \$776.1 million per annum on average between 2013 / 14 and 2036 / 37.

In addition to wages and salaries generated by the project, households may benefit from increased wealth through:

- opportunities for low income households and families to supplement their income through family members working either part time or full time at the mine;

- a reduction in unemployment in the Broader Service Area and Queensland, providing people that were previously unemployed with higher incomes;
- opportunities for wealth re-distribution to investors (i.e., shareholders) of the project and contribution to property owners through rental returns; and
- an increase in real wages throughout Australia, including in the Broader Service Area, as an increase in demand for skilled labour places upward pressure on labour prices. The increase in real wages is over and above any increases in the cost of living, and therefore represents an increase in disposable incomes in the Broader Service Area and Queensland.

However, not all project impacts on households will be positive. Potential negative implications on households include:

- wealth generated by the project will be primarily distributed to those directly engaged in the project as a result of higher salaries paid in the mining industry and associated supply chain. Experiences during the most recent mining boom (2003 to 2008) suggest the disparity in salaries could contribute to a wealth divide between mining families and other residents, and may impact on housing affordability for those that are not employed by the project or in other high earning occupations;
- some areas and towns in the Broader Service Area may be subject to increased traffic flows as a result of the project through a combination of:
 - construction and mining related materials and equipment transportation. This will lead to increased road maintenance requirements;
 - new residents migrating to the region and / or mining employees seeking accommodation outside of the worker camps; and
 - the provision of some recreational, leisure, health and community services to the mine employees.

The increase in traffic may result in increased travel times for residents where not appropriately planned for and strategies developed to mitigate these impacts.

17.4.6 IMPLICATIONS OF THE PROJECT FOR FUTURE DEVELOPMENT

17.4.6.1 Beneficial Implications

The project will involve the development of rail and port infrastructure that is critical to access and commercialise coal and other resource deposits with export potential in the Galilee Basin. Rail, coal terminal and other support infrastructure developed for the project will be accessible by third parties, which will “open” the abundant high quality resources available in the Galilee Basin for future development, including coal and coal seam gas, by providing base support infrastructure and reducing hurdle rates for future resource development. This will benefit the Broader Service Area through the generation of additional demand for a range of mining and mining-related support services, with Mackay a likely destination for development of these services given the region’s existing value chain. The development of open access rail infrastructure provides a platform for future expansion of the line to accommodate higher coal tonnages, thereby providing additional capacity for future development of coal and other resource operations in the Galilee Basin and generating additional demand for mining support services.

17.4.6.2 Potential Forgone Opportunities

While the project is expected to deliver considerable beneficial impacts to the Broader Service Area, as well as the State and national economies, there are some potential adverse implications of the project in terms of potential forgone opportunities, including:

- a potential erosion of the agriculture sector in the Broader Service Area through the disruption of agricultural management practices in land holdings along the rail corridor and an expected draw of labour resources from the agricultural industry. However, agriculture is a stable rather than growth industry in the region and has limited potential for future expansion without intensification;
- competition with other projects for labour (and other) resources, placing upward pressure on prices and increasing the difficulty for projects to source input materials and suitably skilled staff. This may result in some other projects being delayed or postponed;
- support for the strength of the Australian dollar which may adversely impact the profitability and long term prospects of some sectors that are exposed to

international competition, in particular manufacturing, some agricultural commodities and tourism-related sectors; and

- attraction of employees from lower income paying industries, which could have deleterious impacts on local business and industry capacity to service the project and local population if not managed appropriately.

17.4.7 ADDITIONAL ECONOMIC IMPLICATIONS

In addition to the impacts within the Broader Service Area examined above, the project is anticipated to have some wide ranging impacts at a State and national level and cannot be attributed or apportioned to any one catchment, including impacts on the balance of trade and additional government revenues. These impacts are examined below.

17.4.7.1 Impacts on Export Revenues and Balance of Trade

The project will result in an increase in export revenues of \$4.6 billion per annum through the export of high quality thermal coal. This will represent an increase in Australian thermal coal export revenues of approximately 25.7% and an increase in total Australian exports of 2.0% from 2008 / 09 levels. The increase in export revenues may provide support for the strength of the Australian dollar. However, the impact of the project on Australia’s exchange rate, if any, is likely to be small.

17.4.7.2 Impacts on Government Revenues

17.4.7.2.1 Local Government Revenues

Local council revenues will increase as a result of people re-locating permanently or temporarily to the project’s Catchment Areas, through additional rates revenue associated with dwellings and workers camps that are constructed to meet additional demand and any appreciation in land value brought on by increased population. For renters, and those in workers camps, council fees and charges will be met by the landlords and employers.

However, off-setting additional revenues will be a requirement for additional funding for capital investments (e.g., local road and community infrastructure) as well as a likely increase in operating expenditure to meet the service provision and infrastructure demand and needs of an increased population.

17.4.7.2.2 Queensland Government Revenues

The project will increase Queensland Government revenues directly through land tax, payroll tax, royalties and rents. Impacts of the project on Queensland Government revenues are summarised in Table 22, and have been estimated based on prevailing tax rates (i.e., assumes tax policy does not change significantly over time). Queensland Government revenues have been estimated based on both direct and flow-on impacts of the project.

In aggregate, Queensland Government revenues are indicatively estimated to be approximately \$364.9 million per annum on average over the period 2010 / 11 to 2036 / 37, with royalties contributing an estimated 94.0% of total Government revenues.

Table 22. Average annual Queensland Government revenues from the project (2010 / 11 to 2036 / 37)

REVENUE SOURCE	ESTIMATED REVENUE (\$M)	PROPORTION OF REVENUE (%)
Land Tax	\$0.8	0.2%
Payroll Tax	\$18.4	5.0%
Royalties	\$343.0	94.0%
Tenure Rents	\$2.8	0.8%
Total Revenue	\$364.9	100.0%

Source: Office of State Revenues Queensland (2010), Prime Research (unpublished), DEEDI (2010), DME (2010a), DME (2010b), AECgroup

17.4.7.2.3 Australian Government Revenues

The project will contribute to Australian Government revenues through company tax, fringe benefits tax, goods and services tax (GST), personal income tax and import duties. Australian Government revenues have been estimated based on both direct and flow-on impacts of the project, with the exception of import duties that are estimated based on direct impacts only.

The impacts of the project on Australian Government revenues are summarised in Table 23. The project is indicatively estimated to generate an additional \$709.8 million per annum on average in Australian Government revenues between 2010 / 11 and 2036 / 37.

Table 23. Average annual Australian Government revenues from the project (2010 / 11 to 2036 / 37)

REVENUE SOURCE	ESTIMATED REVENUE (\$M)	PROPORTION OF REVENUE (%)
Company Tax	\$302.9	42.7%
Fringe Benefits Tax	\$6.9	1.0%
GST	\$158.3	22.3%
Personal Income Tax	\$237.8	33.5%
Import Duties (a)	\$4.0	0.6%
Total Revenue	\$709.8	100.0%

Source: Australian Customs and Border Protection Services (2010), Australian Taxation Office (2010), Prime Research (unpublished), AECgroup

Note: (a) Estimates of import duties over the period from 2010 / 11 to 2036 / 37 represent import duties on direct imports during construction only.

There is currently widespread debate relating to the proposed Australian Government's Mining Resources Rent Tax (MRRT). However, as this is not currently Government policy and is in the process of ongoing negotiation and planning, the structure of any tax effects remains unclear and is unable to be modelled with any accuracy. Should such a tax be introduced it would:

- decrease resource company profits for those operations meeting MRRT criteria and thresholds;
- increase tax revenues to the Australian Government through revenues generated by the MRRT; and
- increase development hurdle rates and risk, with the implication of reducing the attractiveness of Australian resource deposits for development.

It is unclear at this stage the specific effect this proposed additional tax would have on the project, and the associated broader flow-on effects.

17.5 CONCLUSION

The economic impact assessment was prepared in mid-2010. While some aspects of the project have changed (such as the intended use of the proposed multi-cargo facility rather than the construction of a separate jetty by Waratah Coal), the general findings and conclusions are deemed to remain relevant and provide a reasonable assessment of the project's economic impact on the local, regional, state and national economies.

Analysis and modelling prepared in this report identifies the project will generate significant positive economic, employment and income impacts at the regional and State levels. Key impacts of the project in the Broader Service Area and Queensland include:

- an increase in export revenues of \$4.6 billion per annum through the export of 40 Mtpa of high quality thermal coal, representing an increase in Australian thermal coal export revenues of approximately 25.7% and an increase in total Australian exports of 2.0% from 2008 / 09 levels. The increase in export revenues may provide support for the strength of the Australian dollar;
- an increase in industry output in Queensland of \$231.9 million per annum on average during the three year construction period, including an increase in output of \$173.7 million per annum on average in the Broader Service Area;
- a \$5.2 billion per annum on average boost to industry output in the Queensland economy over the first five years of operation, increasing to an average of \$5.7 billion per annum on average thereafter to 2036 / 37. The Broader Service Area is estimated to record an annual increase in industry output above what would be achieved without the project of approximately \$599.6 million during the first five years of operation, and \$603.0 million per annum thereafter;
- support and development for local business and industry, through securing local contracts for the supply of goods and services for the project where possible and through other flow-on activities and increased household consumption. Key industries supported by the project in the Broader Service Area include transport and storage, construction and property and business services. A large proportion of goods and services are also anticipated to be sourced from elsewhere in the State, in particular from southeast Queensland;
- increased competition for inputs such as land, labour and capital will result in resources moving to regions and industries that generate the greatest returns. As a result, output from Queensland's manufacturing and agricultural industries is estimated to decrease, largely due to increased competition for skilled labour. Agriculture in the Broader Service Area will also be adversely impacted by disruption of property management practices for those properties intersected by the rail corridor, including potential impacts on land accessibility for land holders and livestock with

restricted crossing between land parcels, additional costs for mustering, weed control and general property management (e.g., additional fuel usage, fencing, etc.), and the potential for ‘land locking’ of some land parcels (i.e., isolating or stranding some areas of land and thereby decreasing their commercial attractiveness and utilisation);

- an increase in employment in Queensland of 2,975 Full Time Equivalent (FTE) employees per annum on average during the three year construction period, including 723 FTE employees in the Broader Service Area. During the first five years of operation (2013 / 14 to 2017 / 18) the project is estimated to support an additional 4,464 FTE employment positions per annum on average in Queensland, and approximately 3,954 FTE employment positions per annum on average thereafter. In the Broader Service Area the project is estimated to support an additional 669 employment positions per annum on average during the first five years of operation, and approximately 451 FTE employment positions per annum on average thereafter;
- capacity building and skills development in the local labour force through apprenticeships, traineeships and skills training, as well as ongoing skills transfer between imported and local labour and the permanent migration of some skilled labour;
- a decrease in unemployment and the unemployment rate as a result of flow-on jobs generated in the Broader Service Area by the project;
- an increase in household incomes of:
 - approximately \$71.8 million per annum on average in the broader service area between 2010 / 11 and 2012 / 13, and approximately \$77.8 million per annum on average between 2013 / 14 and 2036 / 37; and
 - approximately \$452.7 million per annum on average between 2010 / 11 in Queensland and 2012 / 13 and \$776.1 million per annum on average between 2013 / 14 and 2036 / 37;
- upward pressure on labour prices due to the increase in demand for skilled labour, particularly in industries experiencing skills shortages, further increasing household incomes. This increase is expected to be over and above any increases in the cost of living, representing an increase in real wages;
- a minor increase in residential property demand in the broader service area during construction and

operation, although this is unlikely to have any significant implications on property prices;

- an increase in:
 - Queensland Government revenues of approximately \$364.9 million, primarily in the form of approximately \$343 million per annum in royalty payments; and
 - Australian Government revenues of approximately \$709.8 million, primarily through avenues such as company tax (approximately \$302.9 million), personal income tax (approximately \$237.8 million) and goods and services tax (approximately \$158.3 million).

These increased government revenues will provide opportunities for government to fund additional infrastructure and enhanced service provision at a range of levels;

- development of rail and port infrastructure, as well as local road infrastructure, an airstrip and utilities infrastructure to support the project (e.g., power, water and telecommunications). This will provide benefits to the entire project Study Area by providing a link between the abundant resources in the Galilee Basin and export infrastructure, assisting in commercialising these resources.

17.6 COMMITMENTS

17.6.1.1 Address Skills Shortages

In addressing issues of skills shortages in the construction industry, Waratah Coal commits to:

- encouraging contractors engaged during construction of the project to utilise Australian Government skills and training programs where possible, including the Australian Apprenticeship Program. Waratah Coal will provide information and develop awareness of Australian Government incentives and programs to all contractors engaged, and direct contractors to relevant agencies; and
- engaging and collaborating with CSQ to identify potential strategies for increasing the capacity of local job seekers to develop appropriate skills.

To address issues of skills shortages in the mining industry, Waratah Coal commits to:

- identifying and communicating the project’s skills requirements to Mining Industry Skills Centre (MISC) and Department of Employment and Training (DET)

to identify areas of skills gaps and assist in workforce planning;

- collaborating with MISC and DET regarding extending the findings of the Career Pathways research and other attraction and retention research to market the industry as a career of choice to not only persons currently in the labour force but also youth entering the labour force in the near future;
- collaborating with MISC and relevant RTOs to develop customised training programs, including those undertaken as part of the Work Readiness Program, that are suited to the needs of the project and extend these training programs throughout the project’s Study Area, including the Broader Service Area, through relevant RTOs. These programs would target under-utilised labour resources in the region (including people not currently in the labour force), workers in other industries wishing to enter the mining industry and, importantly, school leavers;
- engaging with MISC regarding accessing funding for training programs provided by RTOs through the ‘Resources Industry Training Fund’ (RITF);
- encouraging contractors engaged on the project to utilise Australian Government skills and training programs where possible, including the Australian Apprenticeship Program. Waratah Coal will provide information and develop awareness of Australian Government incentives and programs to all contractors engaged, and direct contractors to relevant agencies; and
- collaborating with MISC to track skills requirements and gaps on an ongoing basis, as part of the Heartbeat Project. This will assist in ongoing industry-wide strategies and planning for addressing skills shortages in the region.

17.6.1.2 Minimise Draw Down on Labour from Other Sectors

To assist in minimising the impacts of a draw down on labour in other sectors, Waratah Coal commits to:

- engaging with local business and residents to investigate options for providing flexible working arrangements that would allow locals to participate in not only the project, but also maintain jobs in other industries. This may include, where practical, arrangements such as rostered shifts (e.g., 7 days on, 7 days off) or part-time employment opportunities

in the project that would enable local workers to also work part time in sectors such as agriculture and local government; and

- working with local business to secure supply contracts and encourage new businesses to locate to the region (this is examined in more detail in Section 17.5.1.3).

It must be recognised, however, that the high salaries offered by the project will result in some difficulties for other sectors to attract and retain workers. In order to appropriately mitigate the likely draw of labour to the project, collaborative planning between State Government, local Council, local industry, industry organisations, and mining proponents is required.

17.6.1.3 Develop the Local Supply Chain

To assist local business secure supply contracts and encourage new businesses to locate to the region Waratah Coal commits to:

- collaborating with local Council, economic development organisations, the Industry Capability Network (ICN) and State Government to:
 - identify the goods and services that are expected to be required by the project and inform local business of service provision opportunities and requirements of business to secure contracts;
 - develop and implement a Local Content Strategy establishing or participating in programs to assist qualified local and regional businesses tender for provision of goods and services to support the project;
 - examine options for establishing a local cooperative service or network to connect local business and supply chains and enable smaller, local businesses to collaborate in meeting service supply requirements of the project; and
 - develop strategies to encourage suppliers to locate to the region to address shortages in goods and services that are not able to be sourced within the project Study Area. Strategy development would be led by local Council, with Waratah Coal and other proponents to inform Council of business opportunities and allow Council to appropriately plan for likely industrial / commercial land requirements.

17.6.1.4 Minimise Disruption of Agricultural Practices

To assist in minimising impacts associated with the project, Waratah Coal commits to:

- engaging with landholders along the rail corridor to identify potential disruptions to existing management practices for each property likely to be impacted, including potential changes to land configuration and likely costs, and potential for land stranding or isolation;
- minimising the disruption to agricultural practices through appropriate design of the rail line through ensuring potential adverse impacts to land access and ongoing management practices are identified and avoided and / or mitigated where possible and practicable (e.g., through provision of alternative access points); and
- negotiating with land holders' for reasonable compensation to provide required changes to alter paddock configuration, including alternative water access, fencing modifications and any additional stockyards required.

17.6.1.5 Minimise Adverse Implications of Higher Property Prices

To assist in minimising potential impacts associated with higher property prices, Waratah Coal commits to:

- encouraging the use of worker camps by all FIFO project related employees to ensure demand for housing in the local property market is minimised; and
- supporting the development of local infrastructure (this is examined in more detail in **Section 17.6.1.6**).

17.6.1.6 Develop Supporting Infrastructure

To ensure required social and economic infrastructure is developed to meet the direct and indirect demand generated by the project, Waratah Coal commits to:

- identifying and communicating anticipated resident and non-resident population growth and associated infrastructure requirements and impacts as early as possible to relevant government authorities (impacts on population and associated infrastructure is examined in the Social Impact Assessment undertaken as part of this EIS);
- working with relevant government authorities to investigate and develop anticipated cost estimates to provide social and economic infrastructure required

to meet demand generated indirectly by the project, and identify appropriate cost recovery strategies for developing this infrastructure. In order for Council to appropriately fund the development of required social and economic infrastructure, sources for initial funding will likely need to be negotiated between local Council and State Government, and potentially project proponents; and

- negotiating with relevant government authorities appropriate contributions for social and economic infrastructure developments required as a direct result of activities of the project.

17.6.1.7 Minimise Adverse Impacts of Increased Traffic

In addition to the strategies outlined in **Volume 3, Chapter 13**, Waratah Coal commits to:

- developing strategies to ensure project related traffic movements (in particular for goods and services) are primarily undertaken during non-peak traffic periods on local roads; and
- engaging with other mining proponents and export facility operators to ensure coal movements are appropriately managed to not create or exacerbate bottlenecks in the rail and port network.