Appendix 30

Economic
Impact Assessment

FLINDERS GROUP

Byerwen Project
Economic Impact Assessment

6 March 2013

FINAL REPORT (amended)

Charting vision » Delivering success

Planning & Property | Project Management | Stakeholder Engagement | Environment | Commercial | Strategic Advisory

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References

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Executive Summary

Purpose

The purpose of this Economic Impact Assessment (EIA) is to identify and provide an estimation of the likely construction and operational economic impacts of the Byerwen Project's (the Project) activities. This assessment estimates the economic benefits arising from the Project's activities and has been prepared for QCoal in parallel to the Project's Social Impact Assessment as key elements of the EIS for the Byerwen Project.

Project Background

The Byerwen Project is a joint venture between QCoal and JFE Steel. The Project includes the development of a new open cut mine in Queensland's Bowen Basin. The mine will have an operation life of 50 years, mining approximately 10Mtpa (million tons per annum) of hard coking coal and thermal coal. The coal is intended to be exported through Abbot Point Coal Terminal to the Asian market, in particular Japan, China and Korea.

The proposed Byerwen Mine is located 100 km south of Collinsville and 20 km west of Glenden and is highlighted in red in Figure 1.

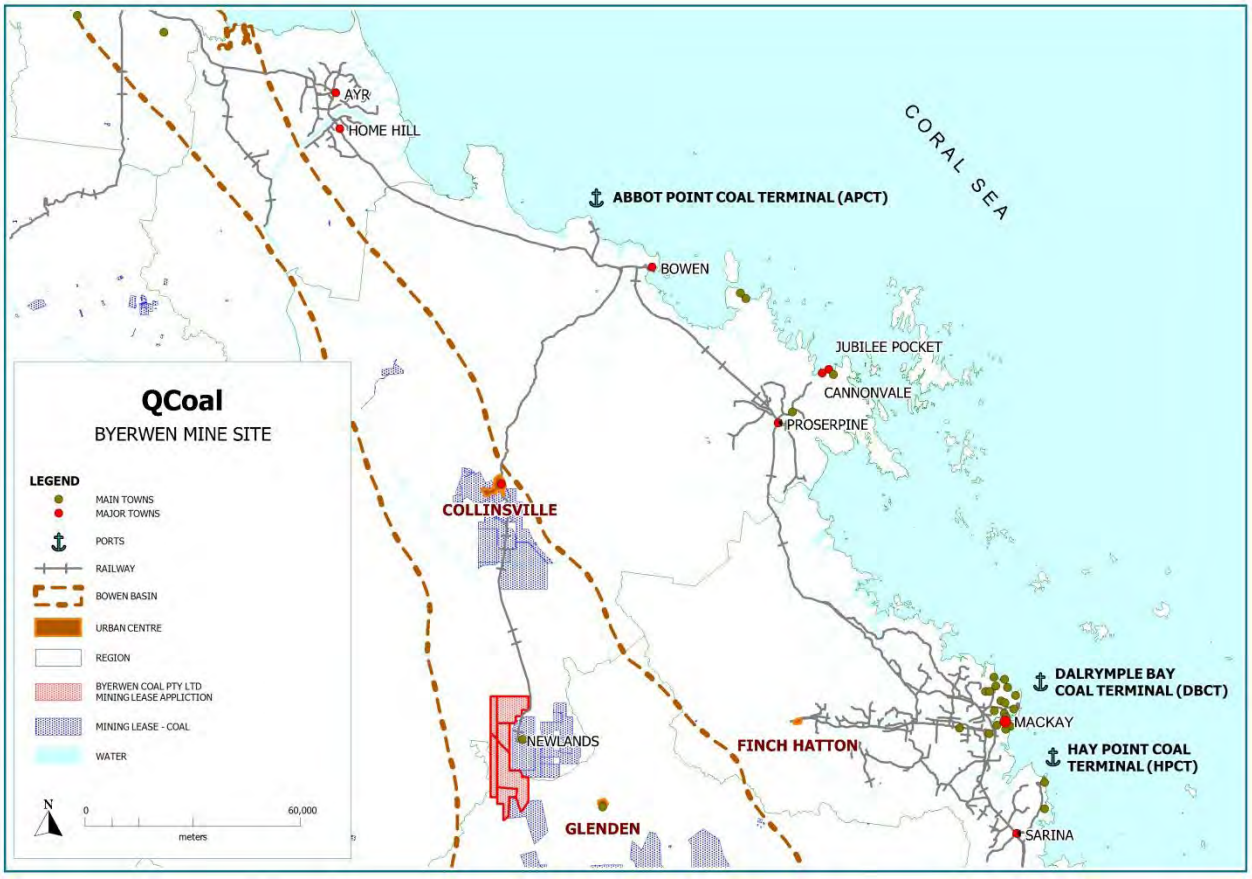


Figure 1: Geographical Location of the Byerwen Coal Project

Source: Flinders Group

Project Timing

The project is comprised of a number of phases. The first is the construction and operation of the southern portion of the mine including a coal handling preparation plant. The second is the construction of a second coal handling plant in the northern portion of the mine, and the subsequent expansion of operations. The final phase is decommissioning and rehabilitation of the site.

An overview of the two construction phases and the operations components are provided in Table 1.

Construction	Timing	Dates
Phase 1: Open cut mine infrastructure and CHPP1	Project initiation – Project year -2 and Year -1	Anticipated 2 years from 2014
Phase 2: Construction of CHPP2	Project year 15 – Project year 17	
Operations	**Timing**	**Dates**
Phase 1: Open cut mine and CHPP1	Project year 1 – Project year 46	Commencement 2015
Phase 2: Open cut mine, CHPP1 and CHPP2	Project year 15 – Project year 46	
Rehabilitation	**Timing**	**Dates**
Rehabilitation	Project year 47 – Project 48	

Table 1: Project Timing

The Flinders Group has conducted an EIA by reviewing the Project's existing economic environment and estimating the potential economic impacts during construction and operation using an Input-Output analysis approach. This assessment identifies the economic implications for the development of the region, its businesses and industries. It also estimates the contribution to Government revenues in terms of royalties and other payments resulting from the Project.

Current Market

In the current market, bulk commodity prices have fallen noticeably in response to poor demand for steel and electricity, along with improving supplies of the commodities. However data shows that the medium and long term market projections remain positive, with the demand for coal to continue to be high for the next 20 years.

Existing Economic Environment

The Gross Regional Product (GRP) of the Mackay-Isaac-Whitsunday region was estimated at approximately $17.6 billion in 2010/11, representing a nominal increase of 8.4% from the level recorded in 2009/10 ($16.2 billion). The region contributed approximately 6.6% of the Gross State Product for Queensland in 2010/11 ($266.6 billion).

Despite a downturn in the coal market in 2012, forecasts of global demand and supply of coking coal determined that there will be a requirement for an additional demand of 244 million tonnes per year of coking coal and 127 million tonnes of thermal coal by 2025.

Mining is the most significant industry in the region, accounting for approximately 50% of GRP. Additional to the positive growth in employment, the region has experienced population growth in recent years, a key driver of economic growth. It is expected that this growth will continue in the future. Furthermore, the regions unemployment level of 4.1% is notably lower than the state level of 5.5%.

The results of the analysis are supportive of the Project's development, presenting regional, state and national economic benefits that could potentially be realised over the life of the Project. In this context, the

'region' is defined as the local government areas of Mackay, Isaac and Whitsunday. The 'state' is defined as the rest of Queensland, and 'national' is defined as the rest of Australia.

Economic Impacts of the Project

Over the Project's construction period, it is expected that up to 350 jobs will be created, through direct employment, contractors' workforces and jobs directly created in local businesses to service the Project. Many other indirect jobs will be created in response to the Project as local businesses grow, and this will contribute to long term, regional economic development.

Economic Impacts during Construction Phase

The Project's anticipated two year construction phase is set to begin in 2014, and will cost approximately $1.7 billion. During construction, employment numbers will vary, but are expected to peak at approximately 350 workers. The detailed economic impacts of the construction phase, shown in Appendix 5, have been separated into direct and indirect flow on sub-sections. Overall, the Project's construction is shown to have a positive economic effect on the region, with the creation of various employment opportunities, as well as positive impacts on the Manufacturing, Professional, Scientific and Technical Services, and the Electricity, Gas, Water and Waste Services industries.

Economic Impacts during Operating Phase

Once operation has commenced, the region will experience ongoing economic impacts throughout the 50 year life of the project. It is anticipated there will be a direct link between employment in the area and the level of spending in the region. During operation, the project is expected to employ a peak workforce of 545 people.

The Project's ongoing operation in the region will have further positive impacts for the State of Queensland. The economic modelling shows the generation of almost $2.3 billion for the regional and state economies from the Project's 5th year and subsequent years of operation, along with the creation of jobs in various industries.

The project will have a variety of economic implications for the region. It is estimated that the average production of 10Mtpa of coal will result in up to approximately $263 million per annum in royalty payments and levies to the Queensland Government, consequently equating to $13.2 billion over the full lifecycle of the project.

Community grant schemes and royalty payments are anticipated to assist the funding of social and economic infrastructure which will benefit the community. Additionally, investment in the project is expected to generate increased economic activity and employment in the region, which in turn is anticipated to increase the region's population as workers and their families move to the area, accompanied by growth in the region's temporary population should employees choose to work in a drive-in, drive-out basis.

Cumulative Economic Assessment

Cumulative impacts can occur at a local or regional level. The cumulative impacts assessment provides a high level qualitative assessment of the cumulative impacts of the Byerwen Project, when considered with other coal projects in the region. To assess the cumulative impacts, consideration has been given to the cumulative effect of a number of mining infrastructure projects occurring simultaneously across the region.

Whilst it is difficult to accurately predict the cumulative impacts of projects across the region, based on the current market conditions and recent announcements, the qualitative cumulative assessment of the identified project scenarios represents positive economic impacts.

Conclusions

The project is estimated to contribute significant economic benefits to the region and the domestic economy, by generating an estimated total output impact (both direct and indirect) of $15.6 billion over 3 years of development and construction and the gradual generation of $2.3 billion per annum during operations. In addition the project will provide over 10 000 direct and indirect FTE jobs during construction throughout the region, state and country and approximately 6 000 direct and indirect FTE jobs per year during operation from Year 5, throughout the region and the state.

The project is aligned to government policies and priorities, supporting and strengthening Queensland as part of the government's Four Pillar economic strategy. This strategy is aimed at building a more productive and resilient economy to serve the Queensland people and businesses to meet the challenges of a globalised economy.

The project is expected to provide a number of economic benefits to the project area as well as Queensland including:

- Contribution to meeting projected shortfall in the global coking coal market;
- Contribution to regional household income;
- Contribution to employment, education and training opportunities; and
- The continued prosperity of the Queensland economy.

1 Introduction

The purpose of this report is to present an assessment of the potential economic impact of the proposed Byerwen Coal Project.

This economic assessment provides an indicative estimation of the likely construction and operational economic impacts of the Project's activities. It estimates the direct and indirect benefits arising from these activities at a regional, state and national level. The Input-Output methodology is one method of estimating such impacts as it focuses on economic activity impacts and enables direct and indirect contributions to output and employment to be estimated from inputs in the form of spending during both the construction and operational phases of the Project.

This method is therefore consistent with the outputs sought from the Queensland Government's Terms of Reference for the Project. It also includes a brief discussion of the likely implications of the project for individuals, businesses and industries, as well as future developmental prospects arising from the Project.

1.1 Project Overview

The Byerwen Coal Project is being developed by Byerwen Coal Pty Ltd, a Joint Venture between QCoal Pty Ltd and JFE Steel. Initial development will commence once statutory approvals for the project are obtained. The Byerwen Coal Project is located approximately 20 km west of Glenden.

The Byerwen Project involves the development of a new open cut mine in Queensland's Bowen Basin, and export of hard coking coal and thermal coal from Abbot Point Coal Terminal (APCT) to the Asian market including Japan. Coal production from the project is expected to commence in 2015, and at its full-scale level, 10Mtpa of coking and thermal coal will be produced.

QCoal is an established operator in Queensland's coal mining industry through an 81% interest in the 4Mtpa Sonoma mine.

However, once the Byerwen Project commences 10Mtpa of coking coal production combined with the output from QCoal's Jax and Drake mines which are currently under development, QCoal will become one of the leading coking coal suppliers in Australia.

Key features of Byerwen Project include:

1) High quality coking coal equivalent to BMA's Peak Downs and Goonyella;
2) Low operation cost due to high proportion of open cut mining; and
3) Export from APCT.

Even in Queensland, the largest coking coal export state in the world, projects with these features are extremely rare.

JFE Steel is anticipated to take up to 2Mtpa under long-term contract so it is expected that other buyers will compete with each other to secure access to the remaining 8Mtpa in the future.

The various activities for the construction phase of the project include:

- Early works
- Site clearance and preparation
- Civil works

- Structure and plant erection and installation
- Construction of mine infrastructure
- Commissioning and testing
- Materials, plant and equipment sourcing and transportation
- Accommodation and transport of construction personnel
- Construction of coal haul roads
- Construction of the train loading facility
- Construction of ancillary infrastructure such as power and water reticulation systems

Construction of project infrastructure is expected to take approximately two years. The project is comprised of two construction phases in the southern and northern tenement areas, and two operational components. The construction in the southern tenement area will occur prior to any operations and includes construction of the southern Coal Handling and Preparation Plant (CHPP), mine infrastructure area (MIA) and water management infrastructure, and southern train loading facility (TLF). The construction phase is estimated to require a peak workforce of 350 personnel.

Early works may include, for example, detailed design and commencement of procurement for infrastructure components with long lead times. Early works will not include any construction on the project mining lease areas.

The first phase of the construction workforce will be accommodated in a mine accommodation village with the capacity for 350 people. It will be located on the periphery of the existing township of Glenden.

The construction workforce will primarily operate on a DIDO basis. Employees accommodated at the mine village will be transported to the mine site for their daily shift rotation via shuttle bus.

The first phase of operations has an estimated duration of 17 years and requires a peak workforce of 515 personnel.

The second phase is the construction and operation of the open cut mine in the north and second coal handling preparation plant. Construction in the northern tenement area will commence in approximately year 15 of the southern mining operations, to coincide with the planned commencement of operations of the open pit in the north in year 17. Construction in the northern tenement area will include the northern CHPP, MIA, water management infrastructure and northern TLF. Construction is estimated to have a duration of 3 years and requires a peak workforce of 265 personnel.

Figure 1.1 outlines the location of the mine and is highlighted in blue to demonstrate its proximity within the MWI region.

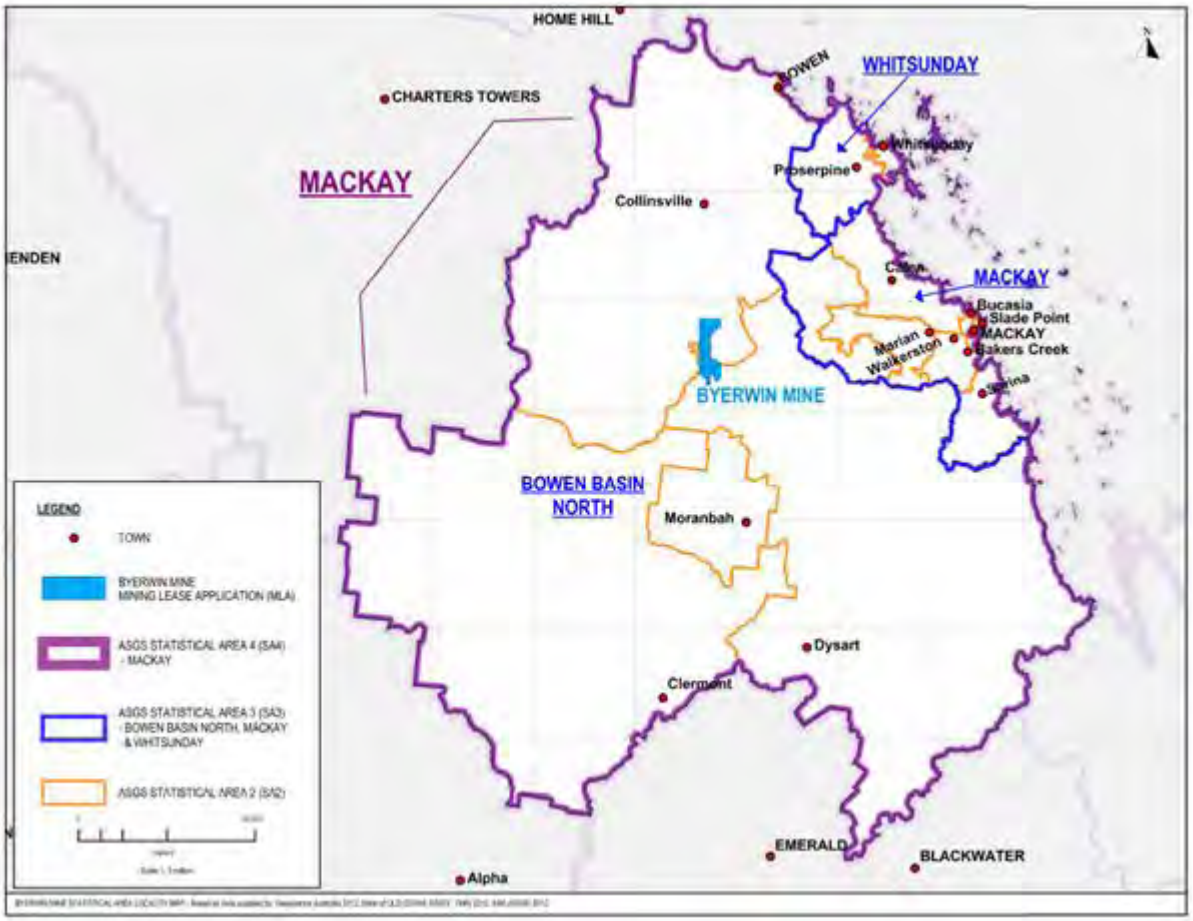


Figure 1.1: Project Location

1.2 Project Timeline

Table 1.1 outlines the Project's proposed timelines, indicating that the mining lease is expected to be granted to Byerwen Coal in the fourth quarter of 2013, with operations to commence in early 2014.

Construction	Timing	Dates
Phase 1: Open cut mine and CHPP1	Project initiation – Project year -2 to year -1	Anticipated 2 years from 2014
Phase 2: Construction of CHPP2	Project year 15 – Project year 17	
Operations	**Timing**	**Dates**
Phase 1: Open cut mine and CHPP1	Project year 1 – Project year 46	Commencement 2015
Phase 2: Open cut mine, CHPP1 and CHPP2	Project year 15 – Project year 46	
Rehabilitation	**Timing**	**Dates**
Rehabilitation	Project year 47 – Project 48	

Table 1.1: Project Timing

Source: QCoal Social Impact Assessment 2012

1.3 EIS Terms of Reference Requirements

Table 1.2 outlines the key areas to be addressed by the EIA, and the relevant sections of this report where these points are detailed.

Topic	Areas to be addressed by the EIA	EIA Report Section
Describe the existing economy in which the project is located and the economies materially impacted by the project.	• a map illustrating the local and regional economies (local government areas) that could be potentially affected by the project • gross regional product or other appropriate measure of annual economic production • population • labour force statistics • economic indicators • the regional economy's key industries and their contribution to regional economic income • infrastructure • availability and prices of goods and services • a description of the regional economy's key industries and their contribution to regional economic income including historical descriptions of large-scale resource developments and their effects in the region • a discussion on regional resource endowment, competitive advantage and expected future growth • a description of the key regional markets relevant to the project: – labour market – housing and land markets and their values, particularly rental accommodation which may be available for the project workforce – construction services and building inputs market – regional competitive advantage and expected future growth	4.1.1 4.1.2 4.1.4 – 4.1.5 4.1.6 4.1.7 4.1.2 – 4.1.3 4.1.8 4.1.3 4.1.2 – 4.1.3, 4.1.7 2.1, 3 4.1.6 – 4.1.7, 4.1.9
With regard to the region's key industries and factor prices.	• current input costs (wage rates, building costs, housing rent etc.) • types and numbers of businesses • land values in the region by type of use.	4.1.6-4.1.7 4.1.9 4.1.7
Potential impacts and mitigation measures. The potential impacts should consider local, regional, state and national perspectives as appropriate to the scale of the project.	The analysis should describe both the potential and direct economic impacts including estimated costs, if material, on industry and the community, assessing the following: • property values • industry output • employment • the indirect impacts likely to flow to other industries and economies from the development of the project (also considering the implications of the project for future development) • the contribution to local, regional and state economic objectives, strategies, plans and policies for the area or industry sector (including investment, industry, employment, skills plans and policies) • stimulus (flow on/second order effects) for industry, small business, employment, incomes and innovation • the distributional effects of the proposal including proposals to mitigate any negative impact on disadvantaged groups. Analyse the economic impact of wet season effects on mine production and export performance. Demonstrate through the provision of evidence, including modelling, plans for the optimisation of mining operations and rail transport operations to ensure the efficient delivery of product coal to	6 and 7 6.1, 6.2 6.1, 6.2 3 6.1- 6.2, 8.3 4.1.2 8.3 -8.4

Topic	Areas to be addressed by the EIA	EIA Report Section
	port. Present strategies to mitigate, minimise or avoid the adverse economic impact of reduced coal production levels and export delays caused by flooding and wet seasons impacting on mine stockpile levels and scheduled rail transportation of product to port.	8.3
The assessment of economic impacts should outline strategies for local participation, including:	• strategies for assessing the cost effectiveness of sourcing local inputs from the regional economy during the construction, operation and rehabilitation phases of the project • employment strategies for local residents including members of Indigenous communities and people with a disability, including a skills assessment and recruitment and training programs to be offered • strategies responding to relevant government policy, relating to: – the level of training provided for construction contracts on Queensland Government building and construction contracts, with regard to the Queensland Government Building and Construction Contracts Structured Training Policy (the 10% policy) – Indigenous employment opportunities, with regard to the Indigenous Employment Policy for Queensland Government Building and Civil Construction Projects (the 20% policy) – the use of locally sourced goods and services, with regard to the Local Industry Policy.	3, 8.2 – 8.3 Further information available in Social Impact Assessment
Property management	• impact of the project on existing agricultural land uses and management practices (e.g. disruption to stockyards, fences, water points, sowing or harvesting of crops, movement of livestock, agricultural machinery and any loss of agricultural land) • range of measures required to mitigate real and potential disruptions to rural practices and management of properties.	Section 8.2 – 8.3
Sustainable development	Provide a comparative analysis of how the project conforms to the objectives for 'sustainable development'—see the National Strategy for Ecologically Sustainable Development. Consider the cumulative impacts (both beneficial and adverse) of the project from a life-of-project perspective, taking into consideration the scale, intensity, duration and frequency of the impacts to demonstrate a balance between environmental integrity, social development and economic development. This information is required to demonstrate that sustainable development aspects have been considered and incorporated during the scoping and planning of the project.	7, 8.3 Further information in Social Impact Assessment and Environmental Impact Assessment

Table 1.2: Key Economic Assessment Areas from EIS-TOR

1.4 Assessment Approach

In undertaking and addressing the key elements in Table 1.2, the economic impact assessment included the following:

- A review of the existing environment of the study area, including:
  - Economic base and activity in the region;
  - Population growth and the labour market;
  - Income, earnings, and cost of housing; and
  - Dwelling characteristics, vacancy and tenure types.

- An application of Input-Output analysis to measure the direct and indirect economic impacts of the Project during the construction and operational phases of the Project; and
- A discussion of the economic significance and implications of the Project for local and regional economic development.

In addition, this report should be read in conjunction with the Social Impact Assessment.

The remainder of this report is structured as follows:

- Section 2 provides an overview of current market conditions and the production shortfall the project is endeavouring to fill;
- Section 3 outlines the project's government policy alignment;
- Section 4 provides an overview of the existing economic environment in which the Project is scheduled to be developed, looking specifically at the current and future growth patterns, existing industries and infrastructure, and economic indicators such as housing price and availability;
- Section 5 outlines the framework and processes behind the economic impact analysis, explaining the Input-Output methodology adopted to assess the economic impacts including the data and assumptions adopted for the assessment;
- Section 6 summarises and outlines the results of the economic impact assessment, outlining the anticipated impacts of the project, during both construction and operational phases, as well as potential constrains; and
- Section 7 provides a discussion on the economic implications of the Project, and key benefits of the project for businesses and industries within the region.

2 Market Context

The Byerwen Project is endeavouring to provide resources to a market being driven by growth in the Asia-Pacific Region and an anticipated deficit in coking coal supply by 2015.

In late 2011, Hatch Africa, in conjunction with various other consultants, completed a forecast into the global demand and supply of coking coal, and determined that there will be an additional demand of 115 million tonnes per year of coking coal by 2015.

The global crude steel industry has been growing at a Compound Annual Growth Rate (CAGR) of 5.2% primarily due to an increase in demand from China and India. Almost all crude steel in the world is produced through either blast furnace or basic oxygen furnace technologies. The blast furnace technology, being the primary consumer of coking coal, has become the preferred method of crude steel production as can be illustrated by the fact that its preferential share in the market grew from 58% to 73% between the period of 2000 and 2010.

Global Coking Coal Outlook indicated that future supply of coking coal depends on Australia, as the largest exporter of coking coal in the world, supplying 64% of world exports. It is anticipated that Australian coking coal exports will increase to 192 million tonnes by 2015.

Chinese coking coal imports are expected to increase, but this will depend on crude steel production, domestic coking coal production and production costs. Chinese crude steel production has grown at a CAGR of 14.9% from 151.6 million tonnes in 2001 to 607.6 million tonnes in 2010. It is expected that the intensity of crude steel production in China has peaked, and that steel consumption will increase at an average of 3% between 2010 and 2015.

2.1 Current Market Conditions

Bulk commodity prices have fallen noticeably in response to poor demand for steel and electricity, along with improving supplies of the commodities. Both coal and iron ore prices have fallen to their lowest prices since late 2009, consistent with Chinese GDP growth which slowed to its lowest rate in over three years in the June 2012 quarter.

Ongoing concerns over industrial disputes had largely shielded coking coal prices from the same sharp price declines seen in other bulk commodities in recent months. However, prices have started to come off sharply as suppliers offer sizeable discounts in the face of underwhelming demand from steel makers.

Saleable coal production in 2010–11 amounted to a total of 179.8 million tonnes with exports totalling 162.5 million tonnes, worth A$29.04 billion free-on-board, were made to 29 countries. These exports comprised 116.3 million tonnes of metallurgical coal and 46.2 million tonnes of thermal coal used for electricity generation and in industrial processes. Coal exports from Queensland for 2010–11 were down significantly on 2009–10 export tonnages, largely due to flooding in Central Queensland during early 2011, with markets in Asia accounting for over 80% of sales.

Despite the reduction in demand, the long-term outlook for coal demand remains positive, with Queensland's Department of Natural Resources and Mines outlining that Queensland has high-quality coal resources of more than 34 billion tonnes (raw coal in-situ). Resources of coking coal amount to approximately 8.7 billion tonnes, of which about 4 billion tonnes are suitable for open-cut mining. The Bowen Basin, which contains virtually all of the state's hard coking coal, is the most important source of export coal in Queensland.

2.2 Medium to Long Term Coal Market Predictions

Recent media and market updates from major banks indicate that whilst the medium to long term coal market outlooks are relatively positive, there are a number of risks within the Queensland operating context that may threaten the viability of current and development projects. These risks include:

- The global macroeconomy, with continued global uncertainty resulting in a marked deterioration in global coal prices over the past 3 to 6 months, and limiting the availability of investment funds for new mining projects.
- High input costs, largely attributable to unsustainable wage rates as companies compete for skills within a small labour pool, the increasing cost of key construction inputs and multiple projects monopolise scarce inputs, and declining productivity which is eroding Queensland's international competitiveness.
- Increasing global competition, where the cost of production in Australia is far greater than in other coal-producing jurisdictions causing significant movement up and down the global cost curve.
- Climate change policies, including the implementation of a carbon tax that is more than double the current European Union Allowance spot price, and a price not borne by any competing coal exporting nation via explicit or implicit carbon costs.
- Increased sovereign risk attributable to significant policy changes (including the Resource Super Profits Tax and the Minerals Resource Rent Tax) and other increases in regulatory burden through development approval conditions for major projects and industrial relations legislation; and
- Difficulties with the attraction and retention of skilled labour.

The long term global demand outlook for thermal and coking coal remains positive, primarily due to the ongoing industrialisation and urbanisation of a number of developing countries, in particular China and India.

Whilst coal's share of global energy demand is forecast to decrease over the next 15 to 20 years, due to growing energy demand, there is an absolute increase in demand forecast for coal year on year. In effect, it is predicted that Queensland's thermal coal exports could grow from 54Mtpa in 2011 to 127Mtpa in 2025, and coking coal exports expected to grow from 111Mtpa to 244Mtpa in 2025.

3 Policy Alignment

The project acknowledges the Queensland Government is committed to growing a four pillar economy through:

- Agriculture;
- Construction;
- Tourism; and
- Resources.

The Government has demonstrated a commitment to the resources sector through undertaking a review of resources legislation to streamline mining approvals, while protecting the environment and ensuring local community requirements are met through the Royalties to Regions Program.

The project is aligned to government policies and priorities, supporting and strengthening Queensland as part of the government's Four Pillar economic strategy. This strategy is aimed at building a more productive and resilient economy to serve the Queensland people and businesses to meet the challenges of a globalized economy. The Four Pillar economy is aimed at turning Queensland's regional comparative advantages into competitive advantages. The resource sector is a driving force of the Queensland and Australian economy; in particular the Queensland coal industry and the LNG export industry. The comparative advantages of Queensland's energy industries position Queensland to capitalise on the growing demand for these resources from the rapid industrialisation of Asian economies. Queensland Government infrastructure policy and planning strengthens the four pillars that support Queensland's economy – agriculture, resources, tourism and construction. Strengthening the supply chain between resource production and markets will continue to be a key focus of the Queensland Government to ensure that Queensland businesses can continue to take advantage of new growth opportunities.

The Queensland Government has also created Projects Queensland and Infrastructure Queensland to provide advice to Government on what to build, where to build and how to fund it. This is due to the fact that mining investment is an important part of the policy platform to facilitate private investment and to improve the State's fiscal position.

QCoal are committed to developing the project in line with policy, planning frameworks and legislative requirements, including:

- *The Local Industry Policy (2010)*;
- *Indigenous Employment Policy for Queensland Government Building and Civil Construction Projects (2008);*
- *The Environmental Protection Act 1994;*
- *The Queensland Government Building and Construction Contracts Structured Training Policy (2008)*; and
- *The Mackay-Whitsunday-Isaac (MWI) Regional Plan* (February 2012).

Comparison of the project area with the key indicator maps with the *MWI Regional Plan* demonstrates that the project is situated where:

- It is not anticipated to be affected by flooding (Map 2, page 46);

- It is unlikely to affect ecologically significant areas (Map 3, page 56);
- It is unlikely to affect fisheries resources (Map 4, page 66);
- There is identified mineral and extractive resources and reserves (Map 5, page 68);
- There is limited good quality agricultural land (Map 6, page 71);
- Suitable infrastructure is available or aligns with future plans (Map 7, page 129);
- There is existing transport networks (Map 10, page 141); and
- It is part of the Regional Landscape and Rural Production Area (page 156)

4 Analysis of Local and Regional Economies

This chapter provides an overview of the existing economy of the area in which the Project is located. The purpose of this is to provide an understanding of the conditions affecting the region's economic environment, from which the effects of the Project can be anticipated.

4.1 Economic Base and Activity

4.1.1 Study Area

The Bowen Basin is an area of coal reserves extending over approximately 60,000 square kilometres of Central Queensland, from the town of Collinsville in the north, to Theodore in the south. The Bowen Basin is the largest coal reserve in Australia, with over 100 million tonnes mined annually, accounting for approximately 83% of Queensland's coal production (Bowen Basin Geologists Group 2009).

A number of Local Government Areas (LGAs) are located within the Bowen Basin area, including Isaac Regional Council, Mackay Regional Council and Whitsunday Regional Council. The area that has been outlined for the Byerwen Mine borders on two of these local government areas, Whitsunday and Isaac. These two LGA's, alongside the Local Government area of Mackay (which borders Whitsunday and Isaac) make up what is referred to in this report as the 'region'.

There is potential for this Project to affect other localities outside the region defined above, and these effects are documented in the report, where material. Due to the location of the Project, it is predicted that there will be economic impacts in the region surrounding the city of Mackay in terms of labour shifts and regional spending patterns.

This report will make reference to a number of demographic areas, namely national, state, regional and local. These are defined as:

- National: 'National' refers to the country of Australia, consisting of six states and two territories;
- State: 'State' refers to the state of Queensland;
- Regional: 'Regional' refers to the area covered by the Mackay, Isaac and Whitsunday Local Government Areas (LGA);
- Local: 'Local' refers to the township of Glenden, located within the Isaac Local Government Area, and situated 30km east of the Byerwen Mine; and
- Moranbah, Nebo and Collinsville are also referenced localities used to compare housing data with Glenden.

These local areas are illustrated in Figure 4.1.

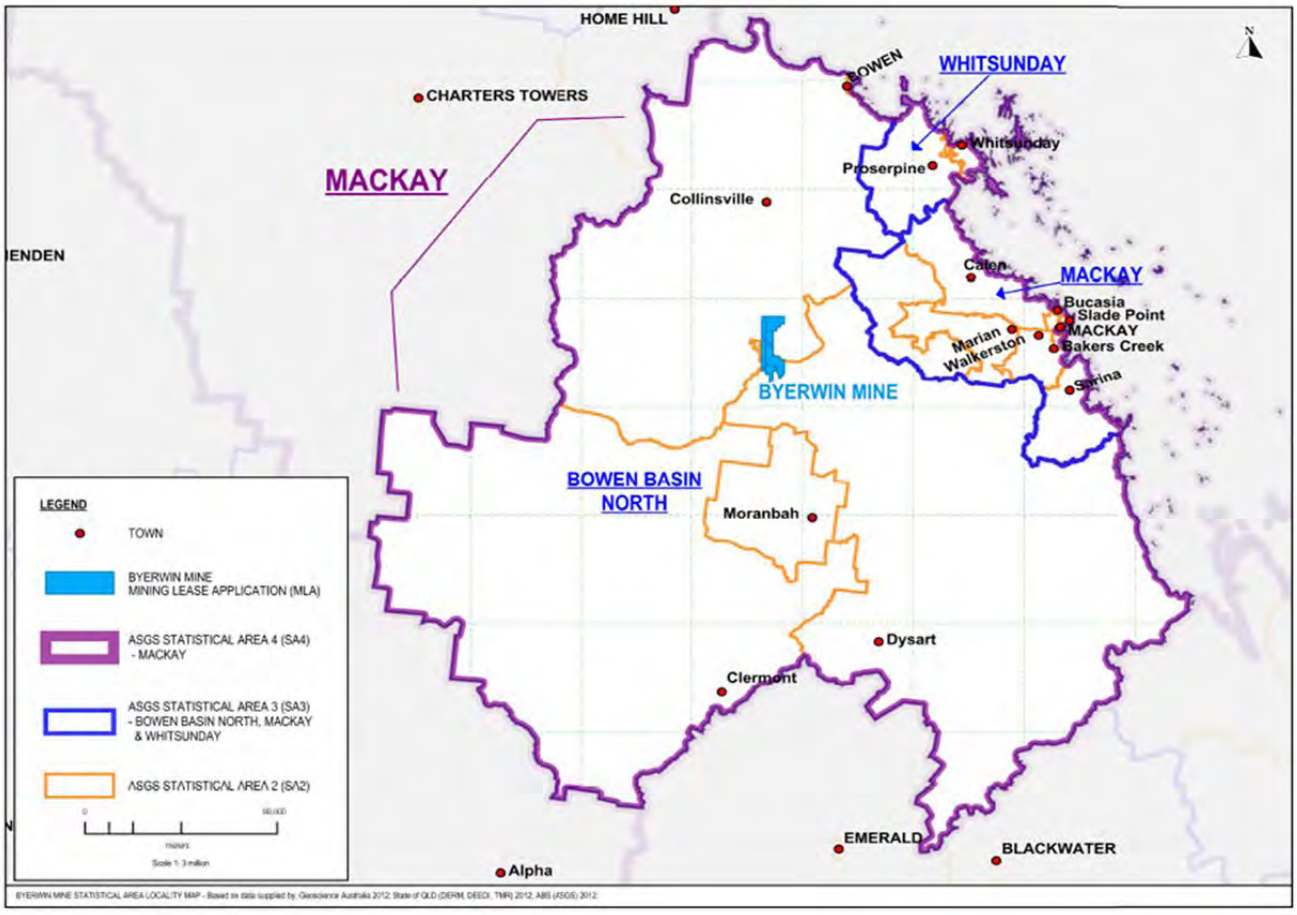


Figure 4.1: Mackay Whitsunday Isaac Region and the Byerwen Project

Source: Flinders Group

4.1.2 Gross Regional Product

Gross Regional Product (GRP) is one the primary indicators used to gauge the health and value of a region's economy. GRP represents the size of the economy and includes the total dollar value of all goods and services produced over a specific time period. GRP is usually compared to the previous year or time period. For example, if the year-to-year GDP is up 3%, this is thought to mean that the economy has grown by 3% over the last year.

GRP of the Mackay-Isaac-Whitsunday region was estimated at approximately $17.6 billion in 2010/11, representing a nominal increase of 8.4% from the level recorded in 2009/10 ($16.2 billion). The region contributed approximately 6.6% of the Gross State Product for Queensland in 2010/11 ($266.6 billion).

Real GRP is based on chain volume measures or specifically, a function of production or output and is largely independent of inflationary price effects within the current year. In the case of the Mackay-Isaac-Whitsunday region, which relies on a significant contribution from the Mining sector, total production for the 2010/11 was significantly lower due to the effects of the floods, consequently impacting quite negatively on real GRP.

Conversely, export prices for coal increased significantly in 2010/11 from the previous year - this, along with annual growth in several other sectors meant that GRP at current prices (or "nominal GRP") remained quite high and in fact grew by 8.4% from 2009/10. It is important, however, to make sure this inflationary impact is not overstated in interpreting the data.

For comparative purposes, the region generated in excess of $15.4 billion in economic value in 2007-2008.

According to REDC, the GRP per capita for the MWI region is $99,580, as compared to the GSP per capita for Queensland which is $59,060. The economic value per capita from the region is significant when compared to the rest of Queensland.

Industry	Level ($m)	% of	Level ($m)	% of	% of	Level ($m)	% of	Level ($m)	% of
Item	2010/11	total	2009/2010	total	total	2007/08	total	2006/07	total
Agriculture, forestry & fishing	361.5	2.06%	401.3	2.48%	-9.9	495.1	3.20%	380	2.54%
Mining	7,427.50	42.32%	6,866.90	42.41%	8.2	7,142.60	46.19%	7,428.20	49.68%
Manufacturing	861.3	4.91%	769.5	4.75%	11.9	678.1	4.39%	628.7	4.20%
Electricity, gas, water & waste services	283.5	1.62%	273.7	1.69%	3.6	109.7	0.71%	95.5	0.64%
Construction	980.6	5.59%	1,049.70	6.48%	-6.6	1,074.70	6.95%	893.1	5.97%
Wholesale trade	450.4	2.57%	323.6	2.00%	39.2	492.5	3.18%	427.3	2.86%
Retail trade	262.6	1.50%	266.7	1.65%	-1.5	501.1	3.24%	464.1	3.10%
Accommodation & food services	229.3	1.31%	222.2	1.37%	3.2	320.8	2.07%	295.8	1.98%
Transport, postal & warehousing	866.1	4.94%	860	5.31%	0.7	616.4	3.99%	569.9	3.81%
Information media & telecommunications	98.2	0.56%	100.1	0.62%	-1.8	85.1	0.55%	86.6	0.58%
Financial & insurance services	580.6	3.31%	266	1.64%	118	222.4	1.44%	224.9	1.50%
Rental, hiring & real estate services	287.9	1.64%	255.3	1.58%	12.8	654.5	4.23%	569.6	3.81%
Professional, scientific & technical services	412.6	2.35%	442.5	2.73%	-6.7	N/A	0.00%	N/A	0.00%
Administrative & support services	206.8	1.18%	138.8	0.86%	49	106.9	0.69%	101.5	0.68%
Public administration & safety	297.5	1.70%	314.5	1.94%	-5.4	146.8	0.95%	144.9	0.97%
Education & training	385.5	2.20%	396.9	2.45%	-2.9	233.6	1.51%	218.5	1.46%
Health care & social assistance	551.7	3.14%	438.1	2.71%	25.9	300	1.94%	279.5	1.87%
Arts & recreation services	25.6	0.15%	34.3	0.21%	25.2	41.9	0.27%	39.8	0.27%
Other services	291.8	1.66%	335.9	2.07%	-	-	0.00%	-	0.00%
Total Industry Value Added	14,861.20		13,755.90		8	13,222.10		12,848.10	
Ownership of dwellings	1,483.90	8.46%	1,375.70	8.50%	7.9	641.3	4.15%	529.1	3.54%
GRP at Factor Cost	**16,345.00**		**15,131.60**		**8**	**13,863.40**		**13,377.20**	
Taxes less subsidies on production and imports	1,159.00	6.60%	1,061.90	6.56%	9.1	1,596.40	10.32%	1,574.00	10.53%
Statistical discrepancy	46	0.26%	0	0.00%		4.1	0.03%	0	0.00%
Gross Regional Product	**17,550.00**	**100.00%**	**16,193.60**	**100.00%**	**8.4**	**15,463.90**	**100.00%**	**14,951.30**	**100.00%**
Fitzroy	14,712.10		13,285.50		10.7				
Northern	11,523.40		10,775.50		6.9				
Queensland	**266,585.00**		**251,144.00**		**6.1**	**216,197.00**		**198,512.00**	

Table 4.1: Gross Regional Product

Source: MWI REDC March 2012 and 2009 combined to demonstrate trend

4.1.3 Productivity

Productivity is a key component of economic growth and is a measure of the efficiency of production within a region. Dividing the real GRP of a region by total hours worked measures the labour productivity within that region, i.e. the average amount of output produced by an hour worked by a person within that region.

The Mackay-Isaac-Whitsunday region recorded total industry productivity (or industry value added per hour worked) of approximately $82.83 in 2010/11, which represents an annual decrease of 8.1% in real productivity from the previous year.

The Mackay-Isaac-Whitsunday region recorded a significantly higher total industry productivity average than Queensland ($54.36) in 2010/11. Isaac LGA showed the highest level of productivity at $247.75.

Productivity in the Mackay-Isaac-Whitsunday region was 52.4% higher than the state average for 2010/2011. Agriculture was the strongest performer with a 26.6% increase, whilst productivity in Mining saw a 36% decrease. This decrease was likely due to the impact of the natural disasters that hit Queensland in 2011.

Productivity 2010/11	Mackay-Whitsunday-Isaac		Queensland	
	Level ($ value added/hr)	Annual Change ($)	Annual Change (%)	Level ($ value added/hr)
Agriculture, forestry & fishing	49.16	26.6	50.89	26.3
Mining	284.77	-36	195.36	-36
Manufacturing	52.35	-2.9	54.83	-2.9
Electricity, gas, water & waste services	81.15	-16.5	84.83	-16.2
Construction	42.11	10.1	46.06	11
Wholesale trade	81.83	8.9	86.65	9.1
Retail trade	33.23	-1.2	33.44	-1.4
Accommodation & food services	22.49	-6.4	26.36	-5.7
Transport, postal & warehousing	61.87	4.1	64.43	4.5
Information media & telecommunications	87.95	-9.7	84.63	-9.5
Financial & insurance services	192.63	16.7	181.54	16.1
Rental, hiring & real estate services	57.48	-11	61.32	-10.5
Professional, scientific & technical services	48.53	-4.5	51.01	-3.9
Administrative & support services	34.92	2.2	37.24	2.8
Public administration & safety	52.89	-2.2	52.41	-2.4
Education & training	38.36	-3	38.26	-3.2
Health care & social assistance	38.67	-3.9	38.1	-3.9
Arts & recreation services	26.24	2.4	25.86	2.3
Other services	23.55	-2.3	26.9	-0.6
Total Industry	**82.83**	**8.1**	**54.36**	**-2**

Table 4.2: Regional Productivity

Source: MWI REDC March 2012

4.1.4 Current and Future Regional Growth Population

Population growth is an important driver of economic growth, creating opportunities for employment and supporting local businesses and commerce. The estimated population of each regional council, as well as totals for the Mackay-Whitsunday-Isaac region and the state of Queensland are summarised in Table 4.3. As at 30 June 2011, the estimated resident population of the region was 179,093 people, an increase of 3,187 people or 1.8% over the year. This represents 3.9% of the State's population. This compares with an increase of 3,174 people or 1.8 % in the preceding year to 30 June 2010.

Table 4.3 outlines the population growth projections for the Mackay-Whitsunday-Isaac region.

Year	Projected population			Average annual change (medium series)	
	Low	Medium	High		
	series	**series**	series	Number	%
2011	179,958	**180,417**	181,932	4,123	2.5
2016	200,673	**207,232**	214,017	5,363	2.8
2021	219,844	**233,543**	246,816	5,262	2.4
2026	236,400	**257,802**	277,836	4,852	2
2031	250,417	**279,818**	306,562	4,403	1.7
% increase between 2011 to 2031	39%	**55%**	69%		

Table 4.3: Population Projection

Source: OESR Population and Dwelling Profile (25 September 2012)

The population of each regional council, and therefore the population of the entire region, is expected to grow significantly over the next 20 years. Table 4.4 shows that the population of the Mackay-Whitsunday-Isaac region is expected to be 279, 818 people by the year 2031 and the region's population are projected to increase by an average annual growth rate of 2.2% between 2011 and 2031.

Local Government Area	Project population as at 30 June					Average annual growth rate
	2011	2016	2021	2026	2031	2011-2031
	— number —					%
Isaac (R)	23,277	28,266	31,418	34,270	37,000	2.3
Mackay (R)	121,397	138,348	156,117	172,604	187,367	2.2
Whitsunday (R)	35,743	40,618	46,008	50,928	55,451	2.2
Mackay-Whitsunday-Isaac Region	**180,417**	**207,232**	**233,543**	**257,802**	**279,818**	**2.2**
Queensland	**4,611,491**	**5,092,858**	**5,588,617**	**6,090,548**	**6,592,857**	**1.8**
Region as % of Qld	3.9	4.1	4.2	4.2	4.2	

Table 4.4: Projected Population for Mackay-Whitsunday-Isaac Region, 2011 to 2031

Source: OESR Regional Profile Mackay Isaac Whitsunday (25 September 2012)

4.1.5 Current and Future Local Growth Population

The closest local town to the Byerwen Mine is Glenden, approximately 20 km east of the proposed southern Mine Infrastructure Area. Glenden is approximately 110 km south-west of Mackay and currently has a population of 1313 people, as at 2009.

Glenden was designed and built by Mount Isa Mines as a township for workers at its Newlands coal mine, 30 km north-west of Glenden. The design accorded with advanced contemporary standards - no cross-road intersections and all public-utility services placed underground - and the town was administered not by the company but by Nebo Shire, now part of the Isaac Shire. The town has a number of basic social services including an ambulance service, a school, a community centre, sports facilities, a local shopping centre and a medical centre (University of Queensland, 2011).

Whilst there is little data available on the future population predictions for Glenden specifically, historical population growth data indicates a steady increase in the population of Glenden. Table 4.5 outlines the population statistics from the Office of Economic Statistics and Research (OESR).

Local Government Area	Population as at 30 June					Average annual growth rate
	2001	2006	2007	2008	2009	2001-2009
	— number —					%
Glenden	909	1,179	1,190	1,243	1,313	5.5

Table 4.5: Historical Population Growth for Glenden, 2001 to 2009

Source: OESR Demographic Analysis of the Bowen Basin 2010

4.1.6 Existing Industries and Labour Force

The labour force characteristics of the combined Mackay-Whitsunday-Isaac region and the state, are illustrated in Tables 4.5 and 4.6. The first table outlines employment by industry, illustrating that mining employs the highest amount of the region's workforce, compared to the state, which employs a relatively low number of the workforce in this industry (11.7% and 1.7% respectively).

In terms of employment by occupation, machinery operators and drivers and technicians and trade workers are the largest occupational groups within the region. These occupations make up a third (33.32%) of the entire workforce within the region (19.5% and 13.8% respectively).

Industry	MWI Region		Queensland		Specialisation ratio (c)
	number	%	number	%	number
Agriculture, Forestry and Fishing	4,883	6.7	61,735	3.4	**1.98**
Mining	8,495	11.7	30,721	1.7	**6.94**
Manufacturing	5,860	8.1	180,212	9.9	**0.82**
Electricity, Gas, Water and Waste Services	605	0.8	18,540	1.0	**0.82**
Construction	6,970	9.6	164,936	9.0	**1.06**
Wholesale Trade	2,813	3.9	72,075	3.9	**0.98**
Retail Trade	7,878	10.8	212,422	11.6	**0.93**
Accommodation and Food Services	6,014	8.3	127,631	7.0	**1.18**
Transport, Postal and Warehousing	4,373	6.0	92,614	5.1	**1.18**
Information Media and Telecommunications	492	0.7	26,347	1.4	**0.47**
Financial and Insurance Services	1,102	1.5	52,035	2.9	**0.53**
Rental, Hiring and Real Estate Services	1,312	1.8	37,983	2.1	**0.87**
Professional, Scientific and Technical Services	2,693	3.7	102,412	5.6	**0.66**
Administrative and Support Services	1,774	2.4	55,705	3.1	**0.80**
Public Administration and Safety	2,700	3.7	122,416	6.7	**0.55**
Education and Training	4,288	5.9	139,090	7.6	**0.77**
Health Care and Social Assistance	5,083	7.0	186,336	10.2	**0.68**
Arts and Recreation Services	435	0.6	24,625	1.3	**0.44**
Other Services	2,981	4.1	68,361	3.7	**1.09**
Total (d)	**72,767**	**100.0**	**1,824,996**	**100.0**	**1.00**

Table 4.5: Employment by Industry for Mackay-Whitsunday-Isaac Region

Source: REDC Regional Profile March 2012

Industry	MWI Region		Queensland		Specialisation ratio (c)
	number	%	number	%	number
Managers	8,861	12.2	225,693	12.4	**0.98**
Professionals	8,350	11.5	312,865	17.1	**0.67**
Technicians & trades workers	14,195	19.5	280,342	15.4	**1.27**
Community & personal service workers	5,149	7.1	166,400	9.1	**0.78**
Clerical & administrative workers	8,691	11.9	269,198	14.8	**0.81**
Sales workers	6,439	8.9	189,038	10.4	**0.85**
Machinery operators & drivers	10,049	13.8	132,114	7.2	**1.91**
Labourers	9,756	13.4	217,251	11.9	**1.13**
Total (d)	**72,753**	**100.0**	**1,824,996**	**100.0**	**1.00**

Table 4.6: Employment by Industry for Mackay-Whitsunday-Isaac Region

Source: REDC Regional Profile March 2012

The number of unemployed people aged 15 years and over (based on a smoothed series) in the Mackay Isaac Whitsunday Region in the March quarter 2012 was 4,129. This represented an unemployment rate of 4.1%. In comparison, Queensland had a smoothed unemployment rate of 5.5%. Within the region, Isaac Regional Local Government Area (LGA) recorded the lowest smoothed unemployment rate (1.2%) and Whitsunday Regional LGA recorded the highest smoothed unemployment rate (6.1%).

Local government area	Unemployed	Labour force	Unemployment rate
	— number —		%
Isaac (R)	168	13,931	**1.2**
Mackay (R)	2,738	66,926	**4.1**
Whitsunday (R)	1,223	20,122	**6.1**
Mackay-Whitsunday-Isaac Region	**4,129**	**100,979**	**4.1**
Queensland	136,900	2,479,000	**5.5**
Region as % of Qld	**3.0**	**4.1**	**. .**

Table 4.7: Employment by Industry for Mackay-Whitsunday-Isaac Region

Source: OESR Regional Profile Mackay Isaac Whitsunday (25 September 2012)

The unemployment rate in Mackay Isaac Whitsunday Region for the March quarter 2012 was 4.1%, compared with 5.5% in Queensland. Between the June quarter 2010 and the March quarter 2012, the unemployment rate in the region ranged between 4.0% (December quarter 2010) and 4.3% (September quarter 2011).

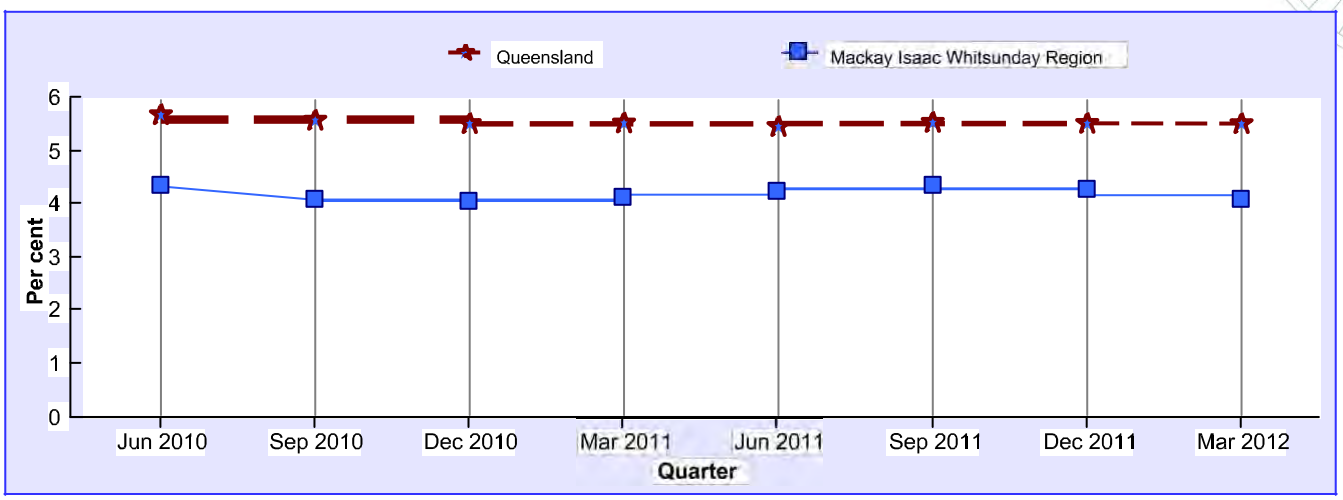


Figure 4.2: Unemployment Rates for Mackay-Whitsunday-Isaac Region compared to Queensland

Source: OESR Regional Profile Mackay Isaac Whitsunday (25 September 2012)

4.1.7 Economic Indicators

Housing and Accommodation

For the September 2011 quarter, the median house price in Mackay decreased 0.8% to $410,000 with an annual increase of 2.5%, one of the few regions across Queensland to record positive annual growth. The Mackay median unit and townhouse price decreased 2.1% to $302,500 over the quarter. Brisbane's median house price also reduced by 2% over the period.

Due to demand from the resources sector, the number of sales of vacant land in Mackay increased by more than 70% over the period, however the median price for vacant land was the same as the previous period at $175,000. Over the year, the median price for vacant land decreased by 2.7%.

Table 4.8 outlines house sale activity across the region.

Local government area	No. of House Sales Sep Qtr 2011	Median House Prices Sep Qtr 2011	Change over Qtr	12 mths to end of Sep 2011	Change over 1yr	Change over 5yrs
Isaac Regional Council (TOTAL)	**86**	**$520,750**	**13.3%**	**$460,000**	**8.2%**	**48.4%**
Clermont	16	$235,000	-6.0%	$240,000	-18.6%	33.3%
Dysart	22	$488,500	5.7%	$465,000	13.0%	63.2%
Moranbah	45	$615,000	25.5%	$500,500	11.2%	49%
Mackay Regional Council (TOTAL)	**265**	**$410,000**	**-0.8%**	**$410,000**	**-2.5%**	**17.1%**
Mackay	48	$491,000	-1.8%	$490,000	-1.8%	10.7%
Andergrove	19	$390,000	-4.9%	$393,000	-0.5%	10.7%
Beaconsfield	15	$408,000	-1.0%	$408,000	-0.5%	21.8%
Blacks Beach	2	N/A	N/A	$480,000	5.5%	9.1%
Bucasia	8	$448,750	1.4%	$431500	0.3%	13.9%
East Mackay	10	$446,000	10.1%	$437,000	9.9%	15.0%
Eimeo	15	$449,000	1.5%	$449,500	3.5%	16.4%
Glenella	19	$478,000	-12.3%	$496,000	-5.5%	9.9%
Mackay	8	$458,000	N/A	N/A	N/A	N/A
Marian	10	$457,500	N/A	$425,000	-1.3%	59.5%
Mount Pleasant	19	$430,000	-9.5%	$430,000	-2.9%	5.8%
North Mackay	16	$344,000	-0.9%	$350,000	3.6%	20.4%
Ooralea	8	$535,000	11.7%	%505,000	9.5%	32.0%
Rural View	12	$511,000	7.0%	$460,000	-3.2%	10.8%
Sarina	5	N/A	N/A	$308,000	1.3%	18.7%
Slade Point	12	$405,000	-2.6%	$380,000	2.4%	19.1%
South Mackay	20	$362,500	-0.3%	$370,000	1.4%	15.6%
Walkerston	11	$376,000	-2.6%	$435,000	-3.9%	13.0%
West Mackay	25	$340,000	-8.8%	$365,000	-2.7%	12.0%

Local government area	No. of House Sales Sep Qtr 2011	Median House Prices Sep Qtr 2011	Change over Qtr	12 mths to end of Sep 2011	Change over 1yr	Change over 5yrs
Whitsunday Regional Council (TOTAL)	**64**	**$330,000**	**10.9%**	**$350,000**	**-5.3%**	**26.1%**
Whitsunday	17	$438,000	N/A	$450,000	-8.6%	12.5%
Bowen	14	$333,500	11.2%	$350,000	0.00%	32.1%
Cannonvale	14	$442,000	-11.2%	$436,000	-3.1%	3.8%
Collinsville	16	$182,500	N/A	$171,250	-7.4%	39.8%
Jubilee Pocket	3	N/A	N/A	$390,000	N/A	-0.6%
Proserpine	5	NA	N/A	$305,500	-14.9%	18.9%

Table 4.8: House Prices and Activity

Source: REIQ Quarterly September Quarter 2011

Table 4.9 outlines unit and townhouse sale activity across the region.

Local government area	No. of Unit Sales Sep Qtr 2011	Sep Qtr 2011	Change over Qtr	12 mths to end of Sep 2011	Change over 1yr	Change over 5yrs
Mackay (LGA)	50	$302,500	-2.1%	$308,000	-2.2%	22.7%
Whitsunday (LGA)	16	$414,500	N/A	$331,000	-4.1%	4.5%
Isaac (LGA)	N/A	N/A	N/A	N/A	N/A	N/A

Table 4.9: Unit and Townhouse Prices and Activity

Source: REIQ Quarterly September Quarter 2011

Table 4.10 outlines vacant land sale activity across the region.

Local government area	No. of Land Sales Sep Qtr. 2011	Sep Qtr. 2011	Change over Qtr.	12 mths to end of Sep 2011	Change over 1yr	Change over 5yrs
Mackay (LGA)	126	$175,000	0.0%	$178,000	-2.2%	6.1%
Whitsunday (LGA)	20	$134,000	3.5%	$143,750	-8.1%	-4.2%
Isaac (LGA)	10	$106,300	N/A	$148,500	23.2%	104.5%

Table 4.10: Vacant Land Prices and Activity

Source: REIQ Quarterly September Quarter 2011

Table 4.11 outlines the median weekly rents across the region.

Local Government Area	Sep Qtr 2011		Sep Qtr 2010		Annual % change in rent
	Rent ($)	New Bonds	Rent ($)	New Bonds	
Isaac Regional Council					
3 Bedroom Houses	$1,200	114	$600	154	100%
2 Bedroom Flats/Units	$950	15	$260	16	265%
3 Bedroom Townhouse	N/A	N/A	N/A	N/A	
Mackay Regional Council					
3 Bedroom Houses	$420	365	$380	374	11%
2 Bedroom Flats/Units	$315	284	$285	281	11%
3 Bedroom Townhouse	$450	37	$390	32	15%
Whitsunday Regional Council					
3 Bedroom Houses	$330	284	$285	281	16%
2 Bedroom Flats/Units	$260	192	$260	168	0%
3 Bedroom Townhouse	$335	25	$340	27	-1%

Table 4.11: Regional Rental Overview

Source: REIQ Quarterly September Quarter 2011

Recent developments such as Moranbah are likely contributors to the increases in median rental values within the Isaac Regional Council LGA.

Local Property Markets

This section provides an overview of the housing (Table 4.12), vacant land (Table 4.13) and commercial land (Table 4.14) breakdown for Glenden, Collinsville, Moranbah and Nebo. These are the closest townships to the Project area.

Housing	Average		Median		Total		Number of Sales
	Price	Area	Price	Area	Price	Area	
Glenden	$126,883	881m2	$98,500	886m2	$6,344,130	4.41ha	50
Collinsville	$112,411	5,788m2	$80,500	1,012m2	$78,238,084	402.87ha	696
Moranbah	$408,614	2,282m2	$315,000	809m2	$1,035,427,560	578.25ha	2534
Nebo	$222,528	5.6ha	$225,000	2,023m2	$38,274,764	962.67ha	172

Table 4.12: Housing Overview

Source: Property Data Solutions (2011)

Based on the median prices compared to property size, Glenden and Moranbah's comparative costs per square metre range from approximately $111 to $389 per square metre in Glenden and Moranbah respectively.

Vacant Land	Average		Median		Total		Number of Sales
	Price	Area	Price	Area	Price	Area	
Glenden	$3,450	873m2	$1,625	865m2	$35,500	8,734m2	10
Collinsville	$33,500	2.54ha	$18,000	1,012m2	$4,656,525	352.9ha	139
Moranbah	$563,015	1.65ha	$120,000	850m2	$493,201,334	1,441.54ha	876
Nebo	$143,371	6.3ha	$63,270	2,023m2	$30,394,724	1,336.12ha	212

Table 4.13: Vacant Land Overview

Source: Property Data Solutions (2011)

Commercial Land	Average		Median		Total		Number of Sales
	Price	Area	Price	Area	Price	Area	
Glenden	$478,917	2,700m2	$334,000	1,989m2	$4,310,255	2.43ha	9
Collinsville	$357,365	1,680m2	$106,650	1,100m2	$7,147,300	3.36ha	20
Moranbah	$749,585	335.26ha	$260,000	1,619m2	$67,462,660	30,173.54ha	90
Nebo	$734,500	2.45ha	$100,000	2.66ha	$3,672,500	12.23ha	5

Table 4.14: Commercial Land Overview

Source: Property Data Solutions (2011)

Dwelling Availability

The Real Estate Institute of Queensland (REIQ) outlines that vacancy rates in the Mackay region have increased from 1.7 % in June 2012 to 4 % in September 2012. The cancellation of projects in the mining industry has immediately carried over into the rental market. The REIQ indicates that cancellation of leases due to the relocation of workers and newly-constructed properties becoming available has resulted in the vacancy rate increasing markedly to 4% and that higher-end rents are also reportedly coming down.

Availability of Suitable Land for Support Industrial Uses

The Mackay, Isaac and Whitsundays Regional Plan identifies the Isaac industrial estates as key hubs of employment for Moranbah and Nebo. Following the MIQ Industrial Land Demand Study conducted in 2010, it was suggested that the area of Isaac is likely to require additional industrial land in the future. Considering this aspiration, there may be certain leniencies towards industrial development within Moranbah and Nebo. Table 4.15 outlines the number of hectares of developable land.

Region	Serviced and Developed[a]	Vacant Supply[b]	Raw Vacant Supply[c]	Total
Isaac Regional Council	265.7	21.1	256.0	542.7
Mackay Regional Council	686.0	49.0	232.0	967.0
Whitsunday Regional Council	198.6	25.4	129.5	353.4

Table 4.15: Hectares of Developable Industrial Land by Region

Source: AEC Group WHAM Industrial Land Demand Study

a) Land that is serviced by infrastructure and developed

b) land that is serviced and ready for development, but is undeveloped

c) Land that is neither serviced (water and sewerage) or developed and tends to be large lots

Major Developments

There are currently $107 billion in major developments in the regional council areas of Mackay, Isaac, and Whitsunday in various stages of completion (suggested but not started, in progress or recently completed). This compares to $81 billion in June 2011.

Combined mining and ports contribute to approximately $76 billion or 70% of the total investments for the region.

The Regional Economic Development Corporation (REDC) has compiled a list of investment as at December 2011. These can be seen in Table 4.16.

Industry	Not Started(a)	In Progress(b)	Completed(c)	Total ($million)
Agribusiness	$125.00	$120.00	-	$245.00
Community Infrastructure	$79.00	$439.20	$21.50	$539.70
Construction	$1,565.50	3,372.50	-	$4,938.00
Energy	$2,475.00	$200.00	-	$2,675.00
Manufacturing	$5,040.00	$1,162.00	-	$6,202.00
Marine	$533.00	$500.00	-	$1,033.00
Mining	$32,513.00	$1,958.00	-	$34,471.00
Ports - Air	-	-	$17.00	$17.00
Ports - Sea	$36,508.00	$3,840.00	$900.00	$41,248.00
Professional Services	$124.47	-	$17.80	$142.27
Rail	$12,014.00	$1,100.00	$385.00	$13,499.00
Retail	$116.00	$315.00	$230.00	$661.00
Roads	$56.30	$205.70	$148.00	$410.00
Tourism	$75.20	$60.00	-	$135.20
Water	$985.20	$293.10	-	$1,278.30
Total	**$92,209.67**	**$13,565.50**	**$1,719.30**	**$107,494.47**

Table 4.16: Major developments in the Mackay-Whitsunday-Isaac Region as of September 2012

Source: REDC Regional Development Register, Sept 2012

Major Projects under construction and committed as of December 2011 for the Mackay, Isaac and Whitsunday Regional Council areas are outlined in Table 4.17.

LGA	Not Started	In Progress	Completed	Total ($million)
Mackay RC	$14,640.47	$6,481.90	$406.80	$21,529.17
Isaac RC	$33,116.00	$3,110.50	$15.00	$36,241.50
Whitsunday RC	$44,453.20	$9,937.10	$1,297.50	$49,723.80
Total	**$92,209.67**	**$13,565.50**	**$1,719.30**	**$107,494.47**

Table 4.17: Development Status for the Region as of September 2012

Source: REDC Regional Development Register, Sept 2012

Saleable Coal Production

There was a total of 103.5 megatons of saleable coal production in the Mackay-Isaac-Whitsunday region in 2010-11, compared to 121.4 megatons the previous year, primarily due to weather events and natural disasters. Table 4.18 outlines the quantities.

Mine	Coking	Thermal	Total	Coking	Thermal	Total
	2009/10			2010/11		
Blair Athol		9,844,946	9,844,946		3,858,146	3,858,146
Broadlea North	240,515	400,819	641,334			
Burton Coal	2,438,065	279,613	2,717,678	1,990,993	246,272	2,237,265
Carborough Downs	1,164,338		1,164,338	1,569,185		1,569,185
Clermont Coal		529,323	529,323		6,499,001	6,499,001
Collinsville Open cut	1,348,425	2,902,977	4,251,402	803,272	2,331,249	3,134,521
Cook	389,042	78,177	467,219	457,438	100,562	558,000
Coppabella	3,558,152	90,483	3,648,635	2,669,344	139,648	2,808,992
Ensham		7,538,704	7,538,704		4,660,259	4,660,259
Foxleigh	2,377,222		2,377,222	1,966,303		1,966,303
German Creek	1,432,681	154,710	1,587,391	1,042,625	118,184	1,160,809
German Creek – Aquila	69,024		69,024	122,154		122,154
German Creek - Bundoora	1,047,291		1,047,291	638,552		638,552
German Creek - Lake Lindsay	2,138,382	412,490	2,550,872	1,490,353	405,952	1,896,305
Goonyella - Riverside	13,336,365		13,336,365	10,229,859		10,229,859
Grasstree	2,916,055		2,916,055	2,916,248		2,916,248
Hail Creek	6,631,738		6,631,738	6,878,982		6,878,982
Isaac Plains	582,760	1,534,015	2,116,775	352,127	1,384,733	1,736,860
Jellinbah East	4,564,465	76,941	4,641,406	3,587,946	162,949	3,750,895
Lake Vermont	3,966,226		3,966,226	3,382,550		3,382,550
Middlemount				63,011		63,011
Millennium	1,159,419		1,159,419	1,617,327		1,617,327
Moorvale	1,937,185	1,247,366	3,184,551	1,168,796	1,225,214	2,394,010
Moranbah North	3,244,636		3,244,636	4,635,197		4,635,197
Newlands	1,195,351	8,609,215	9,804,566	1,503,830	6,782,123	8,285,953
North Goonyella	3,233,344		3,233,344	2,760,171		2,760,171
Norwich Park	3,694,577		3,694,577	2,237,621		2,237,621
Peak Downs	8,520,074		8,520,074	6,874,692		6,874,692
Poitrel	2,833,324		2,833,324	2,677,755		2,677,755
Saraji	6,611,656		6,611,656	5,406,914		5,406,914
Sonoma Coal	1,050,714	2,367,010	3,417,724	1,448,211	1,919,324	3,367,535
South Walker Creek	3,486,402	122,028	3,608,430	3,133,619		3,133,619
Total - All Mines	**85,167,428**	**36,188,817**	**121,356,245**	**73,625,075**	**29,833,616**	**103,458,691**

Table 4.18: Saleable Coal across the Region

Source: REDC Regional Development Register, Sept 2012

Table 4.19 outlines a summary of the major projects from across the Region.

Project	Proponent	Cost	Status	Estimated Completion	Council
Abbot Point Coal Terminal 1	North Queensland Bulk Ports	< $1 Billion		2011	Whitsunday
Abbot Point Coal Terminal 2	BHP Billiton	> $1 Billion	Preliminary Assessment		Whitsunday
Abbot Point Coal Terminal 3	Hancock Coal Pty Ltd	> $1 Billion	Preliminary Assessment		Whitsunday
Hay Point Coal Expansion Project	BHP Billiton Mitsubishi Alliance	> $1 Billion	Delivery	2015	Mackay
Early Childhood Education Centres		< $100 Million	Delivery		
Mackay Base Hospital Expansion	Queensland Health	< $500 Million	Delivery	2013	Mackay
Bruce Highway Upgrades		< $1 Billion	Various stages		Mackay
China First Rail Network	Waratah Coal	> $1 Billion		2014	Whitsunday
Daunia Coal Project	BHP Billiton Mitsubishi Alliance	> $1 Billion		2013	Isaac
Byerwen Open-cut	Q Coal	> $1 Billion		2014	Isaac
Moranbah to Alpha Pipeline Project		< $1 Billion	Business Case	2015	
Connors River Dam and pipelines to Moranbah		> $1 Billion	Procurement	2015	
Central Queensland Gas Pipeline	AGL Energy / Arrow Energy	< $500 Million		2014	Isaac
Grosvenor Underground Coal Project	Anglo American Metallurgical Coal	< $1 Billion		2014	Isaac
Peaks Downs Open Cut Expansion	BHP Billiton Mitsubishi Alliance	< $1 Billion		2014	Isaac
Moranbah South Underground Coal Project	Anglo American Metallurgical Coal / Exxaro Australia	> $1 Billion		2017	Isaac
Dalrymple Bay Coal Terminal Expansion	North Queensland Bulk Ports Corporation	< $1 Billion		2018	Whitsunday
Broadmeadow Underground Expansion	BHP Billiton Mitsubishi Alliance	< $1 Billion		2013	Isaac
Peak Downs Highway upgrades		> $1 Billion	Various Stages		Mackay
Dudgeon Point Coal Terminals	North Queensland Bulk Ports Corporation	< $1 Billion		2013	Whitsunday
Mackay TAFE Training Facility at Central Queensland University		< $100 Million	Pre-project	2014	Mackay
Reinforce energy supply to Airlie Beach	Ergon Energy	< $100 Million	Pre-project	2015	
Reinforce energy supply to Bowen Basin	Ergon Energy	< $100 Million	Pre-project	2016 - 2021	
Sarina Hospital Expansion		< $100 Million	Pre-project	2016 - 2021	
Bowen Hospital Expansion		< $500 Million	Pre-project	2016 - 2021	

Table 4.19: Major Project Summary from across the Region

Source: REDC Regional Development Register, June 2011

For a more detailed list of major mining projects within the wider region, see Appendix 1.

Figure 4.3 demonstrates the location of projects across Central Queensland.

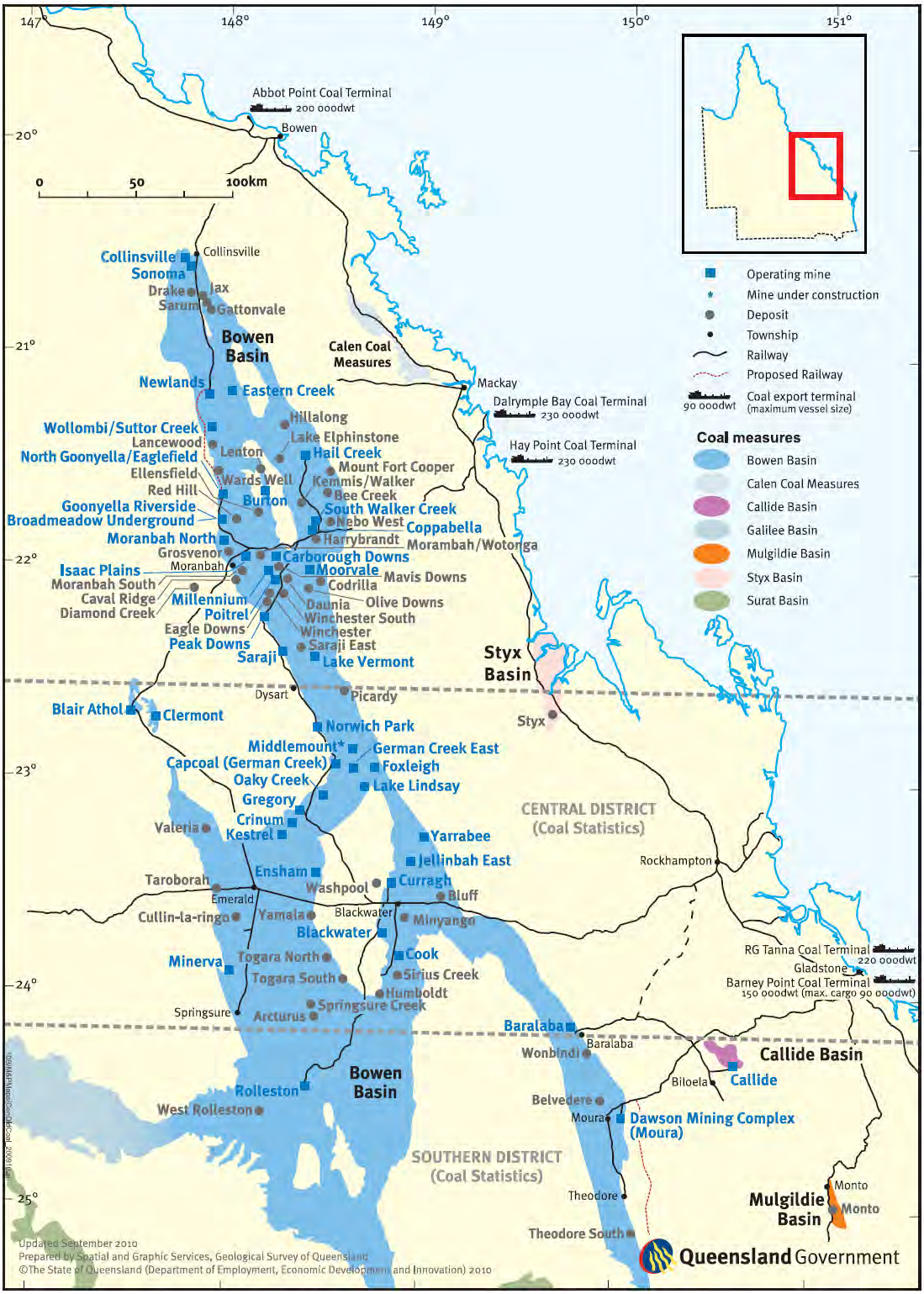


Figure 4.3: Central Queensland Major Project Locations

Source: Queensland Government, Department of Natural Resources and Mines

4.1.8 Existing Infrastructure

There are a number of key transport systems and infrastructure within the region, which the Project will both directly and indirectly utilise and impact upon. This section provides an overview of the key existing transport systems and infrastructure that service the region.

Sea Ports

There are three sea ports servicing the region, all managed by North Queensland Bulk Ports Corporation (NQBP). The Port of Abbot Point is located closest to the Project's location and would be used to export the majority of the mine's coal output. The coal terminal at Abbot Point , which is owned by Ports Corporation of Queensland (PCQ) and operated by Abbot Point Bulk Coal Pty Ltd, is of significant strategic value to NQBP and the State due to the unusually deep water (>15m) so close to the shore line. Studies are currently underway to significantly expand the coal export facilities at Abbot Point.

Airports

Moranbah Airport and Mackay Airport are the closest airports to the region. Moranbah Airport is recognised by the Queensland Government as an airport of significance with recent rapid growth in traffic. This is accredited to the region's mining boom, with four airline carriers (Qantas, Virgin Blue, Jetstar and Tiger Airways) providing frequent and low-cost services to the airports (REDC 2009).

Road

The main national highway, the Bruce Highway, runs through Mackay, connecting with the Peak Downs Highway and Suttor and Bowen Developmental Roads that run through the regional towns.

Rail

Three designated freight rail systems service the region, designed for transporting coal, sugar and other freight products. The existing Goonyella to Abbot Point (GAP) rail line intersects the Byerwen Project area.

Mines

The region is home to Australia’s largest coal deposit, and is one of the nation’s largest coal producers. For a more detailed account of the existing mines operating within the wider region, see Appendix 2.

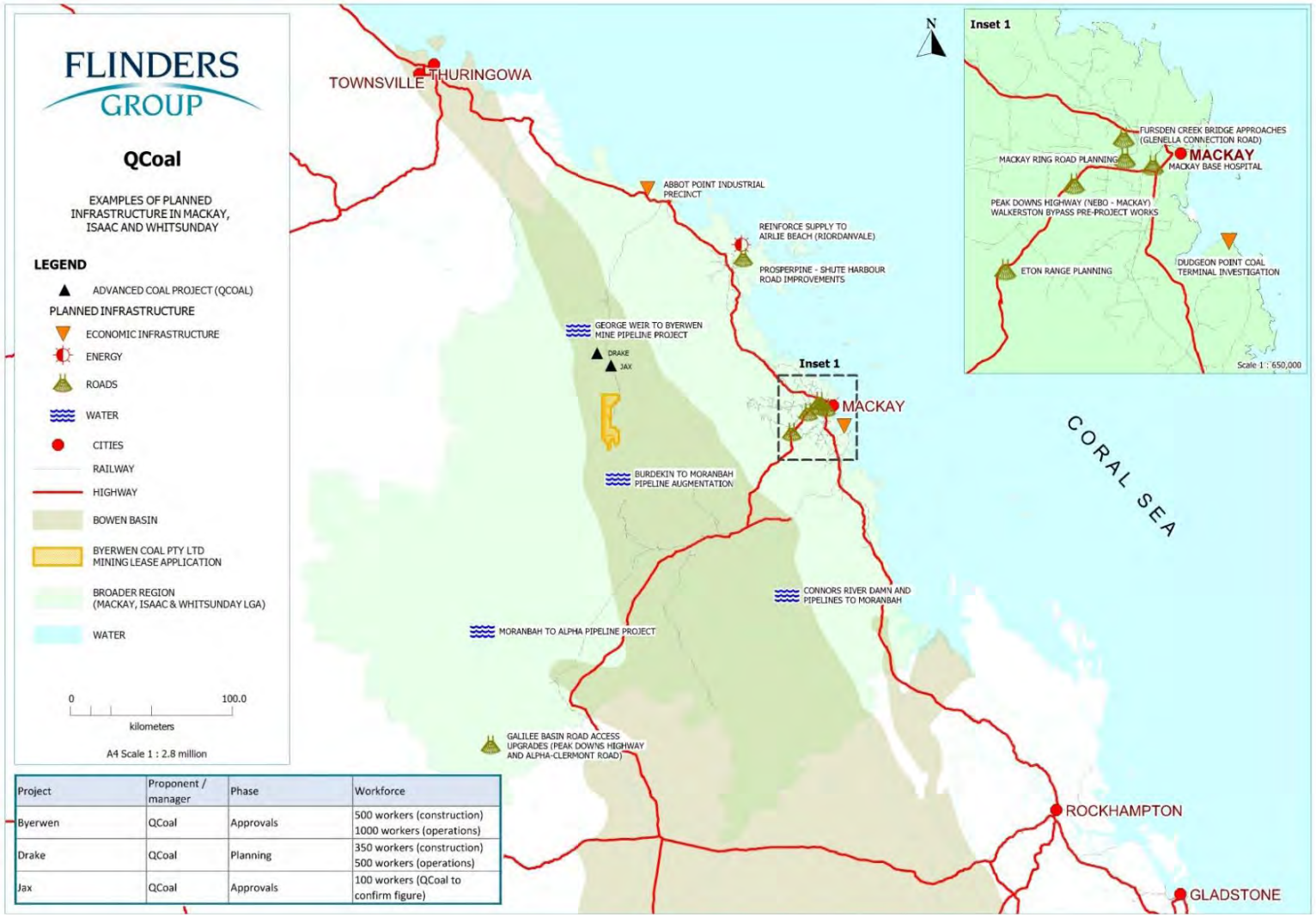
Figure 4.4: Regional Infrastructure Overview

Source: MWI Regional Plan 2012

Future Infrastructure

Figure 4.5 provides a map illustrating examples of infrastructure planned for the Mackay-Isaac-Whitsunday region.

For a more detailed explanation of resources and infrastructure within the region, see Appendix 3.



Project	Proponent / manager	Phase	Workforce
Byerwen	QCoal	Approvals	500 workers (construction) 1000 workers (operations)
Drake	QCoal	Planning	350 workers (construction) 500 workers (operations)
Jax	QCoal	Approvals	100 workers (QCoal to confirm figure)

Figure 4.5: Planned Infrastructure within the Broader Region

Source: Flinders Group

4.1.9 Other Industries and Factor Prices

Horticulture

The most valuable agricultural commodity for the Whitsundays during the 2005-06 period was tomatoes, contributing $74.38 million and equating to 51.2% of the total value in Queensland, followed by capsicums at $63.53 million. As of 2000-01 in the Whitsunday region, French & runner beans, tomatoes and capsicums & chillies were grown most widely with 1,370, 1,674 and 1,035 hectares respectively. In 2005-06 the area of growth for French & runner bean rose to 1,680 hectares making up for 40.4% of Queensland's supply. Tomato growth declined to 1,433 hectares however made up for 52.7% of the Queensland tomato crop. Capsicum and chilli growth declined to 897 hectares, whilst making up for 43.9% of growth in Queensland. While honeydews only accounted for 162 hectares in 2005-06, it accounted for 50.8% of the total honeydew growth in Queensland.

Livestock

Between 2000/01 and 2005/06 the number of meat cattle in Whitsunday declined from 344,493 to 257,363, however during the same time period, the number of chickens (eggs for human consumption) and pigs produced increased significantly. During the 2005/06 period, both Whitsunday and Isaac's most valuable livestock commodity was cattle and calves, contributing $49.21 million and $200.04 million to the regions respectively. Table 4.20 gives a more detailed explanation of livestock commodity values in the regions.

Livestock	Whitsunday RC		Isaac	
	$m	% of Queensland	$m	% of Queensland
Cattles and Calves	49.21	1.4%	200.04	5.5%
Pigs	7.71	3.3%	0.04	0.02%
Other	0.04	0.0%	0.05	0.07%
Total Value	**56.97**	**1.4%**	**200.13**	**4.9%**

Table 4.20: Livestock commodities by value

Source: Australian Bureau of Statistics (2008) Agricultural Commodities: Small Area Data, Catalogue No. 7125.0, Canberra

Building Approvals

In the 12 months ending 30 June 2012, there were 1,771 dwelling units in new residential buildings approved in Mackay Isaac Whitsunday Region, with a total value of $469.8 million. In comparison, the total value of new residential building approvals in Queensland was $6,526.8 million. Within the region, Mackay Regional Local Government Area (LGA) recorded the largest values of new residential building approvals ($386.7 million).

The total value of non-residential building approvals in Mackay Isaac Whitsunday Region in the 12 months ending 30 June 2012 was $310.5 million. The largest values of non-residential approvals were recorded in Mackay Regional LGA ($259.3 million) and Isaac Regional LGA ($33.1 million).

Local government area	Dwelling units in new residential buildings (a)	Residential building value (a)	Total residential building value (b)	Total non-residential building value (b)	Total building value (b)	Proportion of total value that is residential (c)
	number	— $'000 —				%
Isaac (R)	322	62,802	66,112	33,108	99,220	66.6
Mackay (R)	1,373	386,653	420,629	259,320	679,949	61.9
Whitsunday (R)	76	20,368	30,663	18,116	48,779	62.9
Mackay Isaac Whitsunday Region	1,771	469,823	517,404	310,544	827,948	62.5
Queensland	26,571	6,526,792	7,774,614	5,441,437	13,216,051	58.8
MWI Region as % of Queensland	6.7	7.2	6.7	5.7	6.3	

Table 4.21: Building Approvals

Source: OESR Regional Profile Mackay Isaac Whitsunday (25 September 2012)

4.2 Existing Economic Environment

In summary, the main characteristics of the existing economic environment in the region include:

- Significant population growth sustained by the mining and construction industries, which is expected to continue over the next 20 years;
- The average annual income in the region is considerably higher than the average annual income for Queensland;
- Housing prices and repayment costs within the MWI region are generally on par with the state averages, however localities such as Moranbah have experienced significant short-term growth.;
- The region is adequately serviced by existing infrastructure, including three sea ports, the Mackay airport, the Bruce Highway and three designated freight rail systems;
- A reasonably tight labour market with an unemployment rate below the state average;
- The mining sector is the largest employing industry, followed by retail trade, and construction;
- Technicians and tradespeople, machinery operators and drivers, and labourers are the largest occupational categories;
- Outside of mining, the region is predominantly made up of small businesses specialising in agriculture, forestry and fishing and wholesale trade;
- Mackay offered the largest areas of land suitable for Industrial uses with a total of 967.0 hectares available; and
- The region makes a notable contribution to Queensland's horticulture production, particular in the way of tomatoes, capsicums, honeydews and French and runner beans.

5 Economic Impact Analyses Framework

This chapter provides an overview of the economic framework used to estimate the impacts. It includes an outline of the Input-Output (I-O) analysis framework used, the type of impacts associated with this assessment, a description of the key economic indicators to be measured, the limitations of using the I-O method, and a discussion of the data and assumptions associated with the magnitude, location and timing of investment expenditures.

5.1 Method

5.1.1 Input-Output Analysis Framework

The method used to measure the economic impacts of constructing and operating the Project is Input-Output analysis. I-O analysis is a well-established and widely used technique for estimating economic impacts of an existing, expanding or new economic activity in a region. It examines how the Project affects an economy through both backward and forward linkages between all industries in the economy. It takes the initial effect of the Project, and traces all the multiplier or 'flow-on' effects – known as direct, indirect and induced. The final result is an overall picture of the Project's expected contribution for the regional, state and national economies.

The framework implies the initial expenditure on the Project creates a first round, or direct flow-on effect, across all businesses and employees in the supply chain (e.g. construction or mining). This in turn encourages further indirect expansionary effects to other sectors of the economy supporting the Project (e.g. residential building construction). The direct and indirect effects, further induced impacts or 'pay-packet' effects are expected to be realised in terms of the consumption of goods and services by the household sector (e.g. retail trade, cafes and restaurants).

5.1.2 Type of Impacts

The economic impact of the Project can be traced through the economic system in several different ways. For the purpose of this assessment, the following types of impacts are used:

- The direct multiplier effect represents the increase in economic activity (value added and output) and employment which is directly generated across all supplying sectors in the industry receiving the initial impact;
- The indirect multiplier effect represents the second round that occurs across all secondary industries in the economy to support the direct impact;
- The total multiplier effect is the sum of the direct and indirect multiplier effects outlined above.

5.1.3 Economic Indicators

In applying the I-O method, the economic impact is measured by means of four key economic indicators – value added (at the regional and state level), output (at the rest of Australia level), impact on household incomes and employment (at regional, state and national levels).

Value Added and Output Impact

The value added measure can be defined as the *net* revenue of goods and a service provided by all industries resulting directly and indirectly from a change in final demand and is equivalent to GRP. The

output measure, by contrast, is defined as the *gross* revenue of goods and services produced by all industries of the economy that is required to satisfy the change in final demand for the output of that industry.

Household Income Impacts

Household Income estimates include both direct and indirect impacts. Households will benefit through additional wages and salaries paid by the proposed Project during both construction and operation, as well as flow-on employment, or income earning opportunities created by the Project.

Employment Impact

Employment flow-on effects occur because businesses adjust the level of resources used to accommodate for changes in the value added and output impacts. For instance, during the operational phase of the mine development, employment increases to enable the production of goods and services to service maintenance workers. Employment includes the number of working proprietors, and may encompass managers, directors, and other employees in terms of full-time equivalents. Employment flow-on effects also have direct and indirect effects. The direct flow-on effect is defined as the change in employment associated with those industries directly supporting the activities of the expanding sector. The indirect effects represent the increase in employment across all indirect support sectors (i.e. sectors providing inputs to supply sectors).

5.1.4 General I-O Model Assumptions

The key assumptions for the I-O modelling include:

- The inputs purchased by each industry are a function only of the level of output of that industry. The input function is generally assumed linear and homogenous of degree one (which implies constant returns to scale and no substitution between inputs);
- Each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies that there is only one method used to produce each commodity and that each sector has only one primary output;
- The total effect of carrying on several types of production is the sum of the separate effects. This rules out external economies and diseconomies and is known simply as the additivity assumption. This generally does not reflect real world operations;
- The system is in equilibrium at given prices. This is not the case in an economic system subject to external influences; and
- In the static input-output model, there are no capacity constraints so that the supply of each good is perfectly elastic. Each industry can supply whatever quantity is demanded of it and there are no capital restrictions. This assumption would come into play depending upon the magnitude of the changes in quantities demanded.

This technique provides a solid approach for considering the inter-relationships between the various sectors of the economy in the short-term and provides useful insight into the quantum of final demand for goods and services, both directly and indirectly, likely to be generated by the project.

5.2 Method Limitations

The inputs are taken from the OESR, Regional Economic Development Centre and Australian Bureau of Statistics. The majority of data is from 2011 with key elements from 2012 and back to the 2006 Census, where more recent data is not available at the time of developing this report, realising some overall limitations including:

- Data was compiled from numerous sources;
- The assumption that the economy has remained in a unchanged “steady state”; and
- The reliance on averages.

Despite these limitations, the I-O method has provided a rational means of estimating the economic impact of the Project, as per the objective.

5.3 Data

The data relating to estimated capital and operating expenditure specific to the project was provided by Byerwen Coal.

5.3.1 Regional, State and National Impact Definition

In this assessment, the economic impacts are separated into regional, state and national impacts. That is:

- The regional level is defined as the combined Local Government Areas of Isaac, Mackay and Whitsunday;
- The state level is defined as the rest of Queensland; and
- The national level is defined as the rest of Australia.

The I-O multipliers for the construction period were developed under the assumption that material impacts of the project’s construction were likely to have nation-wide impacts, whereas the operational multipliers cover the region and state only, under the assumption that material impacts will only affect the region and state only.

6 Economic Impact Assessment

6.1 Construction Phase Data and Assumptions

A breakdown of the project purchases by country of origin, type of purchase and year of purchase is provided in Table 6.1; where Year -3 is the first year of construction, Year -2 is the second year of construction and Year -1 is the third year of construction prior to operation. In total, the pre-construction, procurement and construction costs associated with the project are estimated to be $1.764 billion including $676 million within the region, $683 million in Queensland, $50 million nationally and $355 million internationally. The most significant expenditure item is anticipated to be the construction of the processing plant ($260 million), which is estimated to account for 15% of total pre-construction, procurement and construction costs.

The data provided by QCoal reflects construction and operations of phase 1 and 2. Table 6.1 summarises the capital expenditure costs associated with the Byerwen Project.

Open Cut	Total					Region					Queensland					National					International				
	Yr -3	Yr -2	Yr -1	Yr +1	Yr 5+	Yr -3	Yr -2	Yr -1	Yr +1	Yr 5+	Yr -3	Yr -2	Yr -1	Yr +1	Yr 5+	Yr -3	Yr -2	Yr -1	Yr +1	Yr 5+	Yr -3	Yr -2	Yr -1	Yr +1	Yr 5+
Development Costs	70	70	35	-	-	15	15	7	-	-	55	55	28	-	-	-	-	-	-	-					
Processing Plant	2	50	260	-	-	-	20	90	-	-	2	20	110	-	-	-	5	30	-	-	-	5	30	-	-
On - site Infrastructure	-	30	110	-	-	-	10	40	-	-	-	15	60	-	-	-	5	10	-	-	-	-	-	-	-
Off - site Infrastructure	340	60	140	-	-	220	15	70	-	-	120	45	70	-	-	-	-	-	-	-	-	-	-	-	-
Mobile Plant and Equipment	-	-	160	100	125	-	-	25	15	25	-	-	-	-	-	-	-	-	-	-	-	-	135	85	100
Pre Operations	-	10	25	-	-	-	5	15	-	-	-	5	10	-	-	-	-	-	-	-	-	-	-	-	-
Project Management	2	10	20	-	-	1	5	10	-	-	1	5	10	-	-	-	-	-	-	-	-	-	-	-	-
Other	5	40	60	40	-	3	20	30	20	-	2	20	30	20	-	-	-	-	-	-	-	-	-	-	-
Total	**419**	**270**	**810**	**140**	**125**	**239**	**90**	**287**	**35**	**25**	**180**	**165**	**318**	**20**	**0**	**0**	**10**	**40**	**0**	**0**	**0**	**5**	**165**	**85**	**100**

Table 6.1: Byerwen Project Capital Expenditure ($M)

Source: Provided by QCoal Pty Ltd

* Represents expansion from year 15 for 2 years.

Capital expenditure by year and type of expenditure are allocated against up to 76 industry sectors identified in the Input-Output tables (Appendix 5) for each of the impact measures, which include:

- Output (or Consumption);
- Household Income;
- Employment (FTEs); and
- Value Added.

The extent of the total impact for each of these measured will be distributed across a broad range of industry sectors.

Further detail on each of the impact measures is provided and Table 6.2 summarises the results of the impacts of the capital expenditure for the Project.

Output (or Consumption) ($M)																
	Year-3				Year-2				Year-1				Year +1			
	Region	Qld	National	Total	Region	Qld	National	Total	Region	Qld	National	Total	Region	Qld	National	Total
Direct	239.00	180.00	0.00	419.00	90.08	164.91	10.00	265.00	287.12	318.04	27.28	632.44	35.02	20.00	0.00	55.01
Indirect	37.56	168.80	0.00	206.36	71.71	213.69	14.69	300.09	282.95	463.62	40.62	787.19	22.63	24.61	0.00	47.24
Total	276.56	348.80	0.00	625.36	161.80	378.59	24.69	565.09	570.07	781.65	67.90	1419.62	57.65	44.60	0.00	102.25
Household Incomes ($M)																
	Year-3				Year-2				Year-1				Year +1			
	Region	Qld	National	Total	Region	Qld	National	Total	Region	Qld	National	Total	Region	Qld	National	Total
Direct	4.78	74.00	0.00	78.78	34.73	61.13	2.97	98.82	88.71	90.02	7.75	186.48	8.34	7.10	0.00	15.44
Indirect	7.28	50.80	0.00	58.08	13.25	57.65	3.28	74.18	50.32	121.15	9.10	180.56	4.12	6.75	0.00	10.87
Total	12.06	124.80	0.00	136.86	47.89	118.77	6.25	172.92	139.03	211.17	16.85	367.05	12.45	13.85	0.00	26.30
Employment Effects																
	Year-3				Year-2				Year-1				Year +1			
	Region	Qld	National	Total	Region	Qld	National	Total	Region	Qld	National	Total	Region	Qld	National	Total
Direct	68.29	1120.00	0.00	1188.29	461.32	826.16	50.18	1337.66	1263.90	1339.84	132.12	2735.86	114.51	102.95	0.00	217.46
Indirect	136.57	720.00	0.00	856.57	201.30	812.24	54.14	1067.68	906.19	1815.83	150.59	2872.62	69.60	97.55	0.00	167.15
Total	204.86	1840.00	0.00	2044.86	671.02	1638.40	103.87	2413.29	2170.09	3155.67	282.72	5608.47	185.20	200.50	0.00	385.70
Value Added ($M)																
	Year-3				Year-2				Year-1				Year +1			
	Region	Qld	National	Total	Region	Qld	National	Total	Region	Qld	National	Total	Region	Qld	National	Total
Direct	181.87	92.80	0.00	274.67	43.28	76.95	3.84	124.07	118.04	123.55	10.22	251.81	19.29	9.14	0.00	28.42
Indirect	1.91	80.00	0.00	81.91	40.01	95.70	5.74	141.45	150.59	205.38	15.91	371.89	11.40	11.14	0.00	22.54
Total	200.76	172.80	0.00	373.56	83.21	172.61	9.58	265.40	268.64	328.89	26.13	623.66	31.51	20.27	0.00	51.78

Table 6.2: Summary of Direct and Indirect Impacts of Byerwen Mine Construction

The full direct, indirect and total impacts, categorised by industry, are located at Appendix 5.

Output or Consumption Effects

Approximately 54% of project output or consumption impacts arising from capital expenditure are anticipated to occur within the last year of this phase (Year -1).

In Year -3 the output or consumption impacts resulting from pre-construction, procurement and construction expenditure are anticipated to be $625.36 million, comprising of $276.56 million from within the region and $348.80 million from within Queensland. Expenditure is comprised of $419.00 million in direct output (or consumption) effects and $206.36 million from indirect output (or consumption) effects. The sectors anticipated to be most significantly stimulated in Year -3 are ownership of dwellings ($227.62 million) and professional, scientific and technical services ($210.81 million).

In Year -2 the output or consumption impacts resulting from pre-construction, procurement and construction expenditure are anticipated to be $565.09 million, comprising of $161.80 million in the region, $378.59 million in Queensland and $24.69 in the rest of Australia. Expenditure comprises of $265.00 million in direct and $300.09 million in indirect output (or consumption) effects. The sector anticipated to be most significantly stimulated by construction and capital expenditure in Year -2 is manufacturing ($289.34 million).

In Year -1, total output or consumption impacts produced from construction and capital expenditure are anticipated to be $1419.62 million, comprising of $570.07 million in the region, $781.65 million in Queensland and $67.90 million in the rest of Australia. Total expenditure comprises of $632.44 million in direct output (or consumption) effects and $787.19 million in indirect output (or consumption) effects. The construction sector is anticipated to be most significantly stimulated in Year -1 ($377.39 million).

In Year +1, total output or consumption impacts produced from construction and capital expenditure are anticipated to be $102.25 million, comprising of $57.65 million in the region and $44.6 million in Queensland. Total expenditure comprises of $55.01 million in direct output (or consumption) effects and $47.24 million in indirect output (or consumption) effects.

For Year 5+, the anticipated direct ($10.44 million) and indirect ($10.28 million) distributional outputs total $20.72 million.

Household Income Effects

In Year -3, total household income impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be $136.86 million, which includes $12.76 million in the region and $124.80 million in Queensland. In this year, total household income impacts include $78.78 million in direct and $58.80 million in indirect household income effects. The sector anticipated to be most significantly stimulated in Year -3 is the professional, scientific and services sector ($86.38 million).

In Year -2, the total household income impacts of construction and capital expenditure is estimated to be $172.92 million. This is comprised of $47.89 million in the region, $124.80 million in Queensland and $6.25 million in the rest of Australia. In Year -2, total household income impacts include $98.82 million in direct and $74.18 in indirect household income effects. The manufacturing sector is anticipated to benefit from the greatest stimulus ($106.46 million).

In Year -1, total household income impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be $367.05 million, including $139.03 million in the region, $211.17 million in Queensland and $16.85 million in the rest of Australia. In Year -1, total household impacts include $186.48 million in direct and $180.56 in indirect household income effects. The sector anticipated to be most significantly stimulated by construction and capital expenditure in Year -1 is manufacturing ($221.28 million).

In Year +1, total household income impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be $26.3 million, including $12.45 million in the region and $13.85 million

in Queensland. In Year +1, total household impacts include $15.44 million in direct and $10.87 in indirect household income effects.

For Year 5+, the anticipated direct ($3.22 million) and indirect ($1.83 million) impact on household income totals $5.05 million.

Employment Effects

Employment estimates are based on full time equivalent positions (FTEs). Due to the nature of labour markets, the support of an FTE position generated by a project may not manifest in an additional person being employed. In an increasingly casualised labour force, economic stimulus created by a construction type project is often manifested in existing workers working additional hours (or shifts). Employment impacts include the on-site workforce and increases in employment in those sectors supporting the construction of the mine and associated facilities.

Total employment impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be 2044.86 FTE positions, including 204.86 within the region and 1840.00 within Queensland. Whilst the base workforce for the mine will peak at 350, indirect employment effects are anticipated to be most significant in the professional, scientific and technical services sector where construction and capital expenditure is anticipated to generate 1308.29 FTE positions.

In Year -2, total employment impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be 2413.29 FTEs. This comprises of 671.02 within the region, 1638.40 within Queensland and 103.87 the rest of Australia. Employment effects are anticipated to be most significant in the manufacturing sector where construction and capital is expected to generate 1329.29 FTEs.

In Year -1, total employment impacts of construction and capital expenditure are estimated to be 5608.47 FTEs. This comprises of 2170.09 within the region, 3155.67 within Queensland and 282.72 FTEs from the rest of Australia. Employment effects are anticipated to be most significant in the manufacturing and construction sector where construction and capital expenditure is anticipated to generate 2745.91 and 1445.55 FTEs respectively.

In Year +1, total employment impacts of construction and capital expenditure are estimated to be 385.70 FTEs. This comprises of 185.20 within the region and 200.50 FTE's within Queensland. For Year 5+, the anticipated direct (46) and indirect (33) employment affects total 79 positions.

The FTE's represented above are outputs of the I-O model's indirect multipliers and the on-site construction workforce is expected to peak at 350 workers, as illustrated in Figure 6.1.

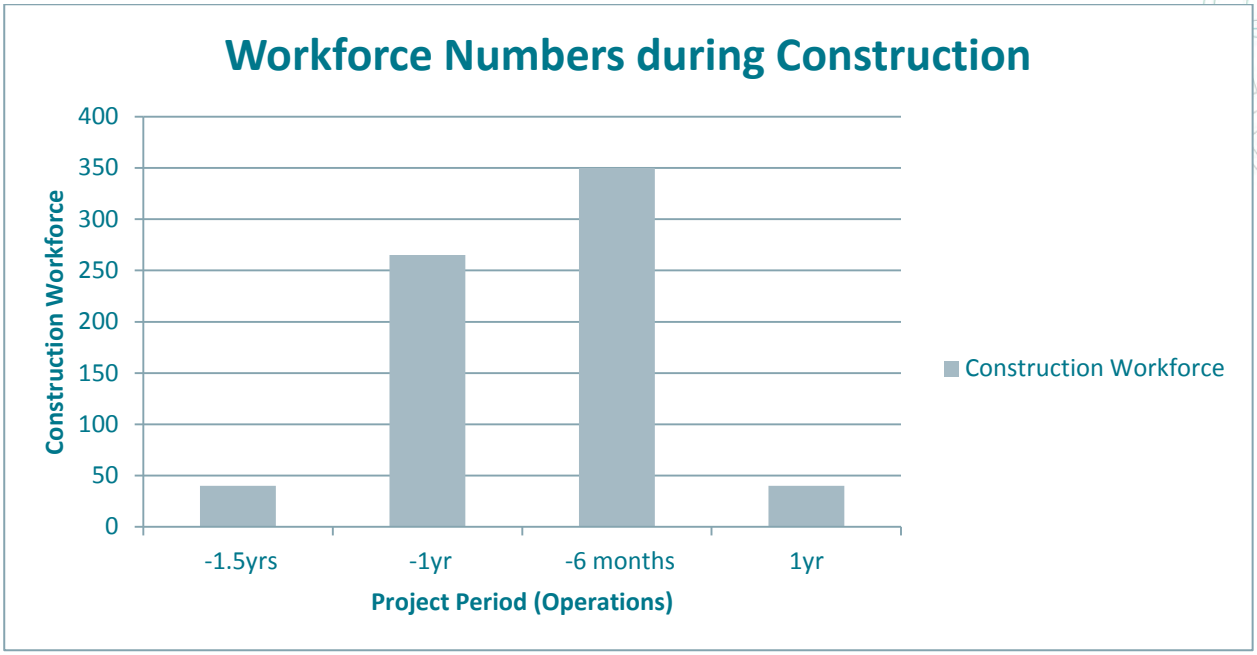


Figure 6.1: Workforce Numbers during Construction

Source: QCoal

Value Added Effects

Value added measures only the net activity at each stage of production resulting from a stimulus, the principal components of which are compensation to employees and gross operating surplus.

In Year -3, total value added impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be $373.56 million, including $200.76 million in the region and $172.80 million in Queensland. Total value added impacts include $274.67 million in direct and $81.41 million in indirect value added effects. The ownership of dwellings and professional, scientific and technical services are anticipated to benefit from the greatest stimulus, equating to approximately $175.95 million and $108.32 million respectively.

In Year -2, total value added impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be $265.40 million. This is comprised of $83.21 million in the region, $172.61 million in Queensland and $9.58 million in the rest of Australia. Total value added impacts include $127.07 million in direct and $141.45 million in indirect value added effects. The manufacturing sector is expected to benefit from the greatest stimulus equating to approximately $133.01 million.

In Year -1, total value added impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be $623.66 million. This is comprised of $268.64 million in the region, $328.89 million in Queensland, and $26.13 million in the rest of Australia. Total value added impacts include $251.81 million in direct and $371.89 million in indirect value added effects. The manufacturing and mining sectors are anticipated to benefit from the greatest stimulus, equating to approximately $276.10 million and $103.79 million respectively.

In Year +1, total value added impacts of construction and capital expenditure associated with the Byerwen Project are estimated to be $51.78 million. This is comprised of $31.51 million in the region and $20.27 million in Queensland. Total value added impacts include $28.42 million in direct and $22.54 million in indirect value added effects.

For Year 5+, the anticipated direct ($4.29 million) and indirect ($5.47 million) value added effects total $9.76 million.

6.2 Operational Phase Data and Assumptions

According to Byerwen Coal, operation expenditure estimates, costs are most significant in Year 4+. As Year 4+ represents a longer term average (from Years 4 to 50), this is expected, with a total expenditure of $1.893 billion. The most significant operating costs of the project are the general mining expenses ($408 million), the capital payment costs ($282 million) and the operators cost for the Mobile Plant and Equipment Expenses ($256 million).

Costs ($million)	MWI Region					QLD					Total				
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5+	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5+	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5+
Operators	12	23	34	46	57	17	34	52	68	85	29	57	86	114	142
Mining Fuel	27	54	81	107	134	0	0	0	0	0	27	54	81	107	134
Mining - drill & blast	16	32	48	64	80	4	8	12	16	20	20	40	60	80	100
CHPP Op Cost	7	13	20	27	33	10	20	30	40	50	17	33	50	67	83
Mining General	30	59	88	118	147	30	59	88	118	147	59	117	176	236	294
Mining capital payment costs	0	0	0	0	0	34	67	101	134	168	34	67	101	134	168
Off- site infrastructure costs	2	4	5	7	9	4	8	13	17	21	6	12	18	24	30
Management Costs	3	6	9	12	15	3	6	9	12	15	6	12	18	24	30
Total	96	190	286	381	475	102	202	304	405	506	198	392	590	786	981

Table 6.3: Byerwen Project Operating Expenditure ($M)

Source: Provided by QCoal Pty Ltd

As with the construction and capital expenditure, operating expenditure by year and type of expenditure are allocated against industry sectors identified in the Input-Output tables for each of the impact measures, which include;

- Output (or Consumption);
- Household Income;
- Employment (FTEs); and
- Value Added.

The extent of the total impact for each of these measured will be distributed across a broad range of industry sectors.

The allocation of Project operating expenses to industry sectors is based on the nature of the activity, as opposed to the nature of the enterprises involved in the transaction.

Appendix 6 provides detailed summaries of the direct and indirect output (or consumption), household income, employment and value added impacts of the operating expenditure associated with the Byerwen Project. Table 6.4 summaries the total direct and indirect effects of the Project's operations.

Output (or Consumption) ($M)															
	Year 1			Year 2			Year 3			Year 4			Year 5+		
	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total
Direct	95.70	102.30	198.00	190.10	201.90	392.00	285.80	304.20	590.00	380.60	405.00	785.60	475.00	506.00	981.00
Indirect	100.54	165.72	266.25	193.05	317.55	510.60	302.49	499.41	801.90	405.43	668.77	1074.19	497.42	820.45	1317.87
Total	196.24	268.02	464.25	383.15	519.45	902.60	588.29	803.61	1391.90	786.03	1073.77	1859.79	972.42	1326.45	2298.87
Household Incomes ($M)															
	Year 1			Year 2			Year 3			Year 4			Year 5+		
	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total
Direct	22.19	19.69	41.88	55.73	38.86	94.59	65.63	57.27	122.90	86.78	136.19	222.97	116.70	115.05	231.75
Indirect	18.42	34.46	52.88	47.26	68.26	115.52	55.66	102.55	158.21	75.00	210.60	285.60	98.91	193.81	292.72
Total	40.61	54.14	94.76	102.99	107.12	210.11	121.29	159.83	281.12	161.77	211.31	373.08	215.60	266.54	482.13
Employment Effects															
	Year 1			Year 2			Year 3			Year 4			Year 5+		
	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total
Direct	276	246	522	566	487	1053	818	722	1540	1,087	954	2040	1375	1208	2582
Indirect	275	455	730	520	909	1429	833	1357	2190	1,124	1,802	2926	1363	2260	3623
Total	551	702	1254	1086	1396	2482	1652	2079	3732	2,209	2,758	4968	2739	3469	6208
Value Added ($M)															
	Year 1			Year 2			Year 3			Year 4			Year 5+		
	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total
Direct	47.62	24.59	72.21	94.87	43.61	138.48	181.66	91.06	272.72	306.8	154.5	461.3	289.55	143.84	433.39
Indirect	55.05	61.30	116.35	107.06	102.49	209.55	210.69	235.68	446.37	357.1	406.8	763.8	334.13	365.07	699.21
Total	102.67	85.81	188.48	201.92	146.11	348.02	392.35	326.74	719.10	663.8	561.2	1225.1	623.67	508.82	1132.50

Table 6.4: Summary of Direct and Indirect Impacts of Byerwen Mine Construction

The full results are located at Appendix 6.

Output or Consumption Effects

The annual output (or consumption) impacts associated with the operation of the project are estimated at $2.298 billion from Year 5. This includes $0.98 billion in the region and $1.317 billion in Queensland. The industry sectors most significantly stimulated are mining and manufacturing with $680 million and $488 million respectively.

Household Income Effects

From Year 5, the annual household income impacts associated with the operation of the Byerwen Project are estimate at $482 million comprising of $215.60 million in the region and $266.54 million in Queensland. The industry sectors most significantly stimulated by the projects are manufacturing and transport, postal and warehousing with $90.69 million and $90.28 million respectively.

Employment Effects

Employment impacts include the on-site workforce and increases in employment in those sectors supporting the operation of the mine and associated facilities.

Once fully operational, the on-site operational workforce is expected to peak at 545. This is illustrated in Figure 6.2.

From Year 5, the combined annual direct and indirect FTE positions associated with the operation of the Byerwen Project are estimated at 6,208, including 2,739 in the region and 3,469 in Queensland. The industry sectors most significantly stimulated by the project are wholesale trade and transport, and postal and warehousing with 1,385 and 1,199 full time equivalent positions generated respectively.

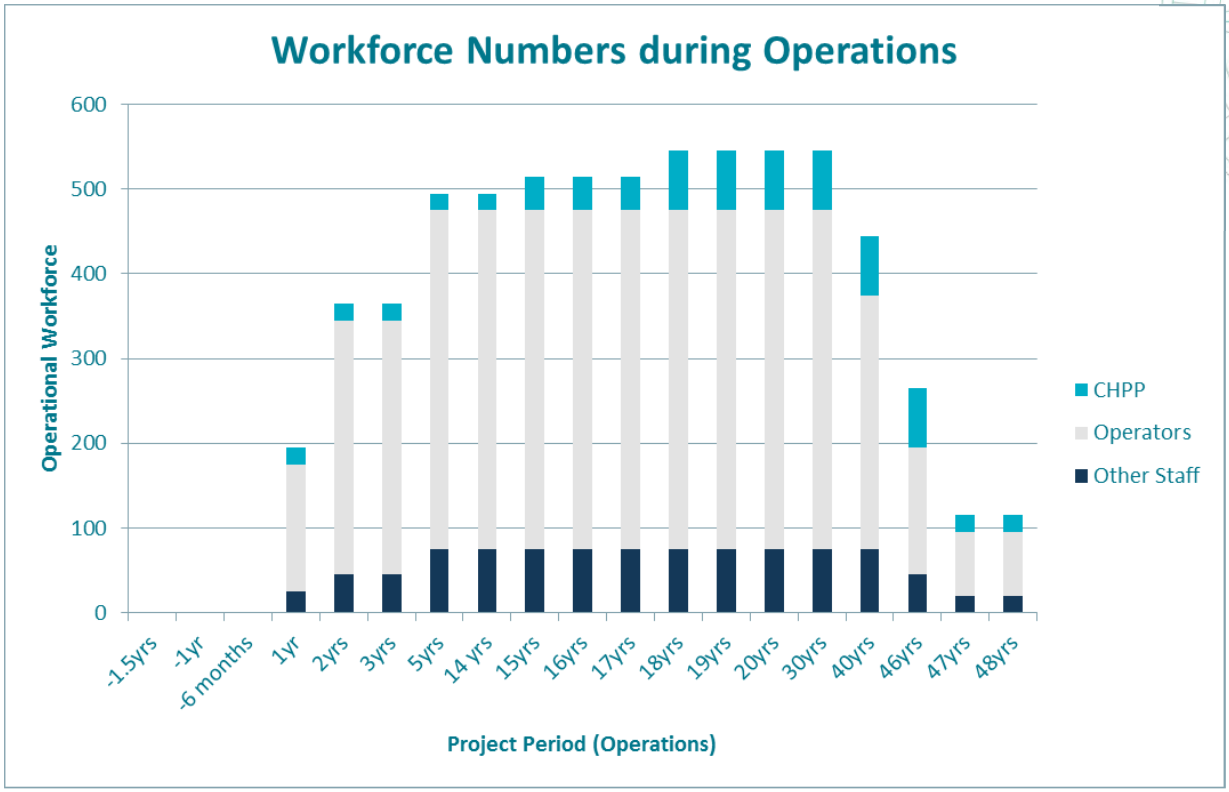


Figure 6.2: Workforce Breakdown during Operational Phase of the Project

Source: QCoal

Value Added Effects

From Year 5, annual value added impacts associated with the operation of the Byerwen Project are estimated at $1.133 billion including $642 million in the region and $509 million in Queensland. Total annual value added impacts include $434 million in direct impacts and $699 million in indirect impacts. The industry sectors which are anticipated to be most significantly stimulated by the project include mining and transport, and postal and warehousing with $491 million and $165 million respectively.

6.3 Possible Constraints

Considering the low unemployment rates within the Mackay-Isaac-Whitsunday region, it is likely that Byerwen Coal will need to attract workers from outside of the immediate area. To do this, Byerwen Coal will need to offer workers conditions and wages that are equal to those offered by surrounding mining activity, and may also need to rely on labour hire companies to recruit labour forces. Taking into account Queensland's unemployment rate of 5.6%, however, there is definitely a labour market capacity.

6.4 Impact Summary

Based on the economic impact assessment, the impacts of the Project include:

- Beneficial impacts:
    - Increased economic activity, including gross regional product, employment and incomes.
    - Direct benefits for industries other than mining, e.g., construction, port activities, retail.
- Adverse impacts:
    - Population growth placing demand on social infrastructure, such as housing, commercial property, education, healthcare and ports.
    - Labour shortage and labour for mining and construction workers and support services.
    - Upward pressure on wages due to labour shortage, and potential to increase gap between other employment generators (i.e. agriculture etc.).

7 Cumulative Economic Impacts

This section provides a high level qualitative assessment of the cumulative impacts of the Byerwen Project, when considered with other coal projects in the region. To assess the cumulative impacts, consideration has been given to the cumulative effect of a number of mining infrastructure projects occurring simultaneously across the region.

Projects that have been included in the consideration of cumulative effects have been selected on the basis that they have either commenced or are scheduled to commence in the same timeframe as that proposed by the Byerwen Coal Project and:

- Are located within the study area
- Are likely to contribute to impacts on the economic environment

The full list of 40+ projects in the region is available at Appendix 7. The cumulative assessment is primarily focused on the additional coal production projects in the region, with other projects noted (such as LNG and rail projects) assumed to have a relatively minor impact.

The cumulative impact of the coal projects outlined equates to additional production of approximately 140Mtpa of coal. This increases to 150Mtpa when combined with the Byerwen Project's 10Mtpa. Noting recent market events and recent announcements by major mining companies to delay projects, this additional production is unlikely to be realised to the full extent.

Due to current market uncertainty, it would be inappropriate to speculate on the broad range of cumulative impacts that could eventuate, therefore the scenario considered are in Table 7.1.

Scenario	Positive Impacts	Negative Impacts	Overall Summary
Upper Additional 150Mtpa (100% of proposed projects)	Significant increase in economic activity across the Region. Greater employment opportunities with likely flow-on effects to wages and household income. Potential increase in royalties and taxes payable to government (dependent on the value of $A, demand and coal prices).	Potential for significant pressure to be placed on accommodation and housing. Likely to be impacts on supporting infrastructure's (i.e. water, power, sewerage etc) ability to cope with such development. Possible significant differential in local economy as businesses and councils try to compete for labour in increased wages and lower unemployment.	Overall the potential positive impacts on local, regional, state and national economies would outweigh negative impacts. Priority would need to be given to mitigation strategies to appropriately treat negative impacts.
Middle Additional 105Mtpa (70% of proposed projects)	Increased economic activity across the Region. Low unemployment with likely flow-on effects to increased wages and household income. Potential increase in royalties and taxes payable to government (dependent on the value of $A and coal prices).	Potential for pressure on accommodation, housing and supporting infrastructure. Possible differential in local economic and businesses and councils ability to compete for labour.	Overall the potential positive impacts on local, regional, state and national economies would outweigh negative impacts. Mitigation strategies would need to be developed to appropriately treat negative impacts.
Lower Additional 45Mtpa (30% of proposed projects)	More sustainable level of economic growth across the Region. Impacts likely to be more localised where development is occurring. Moderate effects on employment, wages and household income. Manageable effects on accommodation, housing and supporting infrastructure.	Lower level of investment reducing anticipated revenues, taxes, fees etc payable to government.	Overall the potential positive impacts on the local, regional, state and national economies would outweigh the negatives. Development is likely to be sustainable across the Region.

Table 7.1: Cumulative Impacts of Projects in Region

Based on the current market conditions and recent announcements, it is difficult to accurately predict the cumulative impacts of projects across the region. The qualitative cumulative assessment of the identified scenarios represents positive economic impacts for all projects. Negative impacts will vary and mitigation strategies would need to be developed based on the development potential.

8 Other Economic Implications

The construction and operational impacts estimated in the preceding chapter have a number of economic implications. This chapter briefly outlines the likely implications of the Project in terms of implications for Government revenues, the development of the region and a high-level identification of key businesses and industries likely to be affected.

8.1 Implications for Government Revenue

8.1.1 Royalty Payments from Coal Production

The production of coal over the operating period is expected to have significant implications for royalty payments. In Queensland, coal royalties are assessed according to a tiered coal royalty system, which results in an increasing variable rate of royalty once the price of coal exceeds $100 per tonne per quarter.

Table 8.1 outlines the tiered royalties system to be applied from the 1 October 2012.

Average price per tonne	Rate
Up to and including $100	7%
Over $100 and up to and including $150	First $100—7% Balance—12.5%
More than $150	First $100—7% Next $50—12.5% Balance—15%

Table 8.1: Royalties Payable to the Queensland Government

Source: Office of State Revenue Budget 2012/12 (http://www.osr.qld.gov.au/royalties/2012-13-budget-changes.shtml)

QCoal will be exporting a mixture of thermal and coking coal, and a scenario analysis was produced outlining the various royalty payments that could be made, based on a number of changing variables including the price per tonne of thermal coal and coking coal and the split of coal production between thermal and coking coal.

The two prices used were the average annual coal prices, as per the Queensland Department of Natural Resources and Mines, and the forecasted December 2012 price, as per the National Bank of Australia. The coal prices used were:

- Coking $236.96 and $195.00
- Thermal $106.56 and $115.00

In total, and subject to coal prices and exchange rate variations, it is estimated that approximately $17 billion to $23 billion in total royalty payments and levies from the mine's fifth year of operation, would be made to the Queensland Government. This is based on QCoal's approximation of up to 10 million tonnes of coal being produced per annum.

Major infrastructure exists or is currently planned to enable the operation and growth of the coal industry. Queensland coal is transported through a series of supply chains, including five dedicated rail networks linking coalmines to major coal export terminals.

8.1.2 Other Payments

8.1.2.1 Local Government Revenue

For the various LGA's, it is expected that a proportion of the employment and local mine expenditure will stimulate housing, retail and commercial development. Furthermore, the use of land for the Project is expected to affect the Mackay, Isaac and Whitsunday Council rates.

The contributions through community grant schemes and proceeds from royalty payments are expected to assist in the funding of a wide range of services to the benefit of the community. This includes the management and maintenance of critical social and economic infrastructure such as local roads, libraries, sporting grounds and swimming pools, parks and playgrounds, community halls, and street lighting, as well as providing services such as waste collection, information and economic development.

8.1.2.2 State Government Revenue

State Payroll Tax

Companies that pay $1 million or more a year in Australian wages must pay payroll tax. There are deductions, concessions and exemptions available to eligible entities. As per the Queensland Office of State Revenue, the current payroll tax is 4.75% of total taxable wages.

The average annual income for an employee in the mining sector in Queensland is $91,322. Based on a peak workforce of 545 employees, the Queensland State Government could expect to receive up to $2.36 million in payroll tax per annum. This figure is calculated based only on the mine's direct employment effects. Any flow-on effects created by the Project may also generate significant amounts of payroll taxes to the Queensland government.

Port Dues

Port dues are also payable to the relevant port authority, namely Abbot Point, consisting of:

- Harbour Dues
- Tonnage Dues
- Port Security Dues

Based on the cost schedules for Abbot Point, relevant as at July 1 2012, harbour dues at the rate of $0.087 per tonne (inclusive of GST) are payable in respect of coal, coke or similar material shipped from the Port. Tonnage dues at the rate of $0.0 39 per gross registered tonne (inclusive of GST) are payable in respect of each ship in excess of 1000 gross registered tonnes. A Port Security Charge at the rate of $0.0087 gross registered tonne (inclusive of GST) is payable in respect of each Security Regulated Ship that occupies a wharf within the Port.

Based on the above rates and QCoal's average annual coal tonnage of 10Mtpa, Table 8.2 details the estimated annual port dues.

Port Dues	Annual Payment
Harbour Dues	$870,000.00
Tonnage Dues	$390,000.00
Port Security Charge	$87,000.00
Total Payment	**$1,347,000.00**

Table 8.2: Byerwen Project Estimated Annual Port Dues

Other State Duties and Taxes

Over the life of the Project, QCoal may be liable for a number of other state duties and taxes, including:

- State Land Tax;
- Tenure Rents;
- Transfer/Stamp Duty;
- Vehicle Registration Duty;
- Queensland Competition Authority (QCA) Levy; and
- Insurance Duty.

8.1.2.3 Australian Government Revenues

Proposed Minerals Resource Rent Tax

In 2011, the Australian Federal Government passed the Minerals Resource Rent Tax (MRRT) regime for the mining of iron ore and coal in Australia. The government's rationale for the MRRT is to provide a more appropriate return to the Australian community from the exploitation of its non-renewable resources compared with the current arrangements.

The current legislation details that the tax will be applicable from July 1 2012 to those companies whose resource profits exceed $75 million per annum. The basic MRRT rate is 30%, which is reduced by a 25% extraction allowance, making the effective tax rate 22.5%.

The Proponent may be liable to the MRRT, based on the taxable annual profits achieved. Future profits are highly variable based upon market prices, costs and input resources consumed, and at this point, it is not possible to accurately project QCoal's future profit levels and subsequently, and potential MRRT liabilities.

Company Tax

The company tax rate in Australia is 30% of profits. Over the life of the Project, a number of firms will be liable to pay company tax, including:

- QCoal;
- Firms providing goods and services directly to the Project; and
- Support firms benefiting indirectly by the Project.

Other Federal Duties and Taxes

Other Australian Government taxes and duties that QCoal may be liable for include:

- Personal Income Tax
- The Goods and Services Tax
- Import Duties

8.2 Impacts for Development in the Locality

The investment in the construction and operation of the Project is expected to generate significant economic benefits to the region in the form of increased economic activity and employment. These benefits (as measured in the previous chapter), would in turn lead to a steady increase in the region's population and subsequent demand for goods and services.

Glenden is the closest town to the proposed mine. Glenden was built to service the Newlands Coal Mine in 1982 and has approximately 1300 residents and is currently maintained with ongoing assistance from Xstrata (owners of Newlands Coal Mine). The Social Impact Assessment outlines the proposed housing strategy for the mine which includes provision of temporary housing and is not expected to materially impact the property market in Glenden.

8.3 Impacts for Business and Industries

The Project is expected to change the underlying economic base and industrial structure of the Bowen Basin region by developing businesses and industries that directly and indirectly support the construction and operation of coal mining activities. The key driver of this underlying change relates to the increase in demand for goods and services and population growth resulting from increased employment opportunities.

The social and socio-economic impacts associated with the construction and operations of the proposed Byerwen Project are likely to include:

- Increased employment opportunities for skilled and unskilled workers, particularly in engineering and technical trade areas. This will include workers already resident in the Glenden/Collinsville/Mackay area;
- An increase in local population where workers and families may relocate to Glenden or Collinsville;
- An increase in the temporary population of Glenden or Collinsville where workers choose to work on a drive in/drive out or fly in/ fly out basis;
- Relocation of workers and families from outside the region to centres such as Mackay;
- Increased demand for local community services and facilities;
- Flow on effects in relation to accommodation in Glenden and Collinsville;
- Increased business opportunities for local and regional suppliers; and
- Increased revenue to the government sector from infrastructure charges, taxes and royalties.

At a high level, the types of businesses expected to be affected directly, based on the OESR's (2004) I-O industry classification, are as follows.

- For construction: additional economic activity and employment in:
    - Non-residential building construction;
    - Non-building construction; and
    - Construction trade services.
- For operation: additional economic activity and employment in coal mining and mining services activities.

The types of businesses most likely to be affected indirectly for both construction and operation of the coalmine are as follows:

- Additional economic activity and employment in:
    - Port, rail, electricity supply, and water;
    - Residential building construction;
    - Accommodation, cafes and restaurants;
    - Wholesale and retail trade;

- Machinery, appliances and equipment;
- Road transport;
- Rail and pipeline transport;
- Services to transport;
- Communication services;
- Finance, property and business services;
- Residential property operators;
- Education services;
- Health and community services; and
- Cultural and recreational services.

Overall, the net change in output resulting from the investment in the Project is expected to increase the level of economic activity for the regional, state and national economies. This in turn is expected to lead to improved prosperity as incomes, employment and demand for goods and services increase during the life of the Project.

8.3.1 Agricultural Value of Land Impacts

The MWI Regional Plan outlines that identifying, protecting and managing good quality agricultural land is critical to the regional economy into the future. Agricultural land has played a role in the development of the Region's rural areas, and provides support systems through food supply, employment and economic benefits stemming from the supply of goods to areas outside the Region.

An example of the contribution to the economy is the total value of agricultural production for the 2009–10 year in the Mackay Statistical Division was $1,066.6 million, representing 11 per cent of the total value of agricultural production in Queensland ($9,137.1 million).

The Regional Plan also outlines the following principle regarding planning and managing agricultural land:

- There is a need to identify and protect land suitable for long-term forestry, having regard to a range of environmental, social and economic factors.

Figure 8.1 outlines that the project is located in an area identified for coal resources.

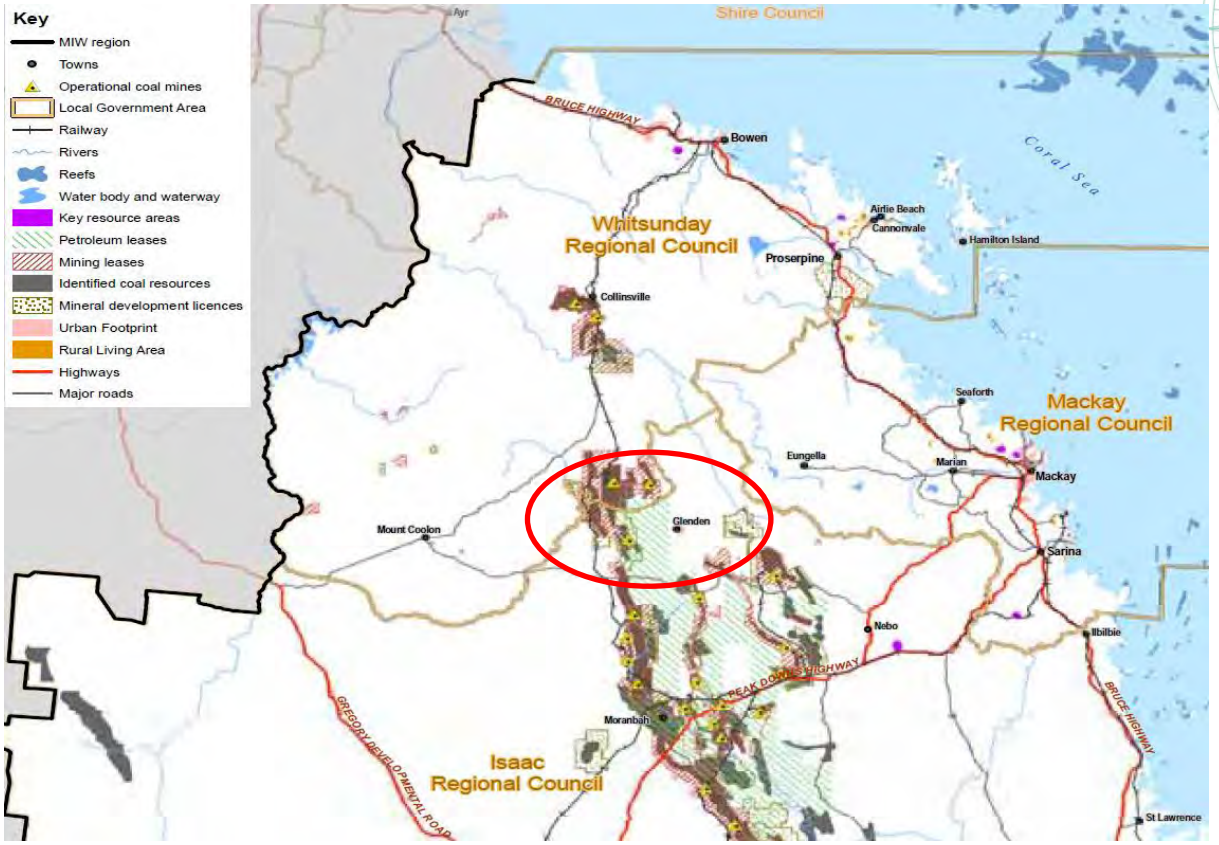


Figure 8.1: Minerals and extractive resource reserves (MWI Regional Plan extract)

Figure 8.2 outlines that the project is located in an area outside of areas identified as good quality agricultural land.

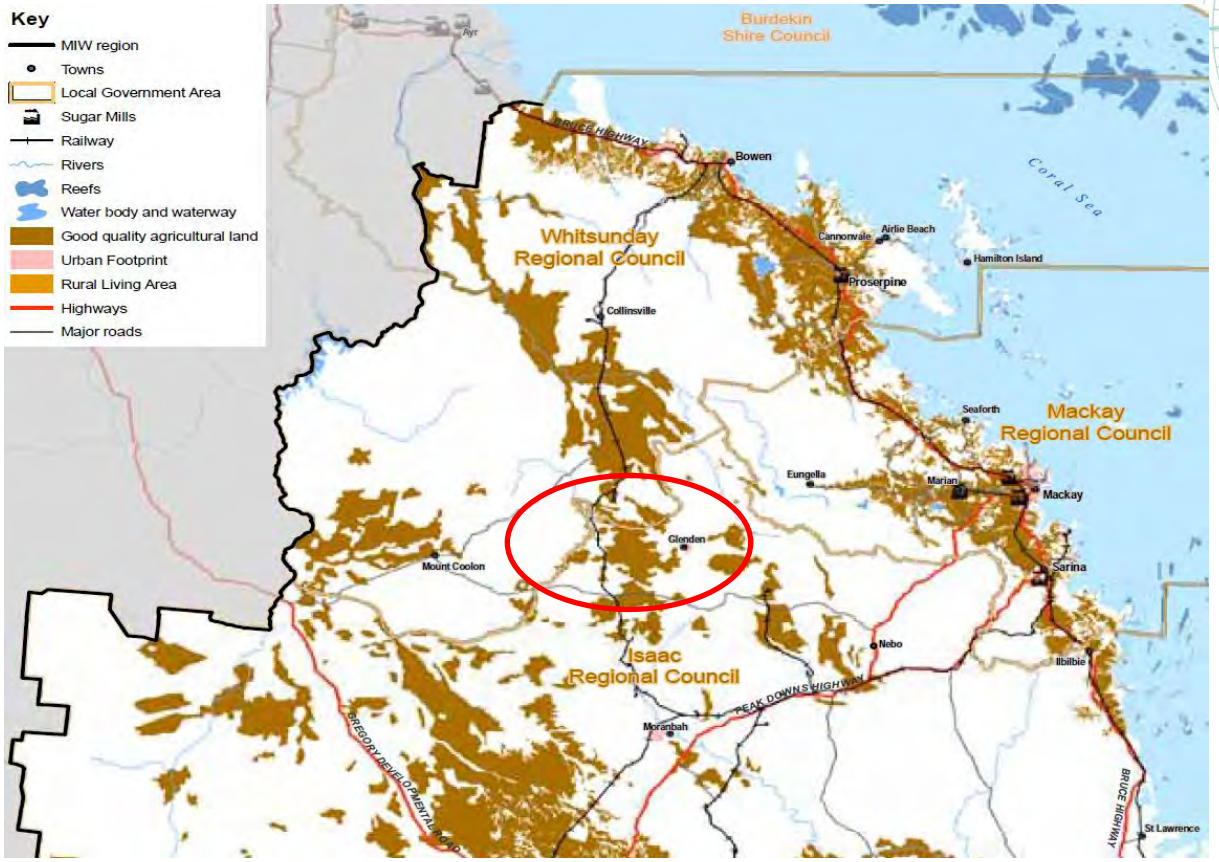


Figure 8.2: Good quality agricultural land (MWI Regional Plan extract)

Further discussion on this is located in the Land Use chapter of the Environmental Impact Statement.

8.4 Impacts of Adverse Weather

QCoal will devise a number of strategies to mitigate for above average seasonal wet weather and any potential impacts this may have on the production and delivery of the mine's coal.

During construction, this may include:

- Developing a construction program with delay contingencies around expected wet weather periods; and
- Utilising construction techniques that, in the case of severe rainfall, will not significantly hamper the completion of the Project.

During operations, this may include:

- Advanced planning of production and transporting schedules to prepare for expected wet seasons

8.5 Summary of Impacts

Overall, the impacts of the Project on the local and regional economic value will be directly related to employment and expenditure in the region. These economic values can be predicted and enhanced during the construction and operations phases by sourcing goods and services from local businesses in the region, where practicable and feasible to do so. This would help to retain economic benefits within the region on goods and services.

9 Conclusions

The economic impact assessment for the project includes staging, construction, operation and decommissioning.

The project is estimated to contribute significant economic benefits to the region and the wider domestic economy over the life of the project.

The project is aligned to government policies and priorities, supporting and strengthening Queensland as part of the four pillar economy.

The project is expected to provide a number of economic benefits to the project area as well as Queensland including:

- Contribution to meeting long-term projected shortfall in the global coking coal market;
- Contribution to regional household income;
- Contribution to employment, education and training opportunities; and
- The continued prosperity of the Queensland economy.

Considering the impacts of the projects on the region, there is potential to deliver both beneficial and adverse economic impacts.

- Beneficial impacts include:
    - Increased economic activity, including gross regional product, employment and incomes.
    - Direct benefits for industries other than mining, e.g., construction, port activities, retail.
    - Increased government revenues through taxation and royalties.
    - Development approvals fee increases for Local Government
- Adverse impacts include:
    - Population growth placing demand on social infrastructure, such as housing, commercial property, education, healthcare and ports.
    - Labour shortage and labour for mining and construction workers and support services.
    - Upward pressure on wages due to labour shortage, and potential to increase gap between other employment generators (i.e. agriculture etc.).
    - Impacts on agricultural land and production due to competition for land.

As per the Social Impact Assessment, the project workforces associated with the construction and operations of the project will require adequate accommodation, and throughout the construction phase there will be an increased demand for accommodation for short-term project contractors and other personnel associated with the project. For operations, the demand will be for permanent accommodation. These issues will be managed through implementation of the Housing and Accommodation Strategy, which will be developed by QCoal, in conjunction with the Isaac Regional Council and the Department of State Development, Infrastructure and Planning.

With regard to employment, education and training, the Project also has the potential to contribute to regional skills shortages and to draw skills from other businesses, to generate opportunities for local businesses, and to increase the cost of living in the local area.

As a result of the cumulative impacts on projects within the region, there may be a discrepancy between expenditure and revenue for the both the private and public sectors. For example, to address potential adverse impacts, the State may need to increase spending on infrastructure to support the cumulative growth. This may need to occur prior to realising the benefit impacts of increased royalties.

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Appendix 1

Central Queensland Coal, Mineral and Energy Development Projects

CENTRAL QUEENSLAND COAL DEVELOPMENT PROJECTS

Project	Company	Status	Proposed Start-Up	Est. Cap Exp	Employment	Mining Tenure	New capacity (Total)
Middlemount open-cut	Macarthur Coal / Gloucester Coal	New project, under construction	2011	See Stage 2 (below)	300 (con), 110 (op)	ML granted	1.4 Mt coking and PCI (Stage 1)
Newlands Northern underground	NCA JV (Xstrata Coal Ltd 55%)	Extension, under construction	2011	US$150m	100 (con)	ML granted	7.5 Mt thermal
Oaky Creek open-cut (Stage 1)	Xstrata Coal Ltd	Re-development, FS underway	2012?	US$90m	80 e (op)	ML granted	1 Mt coking
Baralaba open-cut	Cockatoo Coal Ltd	Expansion, pre-FS underway	2012?	na	na	ML appln	0.75 Mt PCI & thermal
Isaac Plains open-cut	Aquila / Vale Australia	Expansion, under construction	2012	$118m	100 (con), 40 (op)	ML appln	2.8 Mt coking, thermal and PCI
Jax open-cut	QCoal Ltd	New project, FS underway	2012	na	150 (op)	ML appln	1.8 Mt (ROM) coking
Curragh open-cut	Wesfarmers Ltd	Expansion, under construction #	2012	$286m	300 (con), 90 (op)	ML granted	Up to 8.5 Mt coking
Ensham Central B&P underground	Ensham Resources	New project, under construction	2012	$166m	80 (con), 160 (op)	ML granted	1.7 Mt thermal
Middlemount open-cut	Macarthur Coal / Gloucester Coal	Expansion, EIS and FS in progress	2012	$500m	400 (op)	ML appln	4 Mt coking and PCI (Stage 2)
Burton open-cut	Peabody Energy Ltd	Expansion, under construction	2012	$250m e	200 e (con)	ML granted	4 Mt coking
Codrilla open-cut	Macarthur Coal Ltd	New project, EIS & FS in progress	2013	$250m	170 (con), 240 (op)	ML appln	3.2 Mt PCI
Kestrel underground	Rio Tinto Ltd	Expansion, under construction	2013	US$2000m	300 (con), existing (op)	ML granted	5.7 Mt hard coking
Foxleigh open-cut	Anglo American Metallurgical Coal Ltd	Extension, EIS and FS in progress	2013	na	90 (op)	ML appln	3.2 Mt PCI
Daunia open-cut	BHP Billiton Mitsubishi Alliance	New project, under construction	2013	$1600m	1000 (con), 400 (op)	ML granted	4.5 Mt coking and PCI
Millennium open-cut	Peabody Energy Ltd	Expansion, EIS completed	2013	$276m	50 (con), 160 (op)	ML appln	3.6 Mt coking & PCI
Drake open-cut	QCoal Ltd	New project, EIS & FS underway	2013	$350m e	350 (con), 250 (op)	ML appln	6 Mt coking and thermal

Source: ABARES May 2011 and DEEDI-Mines, Rockhampton October 2011

CENTRAL QUEENSLAND COAL DEVELOPMENT PROJECTS continued

Project	Company	Status	Proposed Start-Up	Est. Cap Exp	Employment	Mining Tenure	New capacity (Total)
Ellensfield underground	Vale Australia Ltd	New project, EIS in progress	2013	$800m	460 (con), 340 (op)	ML appln	4.7 Mt coking and thermal
Olive Downs North open-cut	Macarthur Coal Ltd	New project, On-hold	2013	$20m	100 (con), 80 (op)	ML granted	1 Mt coking and PCI
Dingo West open-cut	Bandanna Energy Ltd	New project, FS completed #	2013	$134m	220 (con), 110 (op)	ML appln	1 Mt PCI and thermal
Grosvenor underground	Anglo American Metallurgical Coal Ltd	New project, EIS completed	2013	$1300m	500 (con), 485 (op)	ML appln	5 Mt hard coking (Stage 1)
Washpool open-cut	Aquila Resources Ltd	New project, DFS completed, EIS in progress #	2013	$368m	310 (con), 370 (op)	ML appln	2.6 Mt coking & PCI
Minyango underground	Guangdong Rising (Aust.) Ltd	New project, EIS & FS underway #	2013	$750m	500 (con), 450 (op)	ML appln	Up to 7.5 Mt coking & thermal
Broadmeadow underground	BHP Billiton Mitsubishi Alliance	Expansion, under construction	2013	US$900m	650 (con); existing (op)	ML granted	4.8 Mt coking
Dysart East open-cut and underground	Bengal Coal Ltd	New project, pre-FS underway	2013?	$450m	300 e (op)	MDL appln	4 Mtpa (ROM) coking
Collinsville open-cut	Xstrata Coal Ltd	Expansion, pre-FS underway	2013	na	na	ML granted	6 Mt coking & thermal
Yarrabee open-cut	Yancoal Aust. Ltd	Expansion, waiting for rail and port allocations #	2013	$150m e	100 (op)	ML appln	2.8 Mt PCI
Eaglefield (Denham) open-cut	Peabody Energy Ltd	Expansion, EIS in progress	2013	$1400m	650 (con), 700 (op)	ML granted	Up to 6.8 Mt hard coking
Springsure Creek underground	Bandanna Energy Ltd	New project, EIS underway, FS completed #	2013?	$1130m	300 (con), 330 (op)	EPC 891	11 Mt thermal (ROM)
Lake Vermont open-cut	Lake Vermont Resources Ltd	Expansion, under construction	2013	$200m	350 (con), 150 (op)	ML granted	8 Mt coking

Source: ABARES May 2011 and DEEDI-Mines, Rockhampton October 2011

e= unofficial estimate, ROM= run of mine, FS= Feasibility Study, B&P= Bord and Pillar, UG= underground, ML= Mining Lease, appln= application, # secured tonnage allocation for WICT Stage 1.

Queensland Government

Department of Employment, Economic Development and Innovation

CENTRAL QUEENSLAND COAL DEVELOPMENT PROJECTS continued

Project	Company	Status	Proposed Start-Up	Est. Cap Exp	Employment	Mining Tenure	New capacity (Total)
Styx open-cut	Waratah Coal / Queensland Nickel	New project, pre-FS underway	2013?	na	140 e (con), 110 e (op)	EPC 1029	1 Mt PCI & thermal
Baralaba North and South open-cut	Cockatoo Coal Ltd	New project, FS underway #	2014	$300m e	300 (op)	ML appln	3.5 Mt PCI and thermal
Byerwen open-cut	QCoal Ltd	New project, EIS & FS underway	2014	$1500m	500 (con), 1000 (op)	ML appln	10 Mt hard coking and thermal
Rolleston open-cut	Xstrata Coal Ltd	Expansion, FS and EIS underway #	2014	$US450m	250 (con), 200 (op)	ML appln	Up to 20 Mt thermal (ROM)
Peak Downs open-cut	BHP Billiton Mitsubishi Alliance	Expansion, EIS commenced	2014	$4000m	350 (op)	ML appln	11 Mt hard coking
Caval Ridge open-cut	BHP Billiton Mitsubishi Alliance	New project, EIS completed	2014		2000 (con), 500 (op)	ML appln	5.5 Mt hard coking
Jellinbah East (Mackenzie North) open-cut	Jellinbah Group	Extension, pre-feasibility underway	2014	$50-100m	100 (con); existing (op)	ML appln	2 Mt PCI & thermal
Theresa underground	Linc Energy Ltd	New project, EIS in progress	2014?	na	500 (con) 380 (op)	ML appln	6.4 Mt coking & thermal
Goonyella open-cut	BHP Billiton Mitsubishi Alliance	Expansion, EIS in progress	2014?	$1000m +	1200 (con), 750 (op)	ML appln	Up to 25 Mt hard coking
Tad's Corner (Alpha) open-cut	GVKPIL/ Hancock Coal Ltd	New project, BFS completed, EIS in progress	2014	$3400m	1535 (con), 1200 (op)	ML appln	30 Mt thermal
China First (Galilee Coal) open-cut and underground	Waratah Coal Ltd	New project, EIS in progress	2014?	$4000m	2500 (con), 1900 (op)	ML appln	40 Mt thermal
Orion Downs open-cut and UG	Endocoal Ltd	New project, BFS underway	2014	$100m	200 e (op)	ML appln	2.5 Mt thermal
Carmichael open-cut & UG	Adani Mining Ltd	New project, EIS commenced	2014?	$4100m	1500 (con), 3000 (op)	ML appln	Up to 60 Mt thermal
New Lenton open-cut	New Hope Corp. Ltd	New project, pre-FS completed	2014	$400m e	400 e (op)	ML appln	3.5 Mt coking & thermal
Sarum open-cut and UG	Xstrata Coal Ltd	New project, EIS & pre-FS underway	2014	$700m	400 e (con), 300 e (op)	ML appln	5 Mt coking and thermal

Source: ABARES May 2011 and DEEDI-Mines, Rockhampton October 2011

CENTRAL QUEENSLAND COAL DEVELOPMENT PROJECTS continued

Project	Company	Status	Proposed Start-Up	Est. Cap Exp	Employment	Mining Tenure	New capacity (Total)
Eagle Downs underground	Aquila Resources / Vale Australia	New project, EIS & FS completed	2015	$1254m	500 (con), 410 (op)	ML granted	4.6 Mt hard coking (Stage 1)
Monto open-cut	Macarthur Coal / Burnett Coal	New project, FS in progress	2015?	$80m e	200 e (op)	ML appln	1 Mt thermal (Stage 1)
Moorvale B&P underground	Macarthur Coal Ltd	Expansion, pre-FS underway	2015?	$180m e	80 e (con) 160 e (op)	ML granted	1 Mt coking and PCI
Talwood underground	Aquila Resources Ltd	New project, Scoping Study completed	2015?	na	350 e (op)	EPC 985	3.6 Mt coking & thermal
Arcturus open-cut and underground	Bandanna Energy Ltd	New project, EIS underway, FS completed	2015?	$235m	240 (con), 200 (op)	EPC 1221	5 Mt thermal
South Galilee open-cut and UG	Bandanna Energy Ltd	New project, EIS and FS in progress	2015	$4150m	2000 (con), 1280 (op)	ML appln	13.6 Mt thermal
Kevin's Corner open-cut and UG	GVKPIL	New project, EIS & BFS in progress	2015?	$6600m	2500 (con), 2000 (op)	ML appln	30 Mt thermal
Curragh South (MDL 162) open-cut	Macarthur Coal Ltd	New project, pre-FS underway	2015?	na	400 e (op)	MDL granted	6 Mtpa (ROM) coking
Willunga open-cut	Macarthur Coal	New project, pre-FS underway	2015?	$250m e	na	EPC 721	3 Mt PCI and thermal
Togara North underground	Xstrata Coal Ltd	New project, pre-FS underway	2015?	$800m e	450 e (op)	ML appln	6 Mtpa thermal
Yamala underground	Northern Energy Ltd	New project, on-hold	2017?	$350m e	200 e (op)	MDL appln	2 Mt thermal & PCI
Eastern Creek open-cut	NCA JV (Xstrata Coal Ltd 55%)	Extension, EIS & pre-FS underway	2016	na	100 e (op)	ML appln	Extend mine life 27 yrs
Belvedere underground	Aquila Resources/Vale	New project, EIS in progress	2016	$2800m	600 (con), 500 (op)	ML appln	Up to 7 Mt hard coking
Winchester South open-cut	Rio Tinto Ltd	New project, pre-FS to start: Q2 2012	2016?	na	400 e (op)	MDL granted	4 Mt coking & thermal
Saraji East open-cut	BHP Billiton Mitsubishi Alliance	New project, EIS process, On hold	2016?	$1000m	1000 (con), 300 (op)	ML appln	5 Mt hard coking
Moranbah South underground	Anglo Amer. Met Coal / Exxaro Australia	New project, pre-FS underway	2017	$1300m	1200 (con), 650 (op)	MDL granted	Up to 4.5 Mt coking

Source: ABARES May 2011 and DEEDI-Mines, Rockhampton October 2011

CENTRAL QUEENSLAND MINERAL DEVELOPMENT PROJECTS

Project	Company	Status	Proposed Start-Up	Est. Cap Exp	Employment	Mining Tenure	New capacity (Total)
Twin Hills Gold-Silver underground	Conquest Mining Ltd	Redevelopment, on hold	2011	$6m	50 (op)	ML granted	30,000 oz pa
Mt Carlton Copper-Gold-Silver open-cut	Conquest Mining Ltd	New project, committed	2012	$127m	150 (con), 150 (op)	ML appln	100,000 oz pa gold 6000 tpa copper 2 Mozs pa silver
Moranbah Ammonium Nitrate plant	Incitec Pivot Ltd	New project, under construction	2012	$935m	550 (con), 80 (op)	Not required	330,000 tpa
Yarwun Alumina refinery	Rio Tinto Alcan Ltd	Expansion, under construction	2012	US$1800m	1300 (con), 250 (op)	Not required	3.4 Mtpa
Goondicum Industrial minerals open-cut	Belridge Enterprises Ltd	Redevelopment, Feasibility Study completed, on hold	2012	$15m	35 (op)	ML granted	1.7 Mtpa ROM ore
Wateranga Industrial minerals open-cut	Queensland Industrial Minerals Ltd	New project, EIS commenced, on hold	2013?	$82m	100 (op)	ML appln	225,000 tpa Ilmenite 765,000 tpa Feldspar 27,000 tpa Apatite
Mount Morgan Gold Tailings Re-treatment	Norton Gold Fields Ltd	New project, Feasibility Study completed, on hold	2014?	$45m	80 (con), 50 (op)	ML granted	35,000 oz pa (Stage 1)
East End Limestone open-cut	Cement Australia Ltd	Expansion, EIS in commenced	2014	na	Existing (op)	ML appln	na
Marlborough Nickel-Cobalt open-cut	Gladstone Pacific Nickel Ltd	New project, EIS completed, On hold	2014?	$120m	500 (con), 200 (op)	ML granted	2.7 Mtpa nickel-cobalt ore
Mount Cannindah Copper-Gold open-cut	Planet Metals Ltd	New project, Resource extension drilling	2014?	$80m	90 e (op)	ML granted	8200 tpa copper 5900 oz gold 275,000 oz silver
Mount Kroombit Copper-Zinc open-cut	Argonaut Resources NL	New project, Scoping Study completed, on hold	2015?	$87m	na	ML granted	1.5 Mtpa copper-zinc ore
Anthony Molybdenum open-cut	Zamia Metals Ltd	New project, Scoping Study in progress	2015?	$200m	na	EPM 15145	5 Mtpa molybdenum ore

Source: ABARES May 2011 and DEEDI-Mines, Rockhampton October 2011

na= not available, MDL= Mineral Development Licence, EPC= Exploration Permit for Coal, EPM= Exploration Permit for Minerals, con= construction, op= operational, tpa= tonnes per annum

CENTRAL QUEENSLAND ENERGY DEVELOPMENT PROJECTS

Project	Company	Status	Proposed Start-Up	Est. Cap Exp	Employment	Tenure	New capacity
Callide Oxyfuel Low Emissions	CS Energy Ltd	New project, commissioning in progress	2011	$206m	100 (con)	Not required	Capture and store ~17,000 tpa CO2
Stuart Oil Shale Paraho semi-works plant	Queensland Energy Resources Ltd	New project, commissioning in progress	2011	$100m	150 (con), 50 (op)	PFL 8 grntd	Up to 45 barrels/day
Blackwater CSG Power Station	Bow Energy Ltd	New project, under construction	2012	$50m	200 (con), 3 (op)	Not required	30 MW
Moura CSG Power Station	Molopo Australia Ltd	New project, Feasibility Study on hold	2012?	$65m	200 e (con)	Not required	60 MW (Stage 2)
Meridian CSG operation	WestSide Corp Ltd / Mitsui E&P Aust.	Expansion, in progress	2013	$17m	na	PL granted	25 TJ/day
Fisherman's Landing LNG	LNG Ltd	New project, FEED Study in progress	2014	US$720m	120 (con), 35 (op)	PPL 161 and PFL 18 grntd	1.5 Mtpa (Stage 1)
Abbott Point LNG	Energy World Corporation	New project, Pre-feasibility Study underway	2014?	US$500m	na	PFL required	2 Mtpa (Stage 1)
Central Qld gas pipeline	Arrow Energy Ltd / AGL Energy Ltd	New project, Feasibility Study completed, on-hold	2014?	$475m	300 (con)	PPL 121 grntd	Up to 50 PJpa
Moranbah CSG operation	Arrow Energy Ltd / AGL Energy Ltd	Expansion, in progress	2014?	$160m	na	PL appln	160 PJpa
Queensland Curtis LNG	BG Group / QGC	New project, under construction; includes 540 km gas pipeline network and gas field development	2014	$US15,000m	5000 (con), 1000 (op)	PPL 154 and PFL 11 grntd	8.5 Mtpa (Stage 1)
Blackwater & Norwich Park CSG fields	Bow Energy Ltd	New project, EIS commenced	2014	$400m e	200 (con), 45 (op)	PL applns	Minimum 30 PJpa
Arrow Surat to Gladstone gas pipeline	Arrow Energy Ltd	New project, EIS approved; on hold	2014?	$600m	300 (con)	PPL 144 grntd	66cm diameter (90 PJpa)
Southern Cross LNG	LNG Impel Ltd	New project, on hold	2015?	na	350 (con), 80 (op)	PFL required	Up to 3.4 Mtpa (Stage 1)

Source: ABARES May 2011 and DEEDI-Mines, Rockhampton October 2011

CENTRAL QUEENSLAND ENERGY DEVELOPMENT PROJECTS continued

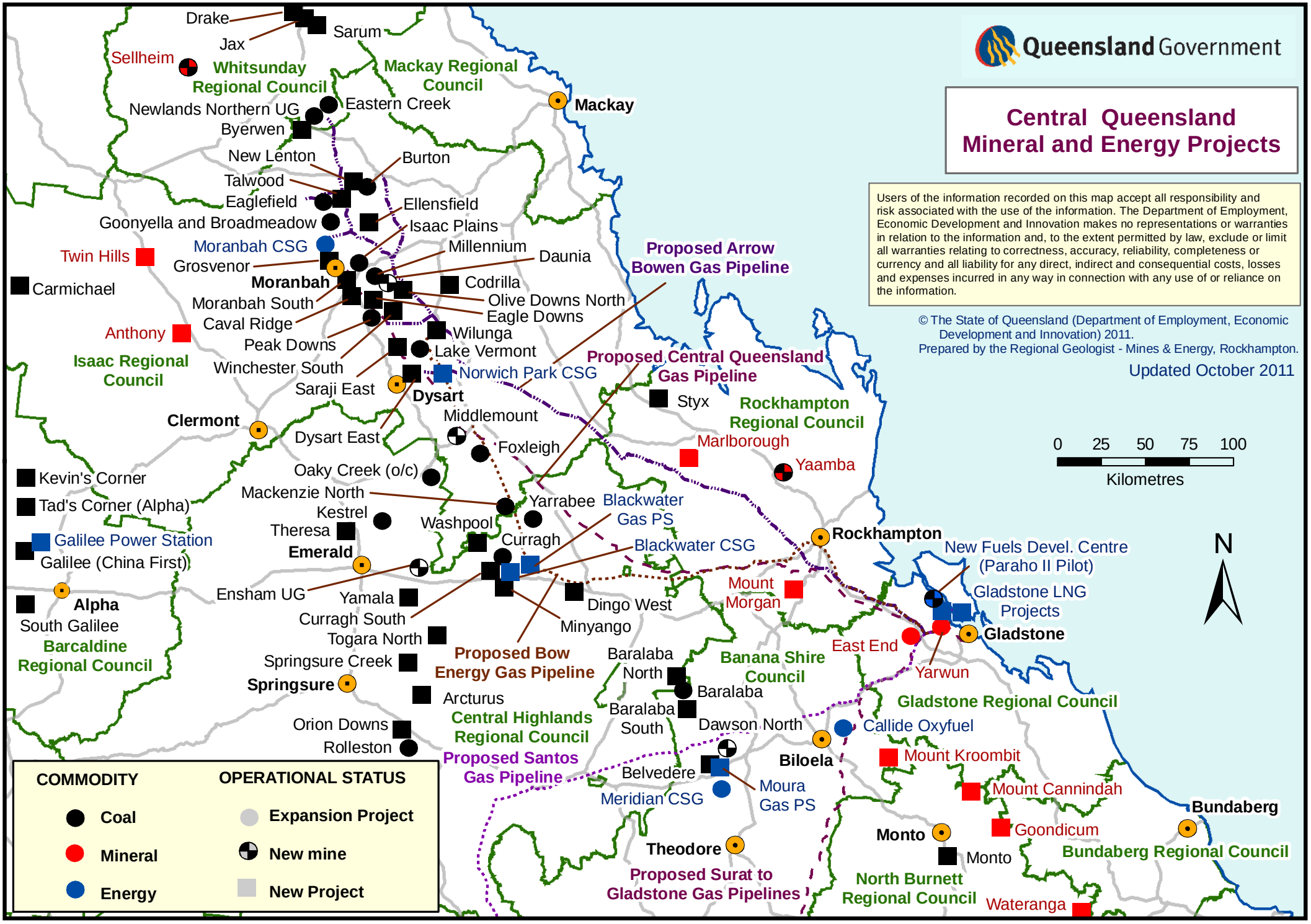
Project	Company	Status	Proposed Start-Up	Est. Cap Exp	Employment	Tenure	New capacity
Blackwater to Gladstone gas pipeline	Bow Energy Ltd	New project, EIS commenced	2015	$300m e	200 e (con)	PPL required	250km length and 51cm diameter
Gladstone LNG	Santos Ltd / PETRONAS	New project, under construction; includes 435 km gas pipeline network and gas field development	2015	$US16,000m	5000 (con), 1000 (op)	PPL 166 appln and PFL 10 grntd	7.8 Mtpa (Stage 1)
Galilee IGCC Power Station	Waratah Coal Ltd	New project, on hold	2015?	$1250m	1000 (con), 60 (op)	Not required	450 MW (Stage 1)
Blackwater to Norwich Park gas pipeline	Bow Energy Ltd	New project, EIS commenced	2015	$100m e	100 e (con)	PPL required	95km length, 30cm diameter
Australia Pacific LNG	Origin Energy / ConocoPhillips	New project, under construction; includes 450 km gas pipeline network and gas field development	2015	$US14,000m	6000 (con), 1000 (op)	PPL 163 appln and PFL 20 grntd	9 Mtpa (Stage 1)
Arrow Energy LNG	Shell Australia Ltd/ PetroChina	New project, Scoping Study and EIS underway	2016	$10,000m e	3000 (con), 300 (op)	PFL required	8 Mtpa (Stage 1)
Arrow Bowen Gas pipeline	Arrow Energy Ltd	New project, EIS commenced	2017	$1000m	650 (con), 10 (op)	PPL required	600km gas pipeline

Source: ABARES May 2011 and DEEDI-Mines, Rockhampton October 2011

PL= Petroleum Lease, PPL= Petroleum Pipeline Licence, PFL= Petroleum Facility Licence

Queensland Government

Department of Employment, Economic Development and Innovation


Queensland Government
Central Queensland
Mineral and Energy Projects
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Prepared by the Regional Geologist - Mines & Energy, Rockhampton.
Updated October 2011
0 25 50 75 100
Kilometres
N
Drake
Sarum
Jax
Sellheim
Whitsunday Regional Council
Mackay Regional Council
Mackay
Newlands Northern UG
Eastern Creek
Byerwen
New Lenton
Burton
Talwood
Eaglefield
Ellensfield
Goonyella and Broadmeadow
Isaac Plains
Moranbah CSG
Millennium
Twin Hills
Grosvenor
Daunia
Moranbah
Carmichael
Codrilla
Moranbah South
Olive Downs North
Eagle Downs
Caval Ridge
Anthony
Wilunga
Peak Downs
Lake Vermont
Isaac Regional Council
Winchester South
Norwich Park CSG
Saraji East
Dysart
Clermont
Middlemount
Dysart East
Foxleigh
Kevin's Corner
Oaky Creek (o/c)
Tad's Corner (Alpha)
Mackenzie North
Yarrabee
Kestrel
Theresa
Washpool
Galilee Power Station
Curragh
Emerald
Galilee (China First)
Ensham UG
Yamala
Alpha
Curragh South
Dingo West
South Galilee
Togara North
Minyango
Barcaldine Regional Council
Springsure Creek
Springsure
Arcturus
Orion Downs
Rolleston
Proposed Arrow Bowen Gas Pipeline
Proposed Central Queensland Gas Pipeline
Styx
Rockhampton Regional Council
Marlborough
Yaamba
Blackwater Gas PS
Blackwater CSG
Rockhampton
New Fuels Devel. Centre (Paraho II Pilot)
Mount Morgan
Gladstone LNG Projects
Gladstone
East End
Yarwun
Banana Shire Council
Gladstone Regional Council
Baralaba North
Baralaba
Baralaba South
Dawson North
Callide Oxyfuel
Biloela
Mount Kroombit
Mount Cannindah
Belvedere
Moura Gas PS
Meridian CSG
Bundaberg
Goondicum
Monto
Monto
Bundaberg Regional Council
Theodore
North Burnett Regional Council
Wateranga
Central Highlands Regional Council
Proposed Bow Energy Gas Pipeline
Proposed Santos Gas Pipeline
Proposed Surat to Gladstone Gas Pipelines
COMMODITY
Coal
Mineral
Energy
OPERATIONAL STATUS
Expansion Project
New mine
New Project

Appendix 2

Bowen Basin Coal Mines and Coal Projects

Bowen Basin Coal Mines and Coal Projects

Queensland Government

N

0 20 40

Kilometres

Collinsville 600
Sonoma 395
250 Drake
Jax 150
Sarum 450*
Whitsunday Regional Council
Bowen River South
Eastern Creek North
365 Newlands
Eastern Creek
MOUNT COOLON
1000 Byerwen
GLENDEN
Exevale
630 Wollombi
Suttor Creek
Lake Elphinstone
Hillalong
Northern Missing Link Rail Line (under construction)
Hail Creek 1200
Mt Robert
New Lenton
400*
Wards Well 350*
350* Talwood
Broughton
Bee Creek
515 North Goonyella
Burton
220 Eaglefield
680
NEBO
Red Hill
Nebo West
2620 Goonyella - Riverside
Ellensfield 340
565 Broadmeadow UG
South Walker Creek 690
Grosvenor West
810 Moranbah North
Coppabella 560
Harrybrandt
480 Grosvenor
COPPABELLA
370 Isaac Plains
Carborough Downs 490
MORANBAH
Moorvale 285
Moorvale West 150*
650 Moranbah South
Daunia 400 (under construction)
Diamond Creek
Yeerun
Codrilla 245
400 Millennium
Olive Downs North 80*
310 Poitrel
Winchester South 400*
500 Caval Ridge
Isaac Regional Council
Peak Downs
80 Isaac Plains South
Saraji East 300
Wilunga 240*
1750
Eagle Downs 410
Saraji 1620
Rockwood
Lake Vermont 435
Peak Downs East
Bendemeer
Dysart East 300*
DYSART
245 Blair Athol
Picardy
770 Clermont
Norwich Park 1365
Sienna
MIDDLEMOUNT
CLERMONT
Middlemount 340
790 German Creek
370 Oak Park
Foxleigh 390
Rockhampton Regional Council
CAPELLA
1100 Oaky Creek
Lake Lindsay 400
Gregory 435
Mackenzie North
Crinum 770
MDL 162 400*
Valeria
600 Kestrel
Curragh North
Yarrabee 280
370 Washpool
Jellinbah East 370
380 Teresa
Ensham 495
Curragh 2160
EMERALD
ANAKIE
160
(under construction)
BLACKWATER
Taroborah
250*
Mackenzie
Curragh West
Minyango 310*
DUARINGA
MOUNT MORGAN
Central Highlands Regional Council
Yamala
Blackwater 2410
Cook 255
Dingo West 110
Comet Ridge
Athena
275 Minerva
Togara North 450*
Springsure Creek 330
Kennedy
Rocklands
150*
Baralaba North
SPRINGSURE
Arcturus 200
Humboldt
110 Baralaba
Baralaba South 150*
Togara South
Banana Shire Council
200* Orion Downs
Dawson North
Rolleston 600
ROLLESTON
Belvedere 500
BANANA
West Rolleston
Arcadia
MOURA
Dawson Central 1500
Dawson South
THEODORE

STYX COAL MEASURES
Styx 110*
MARLBOROUGH
CALEN COAL MEASURES
MACKAY
SARINA

Legend

- Operating Coal Mine
- Advanced Coal Project
- Coal Project
- Coal Deposit (>40 Mt)
- Coal Resource Area
- Coal Measures
- Major Roads
- Railway Line

Mining Workforce

bold= operating September 2011
Source: Mines Safety & Health Unit
plain= potential mine within 5 years
Source: various agencies
* unofficial estimate

Prepared by the Regional Geologist - Mines & Petroleum, Rockhampton. **Updated November 2011**

Appendix 3

Resources and Infrastructure Map

ABBOT POINT COAL TERMINAL (APCT)

CORAL SEA

COLLINSVILLE

WHITSUNDAY

DALRYMPLE BAY
COAL TERMINAL (DBCT)
HAY POINT COAL
TERMINAL (HPCT)

MACKAY

MACKAY

GLENDEN

NEBO

MORANBAH

ISAAC

ROCKHAMPTON

LEGEND

- MAJOR PORTS
- MAJOR AIRPORTS
- MAJOR TOWNS
- RAILWAY
- MAIN ROADS
- BOWEN BASIN
- BYERWEN COAL PTY LTD MINING LEASE APPLICATION
- PETROLEUM LICENCE
- MINING LEASE - COAL
- LOCAL AREA
- REGIONAL AREA
- BROADER REGION
- LOCAL GOVERNMENT AREAS
- WATER

FLINDERS GROUP

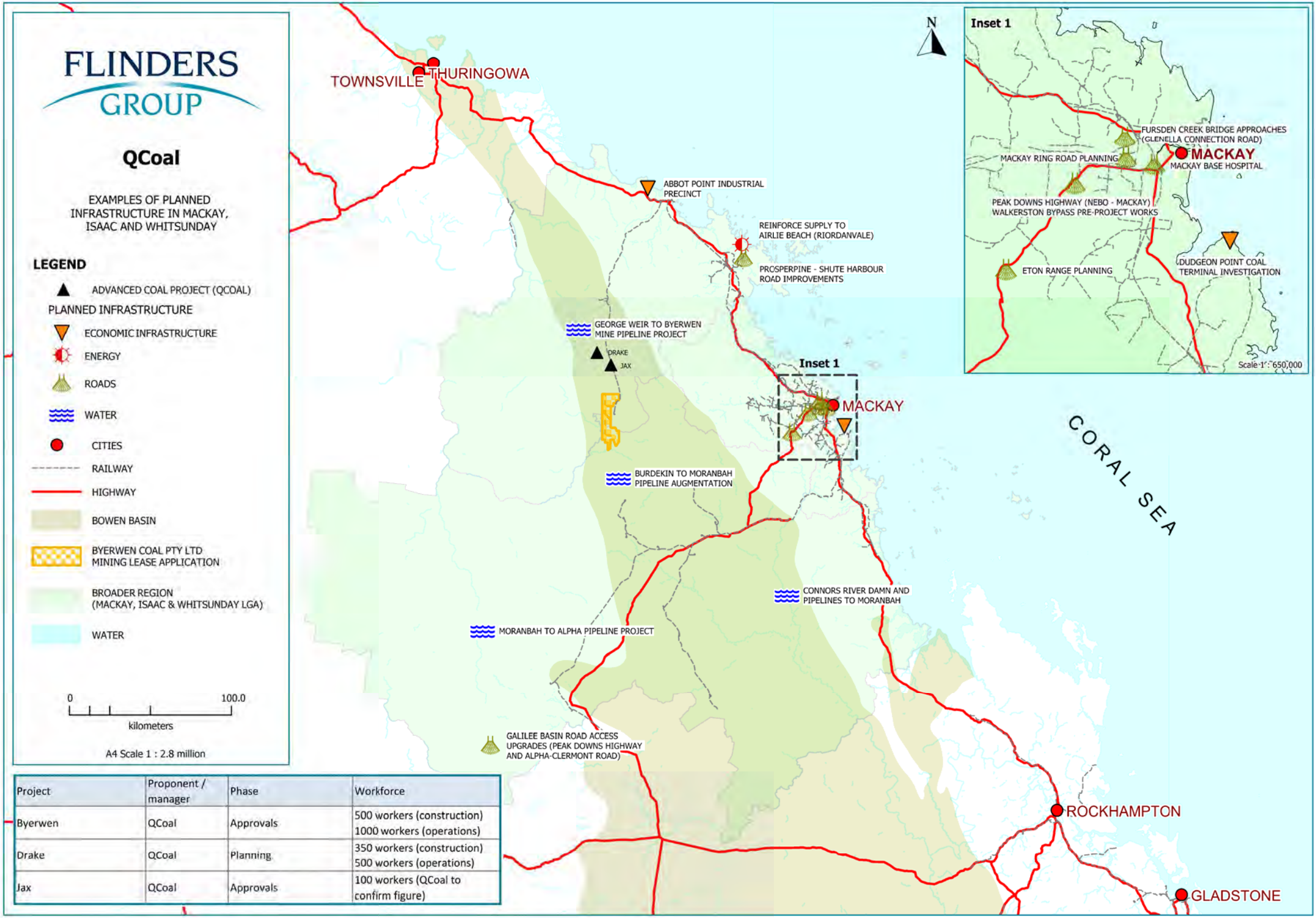
QCoal

RESOURCE AND INFRASTRUCTURE MAP

0 — 100.0 kilometers

N

CLIENT PROJECT	REF NUMBER	REVISION	PRODUCED BY	APPROVED BY	PROJECTION	SCALE
500101	MS00_AP014	A	DGC	PG	GDA94	A3 | 1 : 1,800,000

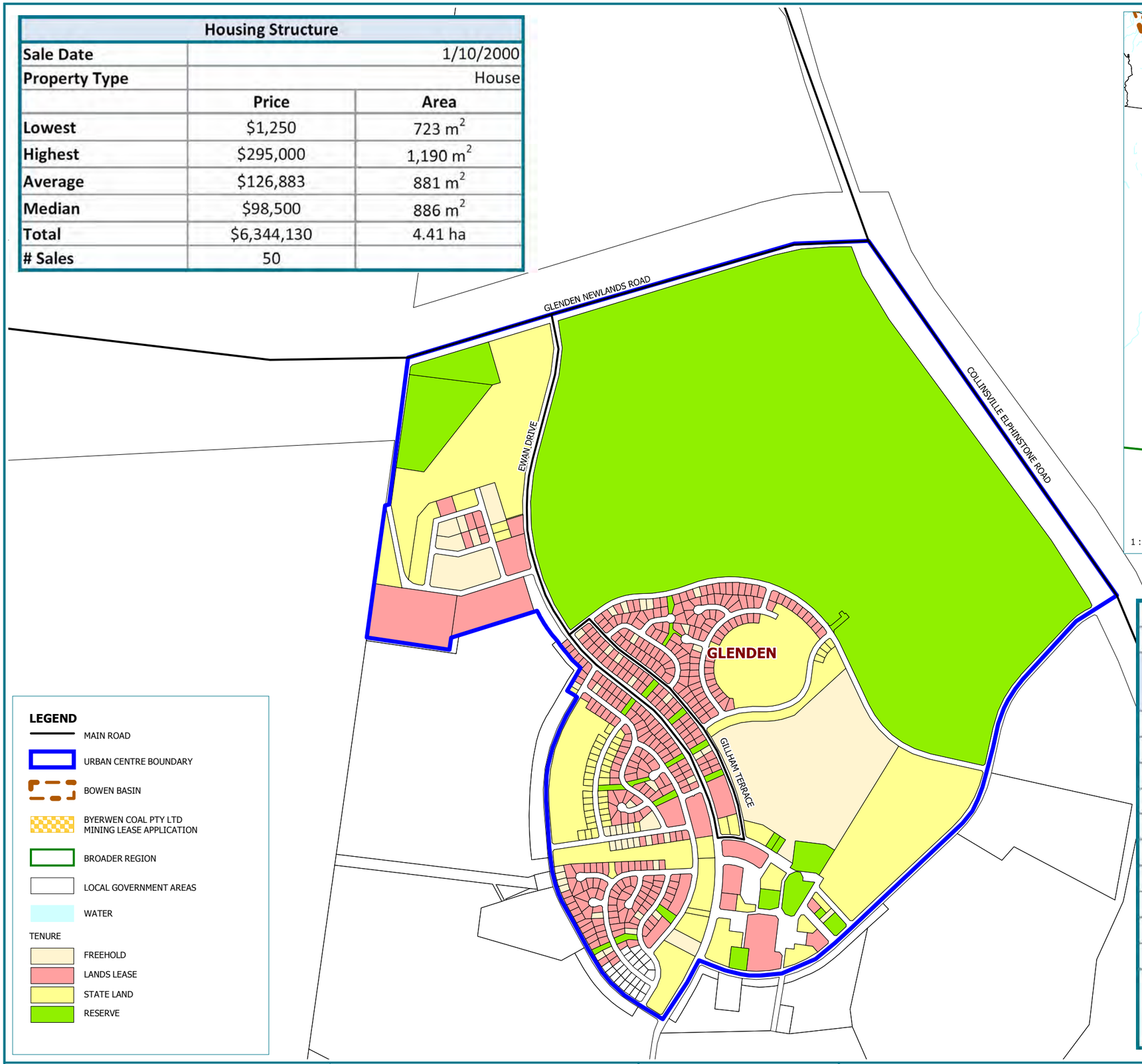


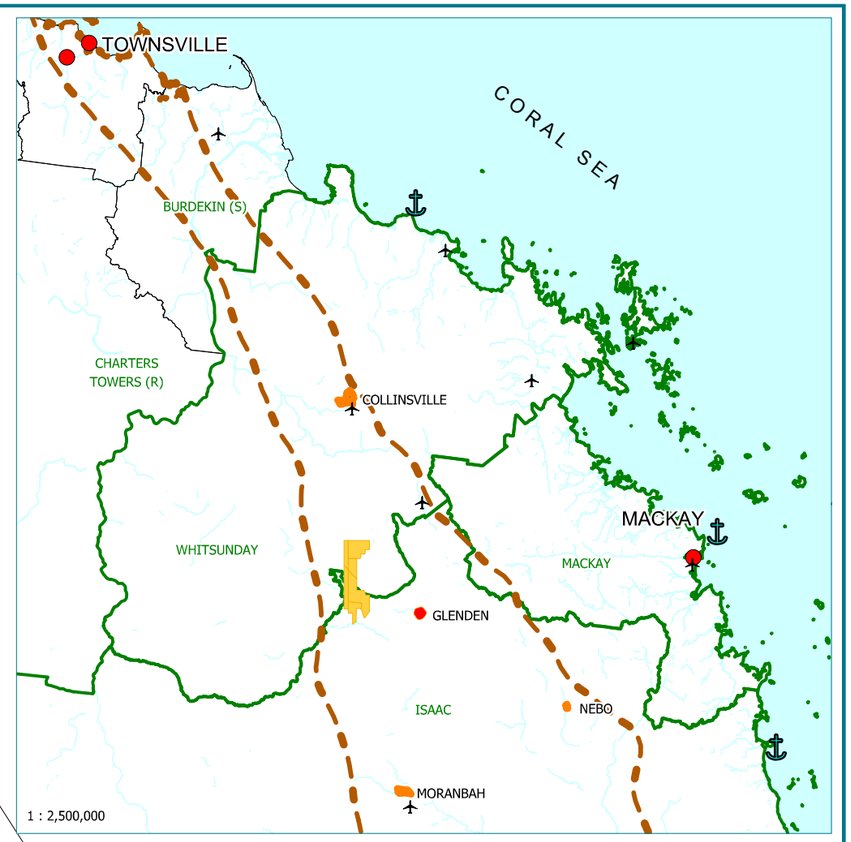
Project	Proponent / manager	Phase	Workforce
Byerwen	QCoal	Approvals	500 workers (construction) 1000 workers (operations)
Drake	QCoal	Planning	350 workers (construction) 500 workers (operations)
Jax	QCoal	Approvals	100 workers (QCoal to confirm figure)

Appendix 4

Maps of Localities – Glenden, Moranbah, Nebo and Collinsville

Housing Structure		
Sale Date		1/10/2000
Property Type		House
	Price	Area
Lowest	$1,250	723 m^2
Highest	$295,000	1,190 m^2
Average	$126,883	881 m^2
Median	$98,500	886 m^2
Total	$6,344,130	4.41 ha
# Sales	50	





LEGEND

- MAIN ROAD
- URBAN CENTRE BOUNDARY
- BOWEN BASIN
- BYERWEN COAL PTY LTD MINING LEASE APPLICATION
- BROADER REGION
- LOCAL GOVERNMENT AREAS
- WATER

TENURE

- FREEHOLD
- LANDS LEASE
- STATE LAND
- RESERVE

Glenden		
Estimated Resident Population	1313	
Area	4.7	km2
Density	279.4	pkm2
Couples with no children	32.23	%
Couple with children under 15	**55.79**	
Married	**56.89**	
Never married	32.55	
Employed Full Time	49.81	
Employed Part Time	13.75	
Not in Labour Force	16.73	
Top 3 Industry of Employment	Mining (49.28%), Accomodation and Food Services (11.73%), Retail Trade (7.22%)	

FLINDERS GROUP

QCoal

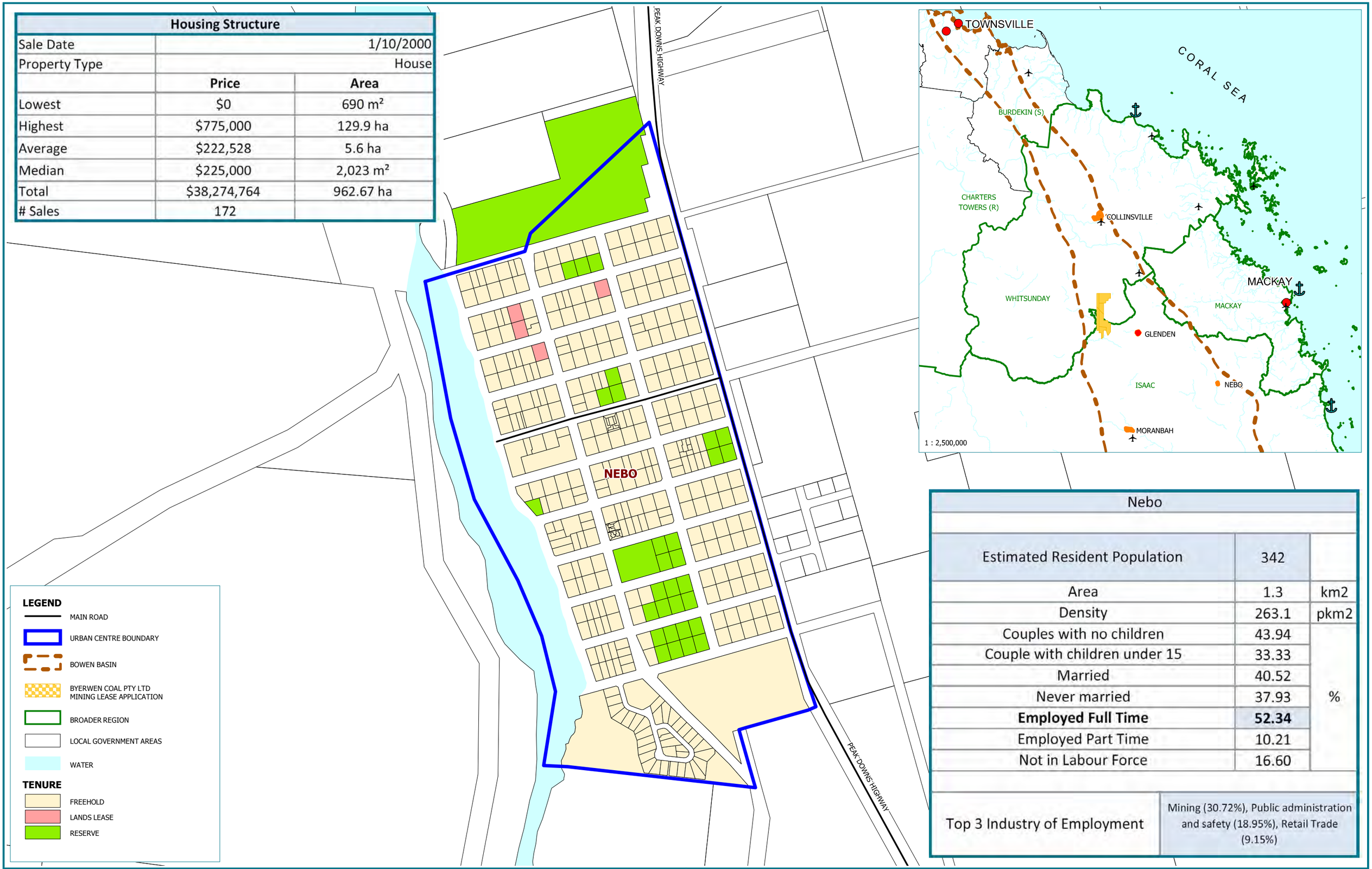
LOCALITIES: GLENDEN

0 — 750.0 meters

N

CLIENT PROJECT	REF NUMBER	REVISION	PRODUCED BY	APPROVED BY	PROJECTION	SCALE
500101	MS01_AP001	A	DGC	PG	GDA94	A3 | 1 : 15,000

Housing Structure		
Sale Date		1/10/2000
Property Type		House
	Price	**Area**
Lowest	$0	690 m²
Highest	$775,000	129.9 ha
Average	$222,528	5.6 ha
Median	$225,000	2,023 m²
Total	$38,274,764	962.67 ha
# Sales	172	



Nebo		
Estimated Resident Population	342	
Area	1.3	km2
Density	263.1	pkm2
Couples with no children	43.94	%
Couple with children under 15	33.33	
Married	40.52	
Never married	37.93	
Employed Full Time	**52.34**	
Employed Part Time	10.21	
Not in Labour Force	16.60	
Top 3 Industry of Employment	Mining (30.72%), Public administration and safety (18.95%), Retail Trade (9.15%)	

FLINDERS GROUP

QCoal

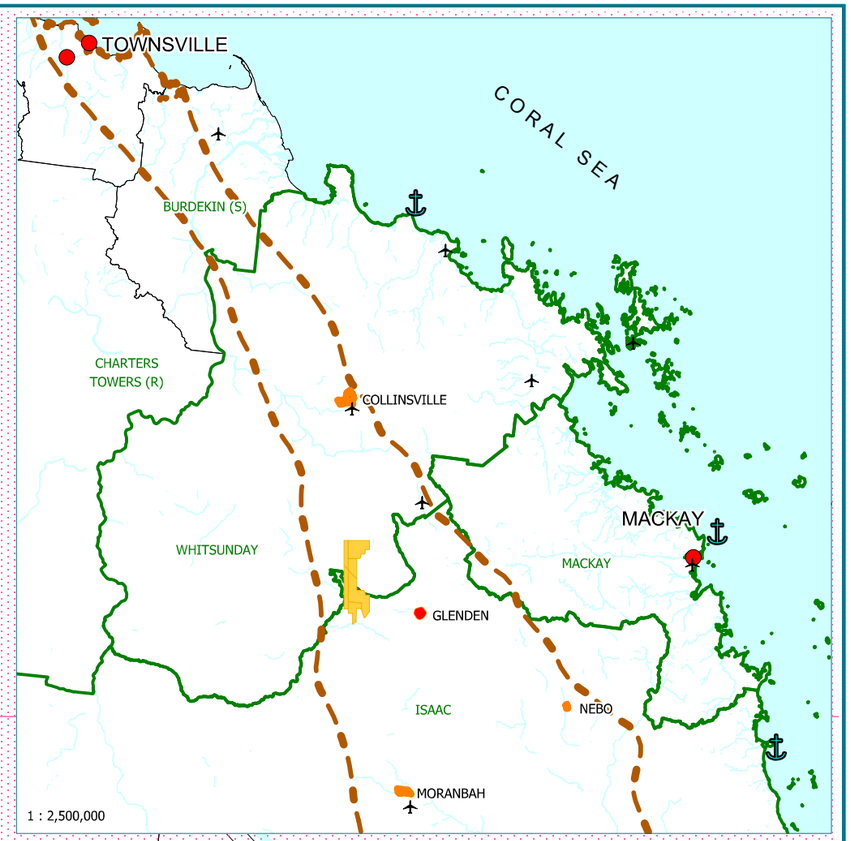
LOCALITIES: NEBO

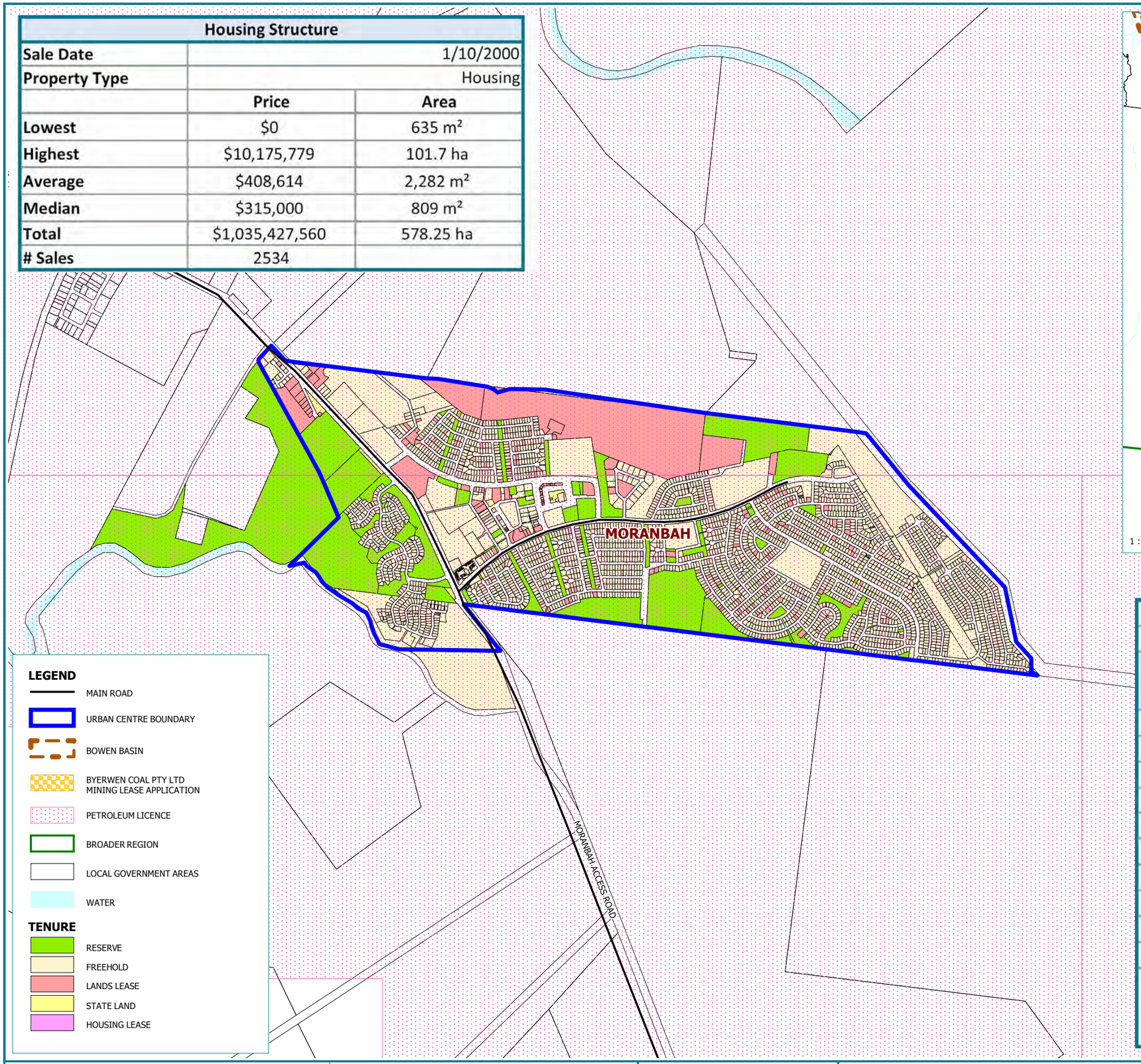
meters

N

CLIENT PROJECT	REF NUMBER	REVISION	PRODUCED BY	APPROVED BY	PROJECTION	SCALE
500101	MS01_AP004	A	DGC	PG	GDA94	A3 | 1 : 30,000

Housing Structure		
Sale Date		1/10/2000
Property Type		Housing
	Price	Area
Lowest	$0	635 m²
Highest	$10,175,779	101.7 ha
Average	$408,614	2,282 m²
Median	$315,000	809 m²
Total	$1,035,427,560	578.25 ha
# Sales	2534	





Moranbah		
Estimated Resident Population	8326	
Area	8.3	km2
Density	1003.1	pkm2
Couples with no children	31.24	%
Couple with children under 15	49.88	
Married	**53.65**	
Never married	36.07	
Employed Full Time	53.58	
Employed Part Time	16.24	
Not in Labour Force	8.24	
Top 3 Industry of Employment	Mining (45.63%), Retail Trade (7.29), Accomodation and Food Services (6.62%)	

FLINDERS GROUP

QCoal

LOCALITIES: MORANBAH

0 meters

N

CLIENT PROJECT	REF NUMBER	REVISION	PRODUCED BY	APPROVED BY	PROJECTION	SCALE
500101	MS01_AP003	A	DGC	PG	GDA94	A3 | 1 : 15,000

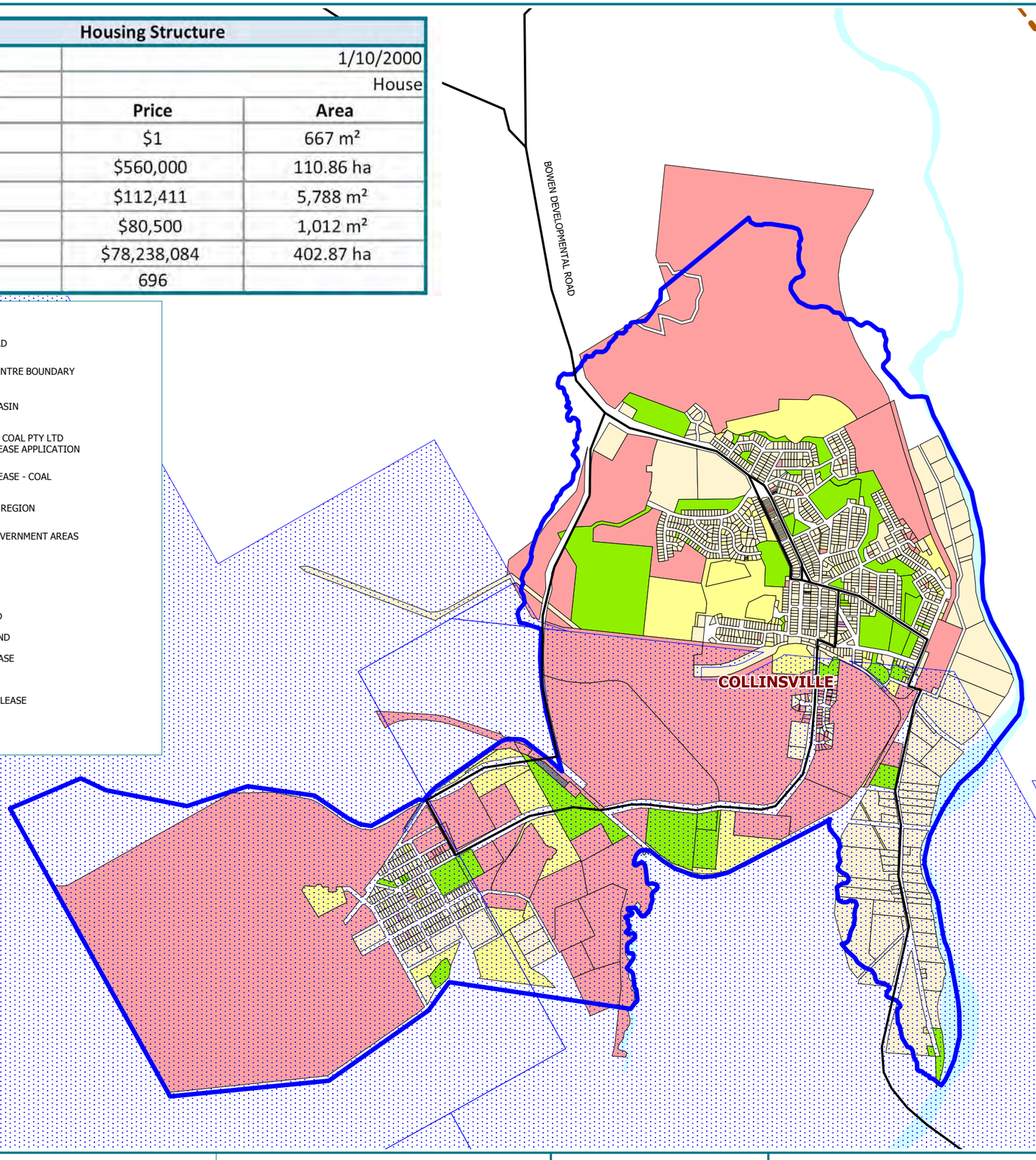
Housing Structure		
Sale Date		1/10/2000
Property Type		House
	Price	Area
Lowest	$1	667 m²
Highest	$560,000	110.86 ha
Average	$112,411	5,788 m²
Median	$80,500	1,012 m²
Total	$78,238,084	402.87 ha
# Sales	696	

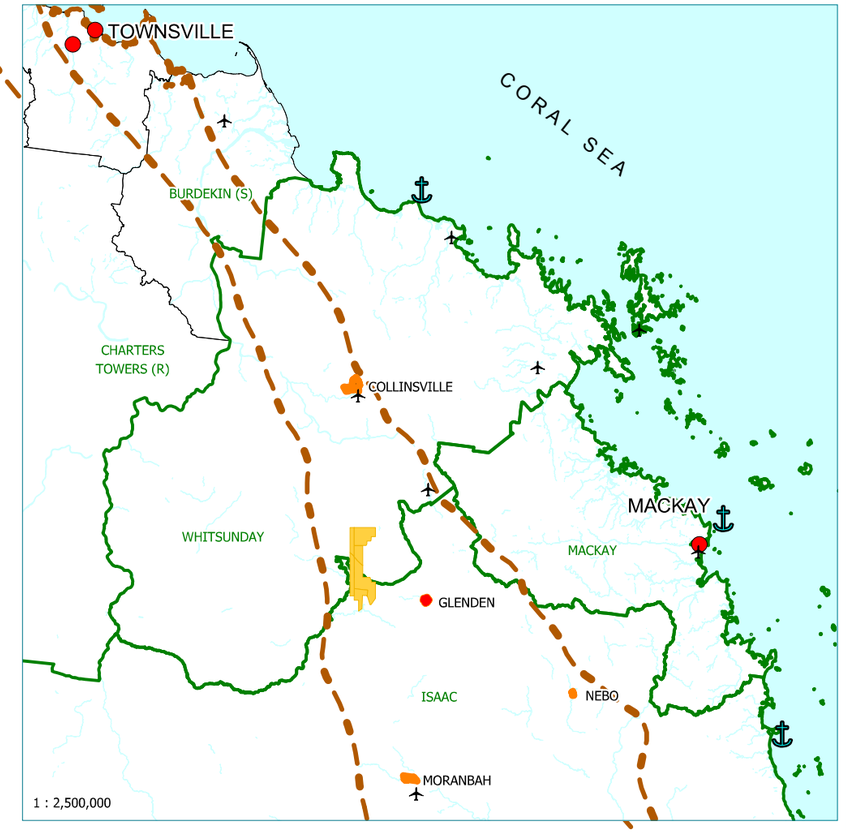
LEGEND

- MAIN ROAD
- URBAN CENTRE BOUNDARY
- BOWEN BASIN
- BYERWEN COAL PTY LTD MINING LEASE APPLICATION
- MINING LEASE - COAL
- BROADER REGION
- LOCAL GOVERNMENT AREAS
- WATER

TENURE

- FREEHOLD
- STATE LAND
- LANDS LEASE
- RESERVE
- HOUSING LEASE
- RAILWAY





Collinsville		
Estimated Resident Population	2068	
Area	17.6	km2
Density	117.5	pkm2
Couples with no children	43.93	%
Couple with children under 15	35.63	
Married	**50.88**	
Never married	28.38	
Employed Full Time	28.21	
Employed Part Time	14.20	
Not in Labour Force	13.07	
Top 3 Industry of Employment	Mining (32.74%), Accomodation and Food Services (9.59%), Retail Trade (9.45%)	

FLINDERS GROUP

QCoal

LOCALITIES: COLLINSVILLE

0 1,500 meters

N

CLIENT PROJECT	REF NUMBER	REVISION	PRODUCED BY	APPROVED BY	PROJECTION	SCALE
500101	MS01_AP002	A	DGC	PG	GDA94	A3 | 1 : 15,000

Appendix 5

Construction Phase Data

Table A1: Output (or Consumption) ($M)

Distribution of output or consumption effects	Year -3				Year -2				Year -1				Year +1			
Multipliers	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total
Agriculture, Forestry and Fishing	0.23	2.40	0.00	2.63	0.34	1.30	0.07	1.71	1.19	2.54	0.20	3.93	0.10	0.19	0.00	0.30
Mining	8.42	6.80	0.00	15.22	30.11	15.50	0.96	46.57	105.76	31.24	2.56	139.57	8.61	1.53	0.00	10.15
Manufacturing	3.64	29.20	0.00	32.84	76.50	196.70	16.14	289.34	227.02	336.76	42.00	605.78	19.32	16.09	0.00	35.41
Electricity, Gas, Water & Waste Services	0.23	2.80	0.00	3.03	0.59	2.83	0.41	3.83	1.67	5.36	1.11	8.14	0.16	0.33	0.00	0.49
Construction	11.61	7.20	0.00	18.81	20.30	45.07	0.74	66.10	168.72	204.36	4.31	377.39	10.06	6.37	0.00	16.43
Wholesale Trade	0.46	8.00	0.00	8.46	2.18	12.76	1.14	16.08	7.27	24.43	3.05	34.75	0.60	1.32	0.00	1.92
Retail Trade	1.14	2.00	0.00	3.14	0.34	2.32	0.19	2.85	1.43	5.04	0.54	7.02	0.16	0.27	0.00	0.43
Accommodation and Food Services	0.23	4.80	0.00	5.03	0.67	2.88	0.19	3.74	1.79	5.04	0.52	7.35	0.17	0.40	0.00	0.57
Transport, Postal and Warehousing	1.14	10.40	0.00	11.54	4.36	13.04	0.92	18.32	14.55	26.97	2.53	44.05	1.21	1.48	0.00	2.69
Information Media and Telecommunications	0.23	5.60	0.00	5.83	0.42	3.62	0.40	4.44	1.19	6.80	1.10	9.10	0.11	0.50	0.00	0.61
Financial and Insurance Services	3.64	7.60	0.00	11.24	0.59	6.96	0.46	8.01	2.38	16.78	1.34	20.51	0.35	0.91	0.00	1.27
Rental, Hiring and Real Estate Services	3.87	11.20	0.00	15.07	2.01	16.29	0.81	19.11	9.30	38.78	2.31	50.39	0.83	1.89	0.00	2.71
Professional, Scientific and Technical Services	11.61	199.20	0.00	210.81	18.03	30.63	0.63	49.29	11.80	21.93	1.76	35.50	3.38	9.08	0.00	12.46
Administrative and Supportive Services	2.05	34.00	0.00	36.05	4.19	22.09	1.32	27.61	13.35	44.46	3.69	61.51	1.19	3.08	0.00	4.27
Public Administration and Safety	0.00	0.80	0.00	0.80	0.00	0.42	0.07	0.49	0.12	0.85	0.20	1.17	0.00	0.06	0.00	0.07
Education and Training	0.00	2.40	0.00	2.40	0.25	1.21	0.08	1.54	0.48	1.90	0.22	2.60	0.05	0.18	0.00	0.23
Health Care and Social Assistance	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.10	0.00	0.14	0.02	0.16	0.00	0.01	0.00	0.01
Arts and Recreation Services	0.46	15.20	0.00	15.66	0.75	4.64	0.14	5.53	1.43	7.40	0.39	9.23	0.18	0.91	0.00	1.08
Other Services	0.00	0.40	0.00	0.40	0.08	0.28	0.01	0.38	0.60	0.81	0.04	1.45	0.04	0.04	0.00	0.08
Ownership of Dwellings	227.62	0.00	0.00	227.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.11	0.00	0.00	11.11
Direct	**239.00**	**180.00**	**0.00**	**419.00**	**90.08**	**164.91**	**10.00**	**265.00**	**287.12**	**318.04**	**27.28**	**632.44**	**35.02**	**20.00**	**0.00**	**55.01**
Indirect	**37.56**	**168.80**	**0.00**	**206.36**	**71.71**	**213.69**	**14.69**	**300.09**	**282.95**	**463.62**	**40.62**	**787.19**	**22.63**	**24.61**	**0.00**	**47.24**
Total	**276.56**	**348.80**	**0.00**	**625.36**	**161.80**	**378.59**	**24.69**	**565.09**	**570.07**	**781.65**	**67.90**	**1419.62**	**57.65**	**44.60**	**0.00**	**102.25**

Source: Flinders Group

Table A2: Household Incomes

Household Income	Year -3				Year -2				Year -1				Year +1			
Multipliers	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total
Agriculture, Forestry and Fishing	0.00	0.40	0.00	0.40	0.00	0.14	0.01	0.15	0.12	0.28	0.03	0.43	0.00	0.03	0.00	0.03
Mining	0.68	0.40	0.00	1.08	2.10	1.40	0.10	3.59	7.51	2.86	0.27	10.64	0.61	0.13	0.00	0.74
Manufacturing	1.14	8.40	0.00	9.54	30.20	69.90	4.19	104.28	90.14	120.30	10.83	221.28	7.63	5.75	0.00	13.38
Electricity, Gas, Water & Waste Services	0.00	0.40	0.00	0.40	0.00	0.18	0.06	0.24	0.12	0.35	0.15	0.62	0.00	0.03	0.00	0.03
Construction	1.59	0.80	0.00	2.39	2.18	4.59	0.11	6.88	18.00	21.01	0.59	39.61	1.09	0.66	0.00	1.75
Wholesale Trade	0.23	2.00	0.00	2.23	0.59	3.20	0.28	4.06	1.91	6.28	0.76	8.94	0.16	0.34	0.00	0.50
Retail Trade	0.46	0.80	0.00	1.26	0.08	0.68	0.07	0.83	0.48	1.55	0.21	2.24	0.05	0.09	0.00	0.14
Accommodation and Food Services	0.00	0.80	0.00	0.80	0.17	0.59	0.04	0.80	0.36	1.06	0.12	1.54	0.04	0.08	0.00	0.11
Transport, Postal and Warehousing	0.46	3.60	0.00	4.06	1.59	4.68	0.21	6.48	5.37	9.91	0.57	15.84	0.45	0.54	0.00	0.98
Information Media and Telecommunications	0.00	0.80	0.00	0.80	0.08	0.50	0.07	0.64	0.12	0.95	0.17	1.24	0.02	0.07	0.00	0.09
Financial and Insurance Services	1.37	2.80	0.00	4.17	0.17	2.52	0.15	2.84	0.83	6.35	0.44	7.62	0.12	0.34	0.00	0.46
Rental, Hiring and Real Estate Services	0.68	2.00	0.00	2.68	0.42	2.97	0.11	3.50	1.79	7.33	0.32	9.45	0.16	0.35	0.00	0.51
Professional, Scientific and Technical Services	4.78	81.60	0.00	86.38	7.38	12.20	0.22	19.80	4.89	8.99	0.62	14.50	1.39	3.72	0.00	5.11
Administrative and Supportive Services	0.91	14.40	0.00	15.31	1.85	9.36	0.51	11.71	5.84	19.32	1.41	26.57	0.52	1.33	0.00	1.85
Public Administration and Safety	0.00	0.40	0.00	0.40	0.00	0.18	0.04	0.22	0.00	0.42	0.10	0.52	0.00	0.03	0.00	0.03
Education and Training	0.00	1.60	0.00	1.60	0.17	0.81	0.06	1.04	0.36	1.34	0.16	1.85	0.04	0.12	0.00	0.16
Health Care and Social Assistance	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.07	0.01	0.08	0.00	0.00	0.00	0.00
Arts and Recreation Services	0.23	3.20	0.00	3.43	0.17	0.99	0.03	1.18	0.48	1.73	0.08	2.28	0.05	0.20	0.00	0.25
Other Services	0.00	0.40	0.00	0.40	0.17	0.32	0.00	0.49	0.83	1.06	0.02	1.91	0.06	0.05	0.00	0.11
Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Direct	**4.78**	**74.00**	**0.00**	**78.78**	**34.73**	**59.27**	**2.97**	**96.97**	**88.71**	**90.02**	**7.75**	**186.48**	**8.34**	**7.10**	**0.00**	**15.44**
Indirect	**7.28**	**50.80**	**0.00**	**58.08**	**13.25**	**55.90**	**3.28**	**72.43**	**50.32**	**121.15**	**9.10**	**180.56**	**4.12**	**6.75**	**0.00**	**10.87**
Total	**12.06**	**124.80**	**0.00**	**136.86**	**47.89**	**115.17**	**6.25**	**169.32**	**139.03**	**211.17**	**16.85**	**367.05**	**12.45**	**13.85**	**0.00**	**26.30**

Source: Flinders Group

Table A3: Employment Effects

Employment Effects	Year -3				Year -2				Year -1				Year +1			
Multipliers	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total
Agriculture, Forestry and Fishing	0.00	0.00	0.00	0.00	0.00	9.00	0.44	9.44	11.92	17.63	1.12	30.67	0.48	0.74	0.00	1.23
Mining	0.00	0.00	0.00	0.00	16.78	18.00	1.32	36.10	71.54	35.26	3.36	110.16	5.08	1.49	0.00	6.57
Manufacturing	22.76	80.00	0.00	102.76	377.45	855.13	69.98	1302.56	1108.89	1456.19	180.83	2745.91	95.12	69.12	0.00	164.24
Electricity, Gas, Water & Waste Services	0.00	0.00	0.00	0.00	0.00	4.50	0.88	5.38	0.00	7.05	2.24	9.29	0.00	0.34	0.00	0.34
Construction	68.29	40.00	0.00	108.29	83.88	166.53	3.08	253.48	667.72	761.59	16.24	1445.55	41.35	24.39	0.00	65.74
Wholesale Trade	0.00	40.00	0.00	40.00	8.39	40.51	3.96	52.86	23.85	84.62	11.20	119.67	2.06	4.94	0.00	7.00
Retail Trade	0.00	0.00	0.00	0.00	0.00	22.50	2.20	24.70	11.92	45.84	6.72	64.48	0.48	1.90	0.00	2.38
Accommodation and Food Services	0.00	40.00	0.00	40.00	0.00	13.50	1.32	14.82	11.92	24.68	3.36	39.96	0.48	2.56	0.00	3.05
Transport, Postal and Warehousing	0.00	40.00	0.00	40.00	25.16	72.01	3.52	100.70	71.54	151.61	10.08	233.23	6.17	7.66	0.00	13.83
Information Media and Telecommunications	0.00	0.00	0.00	0.00	0.00	13.50	1.32	14.82	0.00	24.68	3.36	28.04	0.00	1.08	0.00	1.08
Financial and Insurance Services	22.76	40.00	0.00	62.76	0.00	22.50	1.32	23.82	11.92	56.41	4.48	72.82	1.60	3.60	0.00	5.20
Rental, Hiring and Real Estate Services	0.00	0.00	0.00	0.00	0.00	18.00	1.32	19.32	11.92	45.84	4.48	62.24	0.48	1.71	0.00	2.20
Professional, Scientific and Technical Services	68.29	1240.00	0.00	1308.29	109.04	184.53	3.52	297.09	71.54	133.98	10.64	216.16	20.38	56.42	0.00	76.80
Administrative and Supportive Services	0.00	160.00	0.00	160.00	25.16	112.52	7.04	144.72	71.54	236.23	19.03	326.81	6.17	15.57	0.00	21.74
Public Administration and Safety	0.00	0.00	0.00	0.00	0.00	4.50	0.44	4.94	0.00	7.05	1.68	8.73	0.00	0.34	0.00	0.34
Education and Training	0.00	40.00	0.00	40.00	0.00	13.50	0.88	14.38	11.92	21.16	2.24	35.32	0.48	2.49	0.00	2.97
Health Care and Social Assistance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arts and Recreation Services	0.00	40.00	0.00	40.00	0.00	18.00	0.88	18.88	11.92	31.73	1.68	45.34	0.48	2.90	0.00	3.38
Other Services	0.00	0.00	0.00	0.00	0.00	4.50	0.00	4.50	11.92	14.10	0.56	26.59	0.48	0.48	0.00	0.97
Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Direct	**68.29**	**1120.00**	**0.00**	**1188.29**	**461.32**	**801.13**	**50.18**	**1312.62**	**1263.90**	**1339.84**	**132.12**	**2735.86**	**114.51**	**102.95**	**0.00**	**217.46**
Indirect	**136.57**	**720.00**	**0.00**	**856.57**	**201.30**	**787.62**	**54.14**	**1043.07**	**906.19**	**1815.83**	**150.59**	**2872.62**	**69.60**	**97.55**	**0.00**	**167.15**
Total	**204.86**	**1840.00**	**0.00**	**2044.86**	**671.02**	**1588.75**	**103.87**	**2363.64**	**2170.09**	**3155.67**	**282.72**	**5608.47**	**185.20**	**200.50**	**0.00**	**385.70**

Source: Flinders Group

Table A4: Value Added

Value Added Effects	Year -3				Year -2				Year -1				Year +1			
Multipliers	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total	Region	Qld	Inter-State	Total
Agriculture, Forestry and Fishing	0.00	1.20	0.00	1.20	0.17	0.63	0.04	0.84	0.60	1.30	0.11	2.01	0.05	0.10	0.00	0.14
Mining	6.37	5.20	0.00	11.57	22.90	10.40	0.61	33.91	80.25	21.90	1.65	103.79	6.54	1.08	0.00	7.63
Manufacturing	1.59	11.60	0.00	13.19	37.41	87.22	5.66	130.29	110.05	151.37	14.68	276.10	9.40	7.24	0.00	16.64
Electricity, Gas, Water & Waste Services	0.00	1.20	0.00	1.20	0.25	1.22	0.20	1.66	0.72	2.36	0.54	3.62	0.06	0.14	0.00	0.21
Construction	3.64	2.00	0.00	5.64	5.37	11.12	0.22	16.71	43.52	51.20	1.23	95.95	2.64	1.61	0.00	4.25
Wholesale Trade	0.23	2.80	0.00	3.03	0.84	4.86	0.44	6.14	2.86	9.63	1.17	13.66	0.24	0.51	0.00	0.74
Retail Trade	0.46	0.80	0.00	1.26	0.17	0.90	0.10	1.16	0.60	2.05	0.26	2.90	0.07	0.11	0.00	0.18
Accommodation and Food Services	0.00	1.60	0.00	1.60	0.25	0.99	0.07	1.31	0.60	1.80	0.20	2.59	0.06	0.14	0.00	0.20
Transport, Postal and Warehousing	0.68	5.60	0.00	6.28	2.35	6.80	0.36	9.51	7.75	14.53	0.99	23.27	0.65	0.80	0.00	1.45
Information Media and Telecommunications	0.00	2.40	0.00	2.40	0.17	1.49	0.18	1.83	0.48	2.86	0.49	3.82	0.04	0.21	0.00	0.25
Financial and Insurance Services	2.73	5.20	0.00	7.93	0.34	4.55	0.28	5.16	1.55	11.14	0.82	13.51	0.24	0.62	0.00	0.86
Rental, Hiring and Real Estate Services	1.82	5.20	0.00	7.02	0.92	7.20	0.33	8.45	4.17	17.74	0.95	22.85	0.38	0.86	0.00	1.24
Professional, Scientific and Technical Services	5.92	102.40	0.00	108.32	9.31	15.30	0.29	24.90	6.08	11.28	0.81	18.17	1.74	4.67	0.00	6.41
Administrative and Supportive Services	1.14	17.60	0.00	18.74	2.26	11.66	0.65	14.57	7.27	24.05	1.80	33.12	0.64	1.64	0.00	2.29
Public Administration and Safety	0.00	0.40	0.00	0.40	0.00	0.23	0.04	0.26	0.12	0.46	0.11	0.69	0.00	0.03	0.00	0.04
Education and Training	0.00	1.60	0.00	1.60	0.17	0.86	0.06	1.08	0.36	1.45	0.17	1.97	0.04	0.13	0.00	0.16
Health Care and Social Assistance	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.11	0.01	0.12	0.00	0.00	0.00	0.00
Arts and Recreation Services	0.23	5.20	0.00	5.43	2.52	1.58	0.04	4.14	0.60	2.64	0.13	3.37	0.36	0.31	0.00	0.68
Other Services	0.00	0.40	0.00	0.40	0.17	0.36	0.09	0.62	0.83	1.09	0.02	1.95	0.06	0.05	0.00	0.11
Ownership of Dwellings	175.95	0.00	0.00	175.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.59	0.00	0.00	8.59
Direct	**181.87**	**92.80**	**0.00**	**274.67**	**43.28**	**74.62**	**3.84**	**121.74**	**118.04**	**123.55**	**10.22**	**251.81**	**19.29**	**9.14**	**0.00**	**28.42**
Indirect	**1.91**	**80.00**	**0.00**	**81.91**	**40.01**	**92.80**	**5.74**	**138.55**	**150.59**	**205.38**	**15.91**	**371.89**	**11.40**	**11.14**	**0.00**	**22.54**
Total	**200.76**	**172.80**	**0.00**	**373.56**	**83.21**	**167.38**	**9.58**	**260.16**	**268.64**	**328.89**	**26.13**	**623.66**	**31.51**	**20.27**	**0.00**	**51.78**

Source: Flinders Group

Appendix 6

Operational Phase Data

Table A5: Output or Consumption Effects

Distribution of output or consumption effects	Year 1			Year 2			Year 3			Year 4			Year 5+		
Multipliers	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total
Agriculture, Forestry & Fishing	0.82	1.55	2.36	1.50	3.00	4.49	2.31	4.26	6.57	2.96	5.33	8.29	3.83	7.23	11.06
Mining	71.20	65.50	136.70	135.13	120.38	255.51	215.08	203.14	418.23	288.15	278.50	566.65	352.03	327.88	679.91
Manufacturing	22.76	80.09	102.86	41.49	154.85	196.34	63.56	227.97	291.53	80.81	291.57	372.38	105.79	381.93	487.72
Electricity, Gas, Water & Waste Services	0.99	1.65	2.64	1.91	3.30	5.21	2.98	4.86	7.83	4.00	6.38	10.38	4.91	8.11	13.02
Construction	13.96	8.24	22.20	27.05	16.74	43.79	42.52	25.14	67.66	57.43	33.92	91.35	69.81	41.72	111.53
Wholesale Trade	28.36	56.06	84.42	50.60	114.31	164.91	87.85	173.19	261.04	121.78	236.73	358.51	141.30	286.90	428.20
Retail Trade	0.77	1.88	2.66	1.26	3.61	4.88	2.33	5.57	7.91	3.14	7.39	10.53	3.70	9.22	12.92
Accommodation & Food Services	1.05	2.40	3.46	1.96	4.59	6.55	3.14	7.05	10.19	4.22	9.30	13.51	5.15	11.69	16.84
Transport, Postal & Warehousing	43.49	11.77	55.25	97.35	22.31	119.66	129.60	34.92	164.52	170.92	46.53	217.45	221.95	57.58	279.53
Information Media & Telecommunications	0.49	2.25	2.74	0.96	4.47	5.44	1.48	6.80	8.27	1.99	9.12	11.11	2.44	11.26	13.70
Financial & Insurance Services	1.25	5.44	6.69	2.35	10.88	13.23	3.81	16.49	20.30	5.16	22.19	27.35	6.21	27.34	33.55
Rental, Hiring & Real Estate Services	5.22	11.79	17.01	10.06	22.35	32.41	15.86	35.95	51.82	21.46	48.83	70.29	26.05	58.78	84.83
Professional, Scientific & Technical Services	0.32	2.55	2.87	0.60	4.95	5.56	0.96	7.66	8.62	1.30	10.26	11.56	1.58	12.65	14.23
Administrative & Support Services	4.66	13.65	18.31	9.03	27.54	36.57	14.11	41.08	55.19	19.06	54.95	74.01	23.24	68.38	91.62
Public Administration & Safety	0.07	0.26	0.33	0.15	0.52	0.66	0.21	0.76	0.97	0.28	1.01	1.29	0.35	1.27	1.62
Education & Training	0.22	0.52	0.74	0.43	1.02	1.44	0.66	1.54	2.20	0.87	2.04	2.91	1.08	2.56	3.64
Health Care & Social Assistance	0.01	0.07	0.08	0.03	0.12	0.15	0.05	0.19	0.24	0.07	0.24	0.31	0.08	0.31	0.39
Arts & Recreation Services	0.52	2.26	2.78	0.95	4.41	5.36	1.58	6.84	8.42	2.16	9.19	11.34	2.56	11.27	13.84
Other Services	0.07	0.08	0.15	0.15	0.14	0.29	0.22	0.21	0.44	0.29	0.29	0.58	0.36	0.36	0.72
Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Direct	**95.70**	**102.30**	**198.00**	**190.10**	**201.90**	**392.00**	**285.80**	**304.20**	**590.00**	**380.60**	**405.00**	**785.60**	**475.00**	**506.00**	**981.00**
Indirect	**100.54**	**165.72**	**266.25**	**193.05**	**317.55**	**510.60**	**302.49**	**499.41**	**801.90**	**405.43**	**668.77**	**1074.19**	**497.42**	**820.45**	**1317.87**
Total	**196.24**	**268.02**	**464.25**	**383.15**	**519.45**	**902.60**	**588.29**	**803.61**	**1391.90**	**786.03**	**1073.77**	**1859.79**	**972.42**	**1326.45**	**2298.87**

Source: Flinders Group

Table A6: Household Income

Distribution of output or consumption effects	Year 1			Year 2			Year 3			Year 4			Year 5+		
Multipliers	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total
Agriculture, Forestry & Fishing	0.10	0.17	0.27	0.25	0.32	0.57	0.29	0.44	0.73	0.37	20.96	21.34	0.52	7.14	7.66
Mining	7.08	4.96	12.04	18.28	9.35	27.63	21.53	15.30	36.84	29.06	55.59	84.65	38.22	35.72	73.94
Manufacturing	6.23	16.37	22.60	14.67	33.15	47.82	17.27	44.84	62.11	21.84	0.46	22.30	30.88	59.81	90.69
Electricity, Gas, Water & Waste Services	0.08	0.12	0.20	0.19	0.24	0.43	0.22	0.34	0.56	0.30	4.36	4.67	0.40	1.80	2.21
Construction	1.84	1.06	2.89	4.74	2.16	6.90	5.59	3.23	8.82	7.53	58.33	65.86	9.91	22.22	32.13
Wholesale Trade	6.64	13.76	20.40	17.47	27.24	44.71	20.57	42.54	63.11	28.59	2.30	30.89	36.61	52.49	89.10
Retail Trade	0.25	0.59	0.84	0.64	1.12	1.76	0.75	1.73	2.48	1.01	1.93	2.94	1.34	2.75	4.09
Accommodation & Food Services	0.22	0.50	0.72	0.56	0.96	1.52	0.66	1.48	2.14	0.87	16.34	17.21	1.16	6.94	8.10
Transport, Postal & Warehousing	14.14	4.14	18.28	35.77	7.87	43.64	42.13	12.29	54.41	55.58	1.27	56.85	74.73	15.56	90.28
Information Media & Telecommunications	0.07	0.31	0.38	0.18	0.62	0.80	0.21	0.95	1.16	0.28	8.09	8.37	0.37	3.70	4.07
Financial & Insurance Services	0.45	1.98	2.43	1.15	3.95	5.11	1.36	6.02	7.37	1.85	9.25	11.11	2.42	10.32	12.74
Rental, Hiring & Real Estate Services	0.99	2.24	3.23	25.51	4.23	29.74	3.00	6.82	9.82	4.06	4.21	8.27	19.68	9.57	29.25
Professional, Scientific & Technical Services	0.13	1.05	1.18	0.34	2.04	2.37	0.40	3.15	3.54	0.54	23.18	23.72	0.71	11.12	11.82
Administrative & Support Services	1.98	5.77	7.75	5.08	11.66	16.74	5.98	17.33	23.31	8.09	0.48	8.57	10.64	21.80	32.44
Public Administration & Safety	0.03	0.12	0.16	0.08	0.24	0.32	0.09	0.36	0.45	0.12	1.43	1.55	0.17	0.90	1.07
Education & Training	0.15	0.37	0.52	0.39	0.72	1.11	0.46	1.08	1.54	0.61	0.13	0.74	0.82	1.39	2.21
Health Care & Social Assistance	0.01	0.03	0.04	0.02	0.08	0.10	0.03	0.11	0.13	0.04	2.06	2.10	0.05	0.78	0.83
Arts & Recreation Services	0.15	0.50	0.65	0.39	1.00	1.39	0.46	1.52	1.98	0.62	0.39	1.02	0.81	2.00	2.81
Other Services	0.10	0.10	0.20	0.25	0.20	0.45	0.29	0.30	0.59	0.39	0.00	0.39	0.52	0.37	0.89
Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.12	75.12	0.00	23.46	23.46
Direct	**22.19**	**19.69**	**41.88**	**55.73**	**38.86**	**94.59**	**65.63**	**57.27**	**122.90**	**86.78**	**136.19**	**222.97**	**116.70**	**115.05**	**231.75**
Indirect	**18.42**	**34.46**	**52.88**	**47.26**	**68.26**	**115.52**	**55.66**	**102.55**	**158.21**	**75.00**	**210.60**	**285.60**	**98.91**	**193.81**	**292.72**
Total	**40.61**	**54.14**	**94.76**	**102.99**	**107.12**	**210.11**	**121.29**	**159.83**	**281.12**	**161.77**	**211.31**	**373.08**	**215.60**	**266.54**	**482.13**

Source: Flinders Group

Table A7: Employment Effects

Distribution of output or consumption effects	Year 1			Year 2			Year 3			Year 4			Year 5+		
Multipliers	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total
Agriculture, Forestry & Fishing	5	9	14	9	18	27	13	25	39	18	33	51	23	43	66
Mining	75	47	122	137	90	226	229	144	373	311	197	508	371	235	607
Manufacturing	64	177	241	119	361	480	179	488	667	225	607	833	299	838	1136
Electricity, Gas, Water & Waste Services	1	2	3	2	4	6	3	6	9	4	7	11	5	10	15
Construction	80	46	125	154	94	248	242	139	382	328	189	516	398	232	630
Wholesale Trade	89	185	274	156	367	523	277	572	849	384	785	1169	443	942	1385
Retail Trade	8	18	25	13	34	47	22	51	73	30	68	98	37	86	122
Accommodation & Food Services	5	12	17	10	22	32	16	34	50	21	46	67	25	57	83
Transport, Postal & Warehousing	178	60	238	396	114	510	530	177	707	700	235	934	907	293	1199
Information Media & Telecommunications	1	8	9	3	16	19	5	23	28	7	31	38	8	39	47
Financial & Insurance Services	4	19	23	8	38	46	13	57	70	18	77	95	21	95	116
Rental, Hiring & Real Estate Services	6	14	21	12	28	40	20	44	64	26	59	85	32	72	104
Professional, Scientific & Technical Services	2	16	18	3	30	33	7	46	53	8	64	72	10	77	87
Administrative & Support Services	24	72	97	48	146	194	75	217	293	101	292	393	123	362	485
Public Administration & Safety	1	2	3	1	4	5	1	4	6	1	7	8	3	9	12
Education & Training	2	6	8	4	12	16	8	17	25	10	22	32	12	28	40
Health Care & Social Assistance	0	0	0	0	0	0	0	2	2	0	2	2	0	2	2
Arts & Recreation Services	3	9	12	6	18	24	9	25	35	12	35	48	16	44	59
Other Services	1	1	3	2	2	4	4	4	8	6	4	10	6	6	12
Ownership of Dwellings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Direct	**276**	**246**	**522**	**566**	**487**	**1053**	**818**	**722**	**1540**	**1,087**	**954**	**2040**	**1375**	**1208**	**2582**
Indirect	**275**	**455**	**730**	**520**	**909**	**1429**	**833**	**1357**	**2190**	**1,124**	**1,802**	**2926**	**1363**	**2260**	**3623**
Total	**551**	**702**	**1254**	**1086**	**1396**	**2482**	**1652**	**2079**	**3732**	**2,209**	**2,758**	**4968**	**2739**	**3469**	**6208**

Source: Flinders Group

Table A8: Value Add

Distribution of output or consumption effects	Year 1			Year 2			Year 3			Year 4			Year 5+		
Multipliers	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total	Region	Qld	Total
Agriculture, Forestry & Fishing	0.40	0.51	0.92	0.74	0.88	1.62	1.45	1.79	3.24	2.4	2.9	5.2	2.31	2.83	5.13
Mining	48.35	32.70	81.05	92.89	52.95	145.84	185.93	128.52	314.45	315.2	225.9	541.1	293.63	197.60	491.23
Manufacturing	8.98	17.48	26.46	16.53	30.87	47.40	31.64	61.04	92.68	50.6	97.6	148.2	50.38	96.84	147.23
Electricity, Gas, Water & Waste Services	0.43	0.50	0.93	0.82	0.89	1.71	1.61	1.84	3.46	2.8	3.1	5.9	2.57	2.92	5.49
Construction	4.36	1.70	6.06	8.45	3.08	11.53	16.94	6.57	23.51	29.1	11.4	40.4	26.79	10.32	37.10
Wholesale Trade	10.44	14.28	24.72	17.88	25.07	42.95	40.57	55.90	96.47	71.6	98.3	169.9	63.32	87.31	150.63
Retail Trade	0.31	0.51	0.82	0.59	0.87	1.46	1.21	1.92	3.13	2.1	3.2	5.3	1.91	2.98	4.89
Accommodation & Food Services	0.37	0.57	0.94	0.69	0.96	1.66	1.41	2.11	3.53	2.4	3.6	6.0	2.23	3.30	5.53
Transport, Postal & Warehousing	22.60	4.19	26.79	50.60	7.05	57.64	85.98	15.72	101.70	143.9	26.8	170.7	140.28	24.50	164.78
Information Media & Telecommunications	0.21	0.63	0.84	0.40	1.12	1.52	0.79	2.44	3.23	1.4	4.2	5.5	1.27	3.80	5.07
Financial & Insurance Services	0.85	2.48	3.34	1.60	4.37	5.97	3.30	9.51	12.80	5.7	16.4	22.1	5.20	14.90	20.10
Rental, Hiring & Real Estate Services	2.39	3.61	6.00	4.60	6.08	10.68	9.25	13.93	23.18	15.9	24.3	40.1	14.63	21.65	36.28
Professional, Scientific & Technical Services	0.16	0.88	1.04	0.31	1.52	1.83	0.64	3.35	3.99	1.1	5.7	6.8	1.00	5.23	6.23
Administrative & Support Services	2.48	4.84	7.31	4.81	8.67	13.49	9.55	18.41	27.96	16.4	31.5	47.9	15.16	28.92	44.08
Public Administration & Safety	0.03	0.10	0.13	0.08	0.17	0.24	0.13	0.34	0.47	0.2	0.6	0.8	0.23	0.55	0.78
Education & Training	0.17	0.27	0.44	0.32	0.46	0.79	0.64	1.00	1.64	1.1	1.7	2.8	1.01	1.57	2.58
Health Care & Social Assistance	0.01	0.03	0.04	0.02	0.05	0.07	0.03	0.11	0.14	0.1	0.2	0.3	0.07	0.17	0.24
Arts & Recreation Services	0.22	0.53	0.75	0.39	0.92	1.31	0.84	2.01	2.85	1.4	3.5	4.9	1.31	3.15	4.46
Other Services	0.10	0.07	0.16	0.20	0.12	0.32	0.39	0.25	0.64	0.6	0.4	1.1	0.61	0.40	1.01
Ownership of Dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00
Direct	**47.62**	**24.59**	**72.21**	**94.87**	**43.61**	**138.48**	**181.66**	**91.06**	**272.72**	**306.8**	**154.5**	**461.3**	**289.55**	**143.84**	**433.39**
Indirect	**55.05**	**61.30**	**116.35**	**107.06**	**102.49**	**209.55**	**210.69**	**235.68**	**446.37**	**357.1**	**406.8**	**763.8**	**334.13**	**365.07**	**699.21**
Total	**102.67**	**85.81**	**188.48**	**201.92**	**146.11**	**348.02**	**392.35**	**326.74**	**719.10**	**663.8**	**561.2**	**1225.1**	**623.67**	**508.82**	**1132.50**

Source: Flinders Group

Appendix 7

Cumulative Impacts

Project Title	Proponent	Status	Timing	Brief Description
Drake Coal Project	Drake Coal Pty Ltd	Final TOR issued, EIS in preparation	Proposed start up 2013. 30 year mine life.	The green-field open-cut mine would use conventional open-cut truck and excavator methods to produce up to 10Mtpa of ROM coal per year. Washed product coal would be transported by train via the Collinsville-Newlands rail line to the Abbot Point Coal Terminal near Bowen for export, using existing port facilities.
Ellensfield Coal Mine Project	Ellensfield Coal Management Pty Ltd	Proponent responds to submissions on the EIS	Proposed start up 2013. Mine life of up to 20 years.	The project involves the development of a greenfield underground coal mine producing up to 5.5Mtpa of coking coal and thermal coal for export. Product coal would be transported to port via rail for export. Prior to the proposed CHPP being fully operational in 2012, all raw coal would be crushed, sized and washed using the existing Carborough Downs Coal Mine CHPP, and coal product transported via rail to the Dalrymple Bay Coal Terminal (DBCT) for export. After 2012, product coal would be either transported to DBCT or to Abbot Point Coal Terminal via the yet to be completed Goonyella Abbot Point rail line.
Sarsfield Expansion Project	Carpentaria Gold Pty	Public notification of draft TOR	Extension of mine life by 10 years.	The project would involve the expansion of the current open-cut gold mining operation by recommencing mining in the Sarsfield pit and extending the Nolan's Pit floor. The existing processing plant would treat ore from Nolan's and Sarsfield pits and the Mt Wright underground operations at a rate of 5Mtpa peaking at 6Mtpa for six months.
Arrow Bowen Pipeline Project	Arrow Bowen Pipeline Pty Ltd	Final TOR issued, EIS in preparation	Construction 2015 with the first gas supplied to an LNG plant in Gladstone in 2017.	The project would involve the construction of a 600 km long point-to-point, 107 cm diameter transmission pipeline consisting of a main pipeline and several lateral pipelines. The pipeline would commence at Red Hill, approximately 90 km north of Moranbah in central Queensland, and terminate at Gladstone. Its purpose would be to convey coal seam gas (CSG) from Arrow Energy's gas fields in the Bowen Basin for eventual export as liquefied natural gas (LNG).
Carborough Downs Mine Expansion Project	The Carborough Downs Joint Venture	EIS completed	not available	The project involves the expansion of the existing Carborough Downs underground coal mine to increase the approved production rate of 1.9Mtpa ROM coal to approximately 5Mtpa ROM. The planned increase in production would be achieved either through a continuation of the existing "cut and fill" method using additional continuous miners or the introduction of the longwall mining method. The project would involve duplication of the CHPP adjacent to the existing facility and increase in the number of product stockpiles.

Project Title	Proponent	Status	Timing	Brief Description
Codrilla Coal Mine Project	The Coppabella and Moorvale Joint Venture	EIS assessment report	Proposed start up 2013. Expected life of the project 13.5 years.	The proposed project involves development of an open cut coal mine producing an average of approximately 4Mtpa of ROM coal which following processing would produce an average of 3.2Mtpa of pulverised coal injection product for export. Product coal would be transported approximately 31 km to the existing Moorvale Mine train loading facility using road trains on a purpose built private haul road. Coal would then be railed to Dalrymple Bay Coal Terminal for export.
Eagle Downs Coal project	Bowen Central Coal Joint Venture Parties	EIS completed	Proposed start up 2015. 50 year plus mine life.	The project would involve the development of a greenfield underground coal mine producing up to 7Mtpa of coking coal and thermal coal for export. A rail loop and train loading facilities would be located adjacent to the CHPP and connected to the existing Norwich Park Branch railway. Product coal would be transported to port via rail for export.
Eaglefield Expansion Project	Peabody Energy Australia Coal Pty Ltd	EIS assessment report	Proposed start up 2014. 22 year mine life.	The project would extend the current Eaglefield Coal Mine operations and increase production from 5 to 10.2Mtpa of ROM coal. An in-pit crushing and conveying system will be used with haul trucks to produce coking coal for the export market. Coal would be transported approximately 200 km by existing rail infrastructure, for export from the Dalrymple Bay Coal Terminal (DBCT). The EEP would utilise some of the existing Eaglefield Coal Mine infrastructure, such as power supply, sewage treatment facility and wastewater management infrastructure. Existing site offices and industrial areas also would be utilised.
Grosvenor Coal Project	Anglo Coal (Grosvenor) Pty Ltd	EIS assessment report	Proposed start up 2013. 30 year mine life.	The project would involve the development of a Greenfield underground coal mine which will have a production rate of up to 5Mtpa of high quality coking coal for the export market. ROM coal from the Grosvenor Mine will be transported via an overland conveyor to the CHPP facilities at the existing Moranbah North Mine. The Moranbah North CHPP. Product coal will be transported by train via the existing Moranbah North rail loading facilities to the Abbot Point Coal Terminal for export.
Integrated Isaac Plains Project	IP Coal Pty Ltd and Vale Australia (IP) Pty Ltd	EIS completed	Proposed start up 2012. 15 year mine life.	The project would involve the extension of the existing Isaac Plains open-cut coal mine involving expanding current mining operations from 2Mtpa of ROM coal to up to 4Mtpa of ROM coal. ROM coal from the expansion area will be hauled by truck to the Isaac Plains CHPP. Processed and washed coal from the Integrated Isaac Plains Project will be railed to Dalrymple Bay Coal Terminal at Mackay for export.

Project Title	Proponent	Status	Timing	Brief Description
Millennium Expansion Project	Millennium Coal Pty Limited	EIS completed	Proposed start up 2012. Extension of mine life by 17 years.	The proposed expansion project includes increasing production of the current open-cut, hard coking coal Millennium mine from 1.9Mtpa ROM coal to 5.5Mtpa. This will produce up to 3.6Mtpa of product coal for export. Coal processing would occur at the currently utilised off-site facility at the Red Mountain Joint Venture immediately adjacent to the site. The size of the current ROM and product stockpile areas will be increased to meet the additional throughput. Product coal will be railed to the Dalrymple Bay Coal Terminal for export to international markets.
Moorvale Coal Project	Australian Premium Coals Pty Ltd	EIS completed	14 year mine life. Construction was expected to commence in late 2002.	The general project objective is to mine and export a high grade pulverised coal injection (PCI) product at a rate of 2Mtpa. Mining infrastructure will include mine pit and out-of-pit spoil, rail loop, run-of-mine stockpiles, coal preparation plant, product stockpiles, water management dams, workshop and administration facilities
Newlands Coal Extension Project	Xstrata Coal Queensland Pty Ltd (Xstrata Coal Queensland)	Final TOR issued, EIS in preparation	2016 for open cut mining, with a proposed mine life of 22 years. 2013 for underground mining with a proposed mine life of 13 years.	Mining would be by open cut and underground mining operations. Open cut mining would produce 5Mtpa ROM coal per annum. The underground mining activities would involve an extension of existing longwall activities at the Northern Underground mine and would produce up to 6Mtpa ROM coal. All coal mined from the project would be hauled by truck or transferred by conveyor for processing at the existing coal handling and processing plant in the current Newlands main deposit area.
Newlands Coal Project	Xstrata Coal Queensland Pty Ltd, Itochu Coal Resources Australia Pty Ltd, ICRA NCA Pty Limited and Sumisho Coal Australia Pty Limited	EIS completed	15 year mine life. EIS assessment report issued 2006.	The project involves extension to the existing Newlands Coal Project through extension of the existing Suttor Creek operations into the western portion of the mining lease (the proposed Wollombi area). The proposal includes open cut mining of the area, clearing of vegetation (including endangered regional ecosystems), topsoil removal/replacement, overburden stockpiling, coal extraction and final rehabilitation of disturbed areas. The mine would produce up to 2.5Mtpa of ROM coal for a nominal annual average of 1.9Mtpa product coal.
Sonoma Coal Project	QCoal Pty Ltd	EIS completed	15 year mine life.	Open cut mining operations will extract, using truck and shovel method, approximately 3Mtpa of coal for processing through a coal preparation plant. The coal output from the plant, expected to be approximately 2Mtpa, will be railed to Abbot Point coal terminal for export.
Vermont Coal Project	Bowen Basin Coal Pty Ltd	EIS completed	Proposed start up 2013. 15 year mine life.	The project involves the development of a contractor operated open cut mine producing approximately 2.65Mtpa coking coal and 1.25Mtpa pulverised coal injection coal. Products are to be transported directly from the mine site 235km to the coal exporting facility at Dalrymple Bay Coal terminal within the Port of Hay Point.

Project Title	Proponent	Status	Timing	Brief Description
Bowen Basin Coal Growth - Caval Ridge	BHP Billiton Mitsubishi Alliance (BMA) Coal Operations	EIS Complete. Recommended project proceed subject to conditions and recommendations	Proposed start up 2014. 30 year mine life.	The project forms part of the BMA Bowen Basin Coal Growth project and would involve development of an open-cut coal mine with a yield of 5.5Mtpa and associated infrastructure, including a CHPP. The CHPP will also process an additional 2.5Mtpa of product coal from the expansion of the neighbouring Peak Downs Mine, which will be transported via conveyor. Coal will initially be railed to BMA's Hay Point Coal Terminal.
Caval Ridge Mine Project Change 5	BHP Billiton Mitsubishi Alliance (BMA) Coal Operations	EIS Complete. Recommended project proceed subject to conditions and recommendations	Construction proposed start date 2011, finish date 2014. 30 year mine life.	Change relating to rail alignment.
Goonyella Riverside Mine	BHP Billiton Mitsubishi Alliance (BMA) Coal Operations	EIS active - EIS being prepared by proponent	Proposed start up 2013.	The project forms part of the BMA Bowen Basin Coal Growth project and would involve an expansion of the existing Goonyella Riverside open cut and the underground operations at Broadmeadow to increase the capacity from 16Mtpa to 24Mtpa. Mining and processing will yield a Hard Coking Coal product for the export market. The open cut expansion and underground expansions will result in an additional 5Mtpa and 3Mtpa of product coal respectively.
Moranbah Airport	BHP Billiton Mitsubishi Alliance (BMA) Coal Operations	EIS active - EIS being prepared by the proponent	not available	The project forms part of the BMA Bowen Basin Coal Growth project and involves the development of a new airport, to replace the existing Moranbah airport.
Central Queensland Integrated Rail Project	QR limited	EIS active - Draft terms of reference being prepared	Construction proposed start date 2013, finish date 2015	The project would involve the development of an integrated, heavy-haul rail system that will link coal mines in the Galilee and Bowen basins to eastern Queensland ports. The line will run from the Galilee Basin, north of Alpha, before linking with existing lines taking coal to the Port of Abbot Point near Bowen, or the Hay Point or Dalrymple Bay ports near Mackay
Dudgeon Point Coal Terminals Project	North Queensland Bulk Ports Corporation Ltd	EIS active - Draft terms of reference being prepared	Expected completion 2015 - 2016	The project would involve the development of two new coal export terminals with a combined capacity of up to 180 million tonnes per annum; and associated infrastructure at Dudgeon Point, in the Port of Hay Point.
Goonyella to Abbot Point Rail Project	BHP Billiton MetCoal Holdings Pty Ltd	EIS active - Draft terms of reference public consultation from Feb to March 2012	Construction proposed start date 2015, finish date 2016	A dedicated rail line, approximately 260 km in length, to transport up to 60 million tonnes per annum of coal. The line would service a number of potential new and expanded coal mines. The line would run from the Goonyella Riverside Mine in the Bowen Basin, approximately 24 kilometres north-west of Moranbah, to the Port of Abbot Point, near Bowen

Project Title	Proponent	Status	Timing	Brief Description
Moranbah and Nebo Power Stations	Transfield Services Limited	Proponent has placed project on hold	not available	The project would involve the development of 120 MW gas-fired, intermediate power station near Moranbah and a 300 MW gas-fired, and peaking power station near Nebo. A 97 kilometre gas pipeline will connect these two locations in the northern Bowen Basin west of Mackay. The power stations would use locally sourced coal seam gas and each would be linked via an overhead electricity feeder line to a substation located near each power station
Water for Bowen Project	Sunwater Ltd	EIS active - supplementary EIS being prepared by proponent	not available	The project would involve the development of a 150 km water transport scheme featuring a channel and network of pipelines from the Burdekin River south across the coastal plain to Bowen and surrounding areas, with the potential to supply 60,000 ML of water a year to the Bowen region.
Abbot Point Coal Terminal Expansion - Stage 3	Ports Corporation of Queensland Limited	EIS completed. Recommended project proceed subject to conditions and recommendations	not available	Duplication of the existing terminal infrastructure, which will double the Port of Abbot Point's capacity from 25 million tonnes per annum to 50Mtpa.
Bowen Basin Coal Growth - Daunia Mine	BHP Billiton Mitsubishi Alliance (BMA) Coal Operations.	EIS completed. Recommended project proceed subject to conditions and recommendations	Proposed start up 2013. 21 year mine life.	The project forms part of the BMA Bowen Basin Coal Growth project and would involve development of an open-cut coal mine with a yield of 4Mtpa and associated infrastructure including a CHPP and associated loading facilities for ROM coal. The product coal will be railed approximately 160 km to the Hay Point and/or Dalrymple Bay coal terminals for shipment to the international market.
Central Queensland Gas Pipeline	Enertrade	EIS complete	Proposed start up 2014	The project will involve the development of a 440 km high pressure gas transmission pipeline in Central Queensland from Moranbah to Gladstone. The pipeline would provide a strategic link for gas supply between the North Bowen Basin and Gladstone and provides scope for future interconnection to South East Queensland markets such as Brisbane. Construction of the project would provide interconnection of the North Queensland Gas Pipeline to the state gas transmission network. This would enable alternative sources of gas to the industrial centre of Gladstone as well as into Townsville.
Clermont Coal Mine	The Clermont Joint Venture	EIS complete	Construction commenced 2006. 20 year expected mine life.	The project will involve the development and operation of an open cut mine to produce 12.2Mtpa of thermal coal for export through Dalrymple Bay. Development was scheduled to coincide with wind-down of Blair Athol in 2009-10. The project planned to utilise existing load-out facilities and rail spur line at Blair Athol, with product being transported from the Clermont mine to Blair Athol via overland conveyor.

Project Title	Proponent	Status	Timing	Brief Description
Connors River Dam and Pipelines	Sunwater Ltd	EIS complete. Recommended project proceed subject to conditions and recommendations	Estimated completion 2015	The project will involve the construction of a 373,662 ML dam, water from which will be transported via a 133 km pipeline to Moranbah and will primarily service coal mines (and associated communities) in Central Queensland's coal basins.
Jilalan Rail Yard	Queensland Rail	EIS complete	not available	The project will involve the expansion of the existing Jilalan Rail Yard (located near the town of Sarina). The proposed expansion of the yard will incorporate two new bypass tracks with room for a third, two provisioning tracks, a provisioning facility, a wagon maintenance facility, and modifications to the existing yard and maintenance tracks. The development will complement the expansion of Dalrymple Bay/Hay Point.
Moranbah Ammonium Nitrate	Dyno Nobel Asia Pacific Limited	EIS complete	Proposed start up 2012	The project will involve the development of the Moranbah plant which will produce ammonia gas and nitric acid as inputs to the plant outputs of ammonium nitrate emulsion (viscous liquid) and prill (solid) to service the rapidly expanding demand for explosives from mining throughout Queensland and New South Wales. The Moranbah facility will have a production capacity of approximately 330 000 tonnes annually. The project will use locally sourced coal seam gas.
Northern missing link	Queensland Rail	EIS complete	not available	The project will involve the construction and operation of a 69 km rail link between the North Goonyella and Newlands rail systems in the northern Bowen Basin coalfields. The rail link will connect the existing mines of North Goonyella and Newlands and allow coal trains originating in Central Queensland to be directed to the port of Abbot Point, near Bowen.
Port of Hay Point capital dredging	The Ports Corporation of Queensland	EIS complete	not available	The project will involve undertaking of apron area and departure path capital dredging to increase the allowable draft of departing vessels from the Port of Hay Point, south of Mackay. The project will involve increasing existing ship manoeuvring apron areas and creating a 9.5 km long, 300—500 m wide departure path from the apron areas to the open ocean. Approximately 14 million cubic metres of capital and maintenance dredged material will require disposal over a five year period
Jax Project	QCoal Ltd	New project, feasibility study underway	Proposed start up 2012	The project will involve the development of an open cut coal mine producing 1.8Mtpa (ROM) coking coal.
Sarum Project	Xstrata Coal Ltd	New project, EIS & pre- feasibility study underway	Proposed start up 2014	The project would involve the development of a new open cut and underground coal mine with the production capacity of 5Mtpa coking and thermal coal.
New Lenton Project	New Hope Corp. Ltd	New project, Pre-feasibility study completed	Proposed start up 2014	The project would involve the development of a new open cut coal mine with the production capacity of 3.5Mtpa coking and thermal coal.

Project Title	Proponent	Status	Timing	Brief Description
Burton Project	Peabody Energy Ltd	Expansion, under construction	Proposed start up 2012	The project would involve the expansion of an existing open cut coal mine with a new production capacity of 4Mtpa coking coal.
Wards Well Underground	BHP Billiton Mitsubishi Alliance	New project, pre-feasibility study underway	Proposed start up 2016	The project would involve the development of a new underground coal mine with a production capacity of 5Mtpa hard coking coal.
Moranbah CSG operation	Arrow Energy Ltd / AGL Energy Ltd	Expansion, in progress	Proposed start up 2014	The project would involve the expansion of existing Moranbah coal seam gas operation with the new capacity of 160 Pjpa.
Moranbah South	Anglo Amer. Met Coal / Exxaro Australia	New project, pre-feasibility study underway	Proposed start up 2017	The project would involve the development of a new underground coal mine with the production capacity of up to 4.5Mtpa coking coal.
Olive Downs North	MacArthur Coal Ltd	New project, on hold	Proposed start up 2013	The project would involve the development of a new open cut coal mine with the production capacity of 1Mtpa coking and PCI coal.
Willunga Project	MacArthur Coal Ltd	New project, pre-feasibility study completed	Proposed start up 2015	The project would involve the development of a new open cut coal mine with a production capacity of 3Mtpa PCI and thermal coal.
Winchestor South	Rio Tinto Ltd	New project, pre-feasibility study to start: Q2 2012	Proposed start up 2016	The project would involve the development of a new open cut coal mine with a production capacity of 4 Mt coking & thermal coal.
Saraji East	BHP Billiton Mitsubishi Alliance	New project, pre-feasibility study underway	Proposed start up 2016	The project would involve the development a of new open-cut and underground coal mine with the production capacity of 5Mtpa hard coking coal.
Talwood Project	Aquila Resources Ltd	New project, Pre-feasibility study underway	Proposed start up 2015	The project would involve the development of a new underground coal mine with a production capacity of 3.6 Mt coking and thermal coal.
Dysart East	Bengal Coal Ltd	New project, pre-feasibility study underway	Proposed start up 2013	The project would involve the development of a new open cut and underground coal mine with the mining capacity of 4Mtpa (ROM) coking coal.
Twin Hills	Evolution Mining Ltd	Redevelopment, on hold	Proposed start up 2012	The project would involve the redevelopment of a gold-silver underground mine with the production capacity of 30,000 oz. pa.
Anthony Project	Zamia Metals Ltd	New project, scoping study in progress	Proposed start up 2015	The project would involve the production of a new molybdenum open cut mine with a production capacity of 5Mtpa molybdenum ore.
Blackwater to Norwich Park CSG fields	Bow Energy Ltd	New project, EIS commenced	Proposed start up 2014	The projects new capacity will be a minimum 30 Pjpa.
Bow Energy Gas Pipeline	Bow Energy Ltd	New project, EIS commenced	Proposed start up 2015	The project includes Blackwater to Gladstone and Blackwater to Norwich Park gas pipelines.

Project Title	Proponent	Status	Timing	Brief Description
Collinsville Project	Xstrata Coal Ltd	Proposed start up 2015	Expansion, pre- feasibility study underway	Production rate of 6Mtpa coking and thermal coal.
PL 224	Principal holder CH4 Pty Ltd, joint holders AGL Energy Limited and Arrow CSG Pty Ltd	EA issued 2011	not available	Petroleum lease.
North Queensland Gas Pipeline	North Queensland Pipeline No. 1 Pty Ltd	EA issued 2008	not available	Petroleum Pipeline Licence. Pipeline from Moranbah to Townsville.
Dalrymple Bay Coal Terminal Expansion	North Queensland Bulk Ports Corporation	not available	estimated completion 2018	
Cows Coal Project	QCoal	ML submitted - at land court recommendation stage	construction to commence in 2012	The Cows Coal Project is located approximately 7km south of Collinsville in Queensland's north Bowen Basin.