Economic Impact Assessment South Galilee Coal Project – Final Report

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Contents

Appendices

Index of Figures

Index of Tables

Glossary of terms

ABS	Australian Bureau of Statistics
APCT	Abbot Point Coal Terminal
APSDA	Abbot Point State Development Area
ATO	Australian Taxation Office
AUD	Australian dollar unit
Capex	Capital expenditure
DEEDI	Department of Employment, Economic Development and Innovation
DERM	Queensland Department of Environment and Resource Management
EIS	Environmental Impact Assessment
FIFO	Fly-in Fly-out
FTE	Full Time equivalent
GRP	Gross Regional Product
GST	Goods and Services Tax
Ha	hectare
HAP	Housing and Accommodation Plan
I-O	Input - Output
LGA	Local Government Area
LNG	Liquefied Natural Gas
m	million
MRRT	Minerals Resource Rent Tax
Mt	Million tonne
Mtpa	Million tonnes per annum
MW	MegaWatt
OESR	Office of Economic and Statistical Research
Opex	Operating expenditure
pa	per annum
PFS	Pre-Feasibility Study
QCA	Queensland Competition Authority
R&M	Repairs & maintenance
RC	Regional Council
SD	Statistical Division
SEQ	South East Queensland
SGCP	South Galilee Coal Project
SIMP	Social Impact Management Plan
SLA	Statistical Local Area
SNR	Statistically Not Reliable
ToR	Terms of Reference

1 Introduction

1.1 Significance of coal mining in Queensland

Population growth, the desire for improved living standards and continued industrialisation and modernisation is driving the global demand for energy. Queensland has played a pivotal role in meeting the rapidly increasing global demand for coal. In 2008-09 Queensland produced 190 million tonnes (Mt), of which 159.5 Mt was exported at a value of $41 billion. Coal is by far the largest single commodity export product, and Queensland is also the largest exporter of seaborne coal in the world.

CoalPlan 2030[1] outlines the Queensland Government's desire to support the local coal industry to capture growth opportunities over the next two decades through the provision of a coordinated approach to infrastructure planning and delivery by both government and industry. The document highlights the State's potential to increase production capacity to 340 million tonnes per annum (Mtpa) by 2030, supported by the potential development of large new mines in the Surat and Galilee Basins[2].

1.2 The project

The project proponents, AMCI (Alpha) Pty Ltd and Alpha Coal Pty Ltd (a subsidiary of Bandanna Energy), propose to develop a new coal mine called the South Galilee Coal Project (SGCP) within Mining Lease Application (MLA) 70453, just south-west of the township of Alpha. SGCP will consist of both open pit and underground mining, and produce up to 17 Mtpa of high volatile, low sulphur thermal coal for export over a projected operational mine life of 33 years. Initial studies have confirmed that the relevant coal seams can be mined using existing proven technologies.

The proposed SGCP is located within MLA 70453 and within the Barcaldine Regional Council (RC) Local Government Area (LGA). Key service centres for SGCP are likely to be Emerald and Rockhampton to the east (Fitzroy Statistical Division (SD)) and Mackay (Mackay SD) to the north-east.

AMCI is working with the Queensland Government and the major neighbouring resource companies (e.g. GVK Power and Infrastructure Ltd (GVK) as owner of the Alpha Coal Mine and Kevin's Corner, Waratah Coal Pty Ltd as proponent of the Galilee Coal Project and Adani Mining Pty Ltd as proponent of the Carmichael Coal Mine and Railway), with existing proposals for the development of coal rail and port infrastructure from the Galilee Basin.

1.3 Purpose of this report

This report describes the existing local and regional economic environment that may be affected by the proposed SGCP. The report also considers the economic benefits, values and potential impact areas resulting from the construction and operational phases of the project. The economic matters that have been addressed within this report are in response to the Coordinator- General's *South Galilee Coal Project Final terms of reference for an environmental impact statement (November 2010*) (ToR). Specifically this report addresses the TOR's Section 5 *Economies and management of impacts* including:

[1] Department of Infrastructure and Planning, Queensland Government (2010). *CoalPlan 2030 – Laying the foundations of a future.* Report dated November 2010

[2] Department of Infrastructure and Planning, Queensland Government (2010). *CoalPlan 2030 – Laying the foundations of a future.* Report dated November 2010, Page 2

- Description of the local and regional economies potentially impacted by the project
- Potential economic impacts on:
  - property values
  - industry output
  - employment
  - other industries and economies
  - agricultural land uses and management practices
  - disadvantaged groups
- Mitigation strategies to:
  - mitigate any negative impact on disadvantaged groups
  - manage project impacts through relevant government policies and programmes
  - outline strategies for local participation including:
    - sourcing of local inputs from regional economy
    - employment strategies for local residents
    - strategies responding to relevant government policy relating to the use of locally sourced goods and services
  - Mitigate real and potential disruptions to rural practices and management of properties; and
  - Address the objectives of sustainable development.

The ToR also includes a requirement to estimate the opportunity cost of the SGCP and the value of the ecosystem, natural or modified, to be disturbed or removed by the project. The economic valuation of ecosystem services is an evolving discipline with limitations in the methods used and issues concerning its application.

The economic impacts of the SGCP have been estimated for the regional and state economies by using economics statistics in the public domain and also by employing economic impact assessment tools including Input-Output (I-O) analysis. This level of detail is considered appropriate for a project to the scale of the SGCP. Appendix A contains a description of the I-O method adopted in this assessment. The specific project data for this economic analysis is based on costs and production data for the SGCP provided by the proponent in July 2011 and subsequent communication.

The existing economic environment is described in Section 2 in terms of the study area's demographic structure, community infrastructure and services and housing. The regional community of Barcaldine RC LGA and the neighbouring Central Highlands RC LGA has been scoped to characterise the baseline environment.

Beneficial and adverse economic impacts are identified and assessed (see Section 3) including changes to existing land use, impacts to local and state communities and demographic profile, and impacts associated with construction and operation of the mine.

2 Existing economic environment

2.1 Scope

The economic environment can be described in terms of the demographics, housing, education, labour force, industry of employment and economic activity.

The availability of statistics describing the regional economy at the local government level is generally limited to ABS Census information. The most recent ABS Census data available is from 2006. The most recent ABS Census was conducted in August 2011 although the preliminary statistics will not be published until the latter half of 2012. Therefore interpretation of 2006 Census information throughout this chapter should be considered with a degree of caution given the pace of coal mining development in Central Queensland over the past five years.

2.2 Study area

Although the SGCP is located within the Barcaldine RC LGA, it will also have direct and indirect socio economic impacts extending eastward to the neighbouring Central Highlands RC LGA. For the purposes of this assessment, the local study area is defined as consisting of Barcaldine RC LGA and the Central Highlands RC LGA. An overview of the socio-economic characteristics of the local study area is described in detail below in Section 2.3.

It should be noted that in absolute terms, the socio-economic impacts of SGCP will be likely to extend outside the local study area as defined above. The wider Queensland region will benefit as a result of a proposed FIFO workforce and project expenditure for goods and services likely to accrue to a number of major urban/commercial townships across Queensland. Therefore an overview of key socio-economic characteristics for the state of Queensland is also provided below.

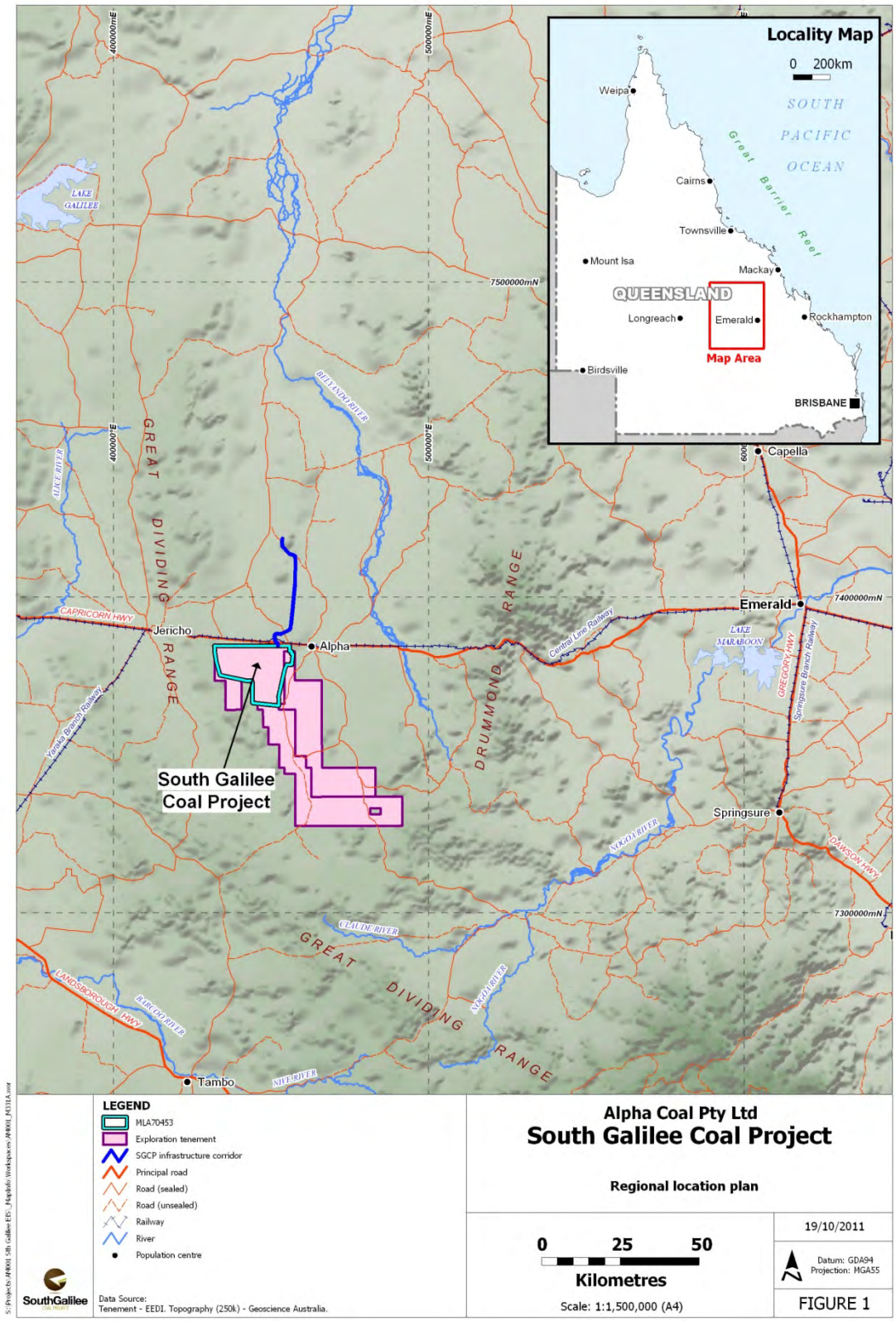

Figure 1Regional location of the SGCP[3]

[3] Source: Met Serve (2010), *Scope of Works – Economy, South Galilee Coal Project.*

Figure 1 above highlights the locality of the SGCP in the geographic context of the Galilee Basin, with Barcaldine to the west and Emerald to the east. The key regional centres of Emerald and Rockhampton to the east are significant in terms of providing light industry, manufacturing and services to a number of existing mines within the Bowen Basin, and are also likely to provide similar services to coal mining operations within the Galilee Basin.

The following section provides an overview of the key characteristics of the regional communities that are expected to be impacted directly and indirectly by the SGCP.

2.3 Overview of impacted communities

Local Community

As illustrated above in Figure 1, the SGCP is located south-west of the rural township of Alpha. Following the March 2008 local government amalgamations, Aramac, Barcaldine and Jericho LGAs became the Barcaldine RC LGA. The SGCP will impact the broader community defined here as the Barcaldine RC LGA and particularly the township of Alpha at the local community level.

The Barcaldine RC LGA is located within the eastern boundary of the Central West SD. The Central West SD also includes Longreach RC LGA, Blackall Tambo RC LGA, Winton Shire, Barcoo Shire and Diamantina Shire. The economic impacts of the SGCP on these western regional communities (other than Barcaldine RC LGA) will be employment opportunities for a small number of residents, and business engagement for the provision of goods and services to the mine.

Regional communities

The neighbouring Central Highlands RC LGA is centred on the major township of Emerald, and includes a significant proportion of the Bowen Basin. Emerald has emerged as a key business service point for many of the existing mining projects within the Bowen Basin.

At the broader SD level, the Fitzroy SD which includes the key service economies of Emerald, Rockhampton and Gladstone, is likely to accrue most of the direct and indirect economic benefits of the SGCP. In addition, a proportion of the SGCP workforce is likely to reside permanently within the Fitzroy SD region.

Rest of Queensland

The SGCP is projected to have significant direct and indirect economic impacts for the rest of Queensland.

An estimation of the potential sources of the SGCP workforce is provided below:

- South-east Queensland (60%)
- Townsville (15%)
- Cairns (9.5%)
- Bundaberg (5%)
- Maryborough (5%)
- Proserpine/Whitsunday/Bowen (5%)
- Alpha (0.5%)

This study area is also anticipated to provide a proportion of the mining services (technical and consulting) throughout the life of the project.

The Queensland Government will benefit in terms of coal royalty payments and taxes (eg. payroll taxes), while state infrastructure providers including ports, rail and utilities (water and electricity) will also benefit from providing services to SGCP.

2.3.1 Barcaldine Regional Council

The Barcaldine RC LGA covers an area of over 53,600 square kilometres and is located approximately 440 km west of Rockhampton. Figure 2 below illustrates the geographic boundary of the Barcaldine RC LGA, key townships of significance, and also the key regional arterial roads linking them.

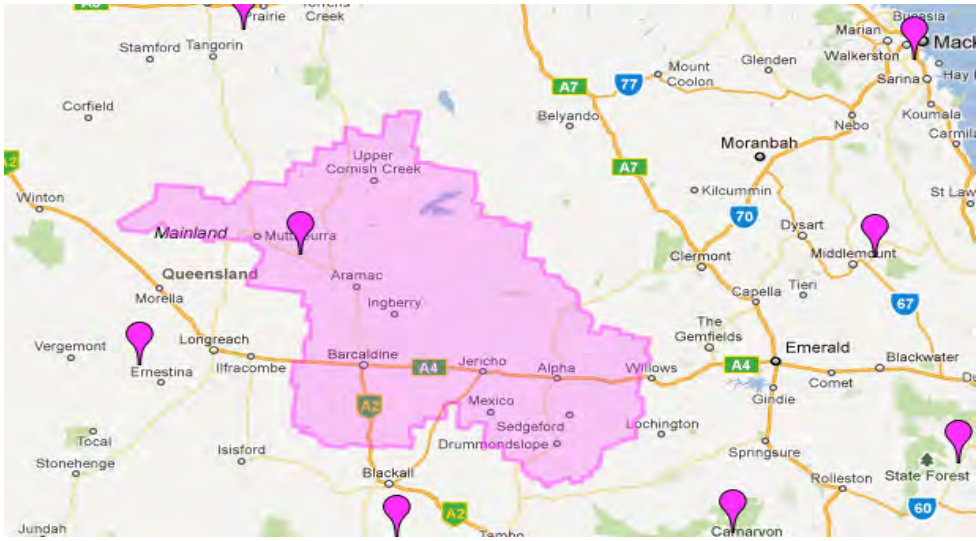

Figure 2Barcaldine RC LGA (shaded area)[4]

The Barcaldine RC LGA is predominately a rural district specialising in livestock production (beef and wool). Unlike the neighbouring Central Highlands district which includes a significant proportion of the Bowen Basin, no coal mines currently operate within the Galilee Basin. However there are several major coal mine proposals currently subject to state government approval processes to commence in the near future which will transform the local Barcaldine RC economy (eg Alpha Coal Project, Kevin's Corner, Galilee Coal Project and Carmichael Coal Mine).

The region has an estimated population of 3,376 as at 30 June 2009 (QRSIS, OESR 2010). The major township is Barcaldine with 1,349 people, with smaller settlements at Alpha (416), Aramac (365), Jericho (309) and Muttaburra (106). In total, 74.6% of the shire's population resides within these townships.

Barcaldine

The township of Barcaldine is situated at the junction of the Capricorn and Matilda (Landsborough) Highways. It was established in 1886 as part of the railway push into the outback. Its main fame was in 1891 when it became the headquarters of the Great Shearers' Strike, which led to the formation of the Australia Labour Party and a graziers' group which later evolved into the National Party.

Located within the township of Barcaldine are the Australian Workers Heritage Centre and the old world Radio Theatre complete with its canvas seats, and the working windmill that pumps water into a sculpture.[5]

Alpha

The township of Alpha was established in 1884, and is located on the Capricorn Highway. It is known as the 'Town of Murals' for the 27 murals painted on various buildings throughout the town, each

[4] Sourced from ABS, *Ausstats* mapping function.
[5] http://www.queenslandholidays.com.au/destinations/queensland-locations/barcaldine/index.cfm

depicting a different aspect of pioneering and contemporary outback life. Its streets are named after poets, the main street being Shakespeare Street.

Alpha has the former Jericho Shire offices, a hospital, recreation reserve, golf club, a swimming pool, a drive-in theatre, hotel-motel, caravan park, general store, café and a tourist and development association. There are also Anglican, Catholic and Uniting churches and a historical society. In 2003 the mayor appealed for refugee families to settle in Alpha as the population continued to decline.[6]

Aramac

Aramac is located 530 km west of Rockhampton and 70 km north of Barcaldine, and was the administrative centre of the former Aramac Shire. Aramac was declared a town site in 1869 and surveyed as a town in 1875 after an employee from Aramac Station opened a bark-hut store and enlarged it two years later to include a hotel.

Aramac is nationally recognised for the Harry Redford Cattle Drive Re-enactment. In the main street of Aramac Stands the White Bull replica which tells the story of the most historically significant cattle stealing case ever recorded in Australia.

Aramac's population peaked by the early 1960s, however with years of sagging demand for wool and the subsequent wool price crash, the population halved by the early years of this century. Aramac has a hotel, caravan park, hospital, local shops, primary-secondary school, Catholic and Uniting churches, and the former shire hall and offices. There are also swimming, bowling and tennis facilities and the Aramac Tramway Museum. [7]

Jericho

The Jericho township is situated midway between Emerald and Longreach on the Capricorn Highway. Its history dates back to 1885 and owes its beginnings to the railway. Jericho's streets are named after scientists. The town is renowned for a striking sculpture *the Crystal Trumpeters,* constructed in memory of the Biblical Jericho.[8]Jericho also has a 36 car drive in, the smallest in Australia where movies are shown once a month.

2.3.2 Central Highlands Regional Council

In March 2008 the former Shires of Bauhinia, Duaringa, Emerald and Peak Downs were amalgamated to create Central Highlands RC LGA.

The Central Highlands RC LGA covers an area of approximately 60,000 square kilometres and is located west of Rockhampton. Figure 3 below illustrates the geographic boundary of the Central Highlands RC LGA, key townships of significance, and also the key regional arterial roads linking them.

[6] http://queenslandplaces.com.au/alpha
[7] http://queenslandplaces.com.au/aramac
[8] http://www.action-graphics.com.au/matilda/pages/jericho/jerichogeneral.html

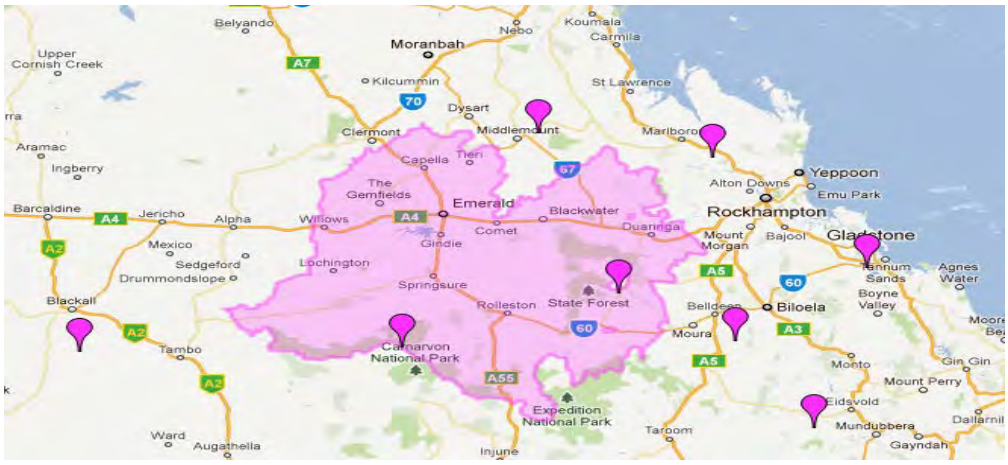

Figure 3 Central Highlands RC LGA (shaded area)[9]

The Central Highlands RC LGA is predominately a rural district specialising in livestock and cropping production. In terms of gross regional product, coal mining dominates the local economy.

The region has an estimated population of 30,403 persons as at 30 June 2009 (QRSIS, OESR 2010). The major townships are Emerald with 13,118 residents and Blackwater with 5,420 residents with smaller settlements at Tieri (1,661), Capella (903), Springsure (901), Sapphire (607), Rubyvale (529), Bluff (414), Duaringa (265) and Willows Gemfields (100). In total, 79% of the population resided within these townships.

2.4 Population demographics

Key population demographic characteristics for the Barcaldine RC LGA as highlighted by Table 1 below include:

- A lower population growth rate (1.0% pa) for 2011 - 2031 than that for Queensland (1.8% pa), and a much higher median age (39.4 years) than the state average (36.1 years)
- A much higher proportion of households being fully owned (43.8%), compared to the state (31.6%)
- More than double (45.7%) of its population classified within the most disadvantaged quintile in comparison to the state
- An unemployment rate of 3.0% as of June 2011 which was well below the state's average of 5.5%

Table 1 also highlights the following significant population and demographic indicators relating to the neighbouring Central Highlands RC LGA, where mining activities dominates its economy:

- A projected population growth rate of 2.4% which is 33% higher than the Queensland average, and 240% higher than that for the Barcaldine RC LGA
- An unemployment rate of 2.5% as of June 2011, less than half that of Queensland (5.5%)
- Only 8.5% of its population were classified within the most disadvantage quintile, compared to 20% for Queensland

[9] Sourced from ABS, *Ausstats* mapping function.

Table 1Population demographics[10]

		Barcaldine RC LGA	Central Highlands RC LGA	Queensland
Projected population (2011)		3,412	31,861	4,611,491
Projected population (2031)[A]		4,185	50,742	6,592,858
Growth rate pa[A]		1.0%	2.4%	1.8%
Median age (2009)		39.4 yrs	31.4 yrs	36.1 yrs
Indigenous persons (2006)		5.9%	3.4%	3.3%
Family Composition (% of families)				
Couple family without children		41.0%	36.6%	39.1%
Couple family with children		45.9%	53.3%	43.3%
One parent family		12.0%	8.9%	15.9%
Other		1.1%	1.2%	1.7%
Household Finances				
Households fully owned		43.8%	25.2%	31.6%
Households being purchased		19.9%	28.0%	33.8%
Households rented		30.5%	43.0%	31.1%
Unemployment Rate (June 2011)		3.0%	2.5%	5.5%
Social-Economic Index of Disadvantage				
Most Disadvantaged	Quintile 1	45.7%	8.5%	20%
	Quintile 2	24.6%	14.1%	20%
	Quintile 3	4.0%	22.8%	20%
	Quintile 4	19.2%	35.1%	20%
Least Disadvantages	Quintile 5	6.5%	19.6%	20%

[A] Medium series projection

Figure 4 below highlights the distribution of age profiles for the key communities of interest to the SGCP.

[10] Data sourced from Office of Economic and Statistical Research, Queensland Government. *Queensland Regional Profile*, on-line database.

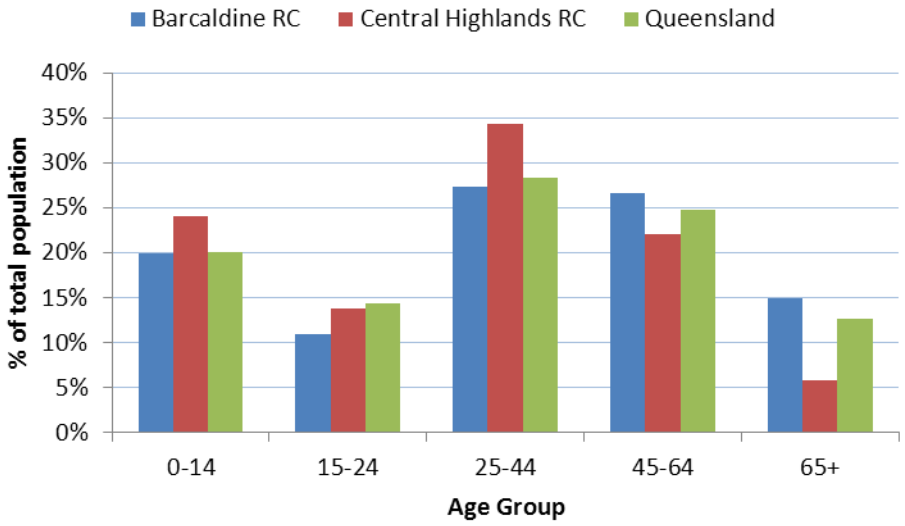

Figure 4 Age profiles for key communities of interest to the SGCP (2006)[11]

As indicated in Figure 4 above, Barcaldine RC LGA had a lower proportion of 0 – 44 year olds than the Central Highlands RC LGA, and also a lower proportion than the state of Queensland. In particular, the Central Highlands RC LGA had a very high proportion of its population (34.3%) within the 25 to 44 year age group compared to the Barcaldine RC LGA (27.4%). Due to the demands of long shift work arrangements and external working conditions, mining generally attracts employees within the 25 to 44 year age group. Over a sustained period of development within the Central Highlands region, mining has attracted a younger population base.

2.5 Housing

Within the Barcaldine RC LGA there were only 1,208 dwellings in 2006, the vast majority of which (92.2%) were separate houses. A large proportion of these 1,208 dwellings are located within the main township of Barcaldine (40% of the total regional population), with a further 35% of the region's population located at Alpha (12.3%), Aramac (10.8%), Jericho (9.2%) and Muttaburra (3.1%).

As indicated below in Table 2, there are substantially more dwellings within the neighbouring local community of Central Highlands RC LGA which includes the major regional centre of Emerald. The Central Highlands RC LGA had more than seven times the number of dwellings than the Barcaldine RC LGA in 2006.

Table 2 Occupied Private Dwellings (2006 Census)[12]

Dwelling structure	Barcaldine RC LGA	Central Highlands RC LGA
Separate house	1,114 (92.2%)	7,411 (86.7%)
Semi detached	14 (1.2%)	138 (1.6%)
Flat, unit & apartment	41 (3.4%)	534 (6.2%)

[11] Raw data sourced from ABS (2010), *Population by Age and Sex, Regions of Australia,* Cat.no. 3235.0.
[12] Source: Office of Economic and Statistical Research, Queensland Government 2011, *Queensland Regional Profiles*.

Dwelling structure	Barcaldine RC LGA	Central Highlands RC LGA
Other[1]	39 (3.2%)	462 (5.4%)
Not Stated		3 (0.1%)
Total	1,208	8,548

[1]Includes caravan, Cabin, Houseboat, Improvised home/tent, house of flat attached to a shop/office, etc.

2.5.1 House prices

In 2011 house prices have increased across the study areas, in contrast to median prices within Brisbane which registered a decline of 4.8% (Table 3). The median house price in Alpha was $247,500 in 2011, while the median house price in Barcaldine was $196,000 in 2011. Of interest is the annual house price growth. Alpha has recorded an average annual increase of around 40% over the past five years; however it must be noted that this was from a relatively low base as median house prices were only $45,000 in 2006.

House prices were substantially higher within Emerald at $401,000, which is comparable to median house prices within Brisbane (Table 3). Emerald has grown rapidly in the past 20 years as a key regional service point offering a wide array of services and products to the surrounding mining developments.

Table 3 Median house prices for selected centres (12 months to 31 October 2011)

Dwelling structure	Median price 2011 ('000)	Number sold 2011	12-month growth (%pa)	3-year growth (%pa)	5-year growth (%pa)
Barcaldine RC LGA					
- Barcaldine [A]	$196	22	9.0%	8.2%	10.8%
- Alpha [B]	$247.5	2	6.2%	16.2%[C]	40.5% [C]
Central Highlands RC LGA					
- Emerald [A]	$401	348	5.5%	5.1%	4.3%
- Blackwater [A]	$360	153	18.0%	11.0%	8.0%
Brisbane [D]	$442	-	-4.8%	1.3%	6.0%

NP: Not Published
[A] Source: Australian Property Investor, February 2012
[B] Source: www.realestate.com.au on the 1st February 2012
[C] Aurecon Hatch calculations based on raw data sourced from : www.realestate.com.au on the 1st February 2012
[D] Aurecon Hatch calculations based on raw data sourced from ABS (2011), *House Price Indexes: Eight capital Cities, Tables 7 & 8. Cat No 6416.0*

Due to a lack of information, median rental house prices for Barcaldine and Alpha are not readily available. However readily available information is available for Emerald as highlighted below within Table 4 (Emerald is the most significant regional township to SGCP located approximately 165 km due east). Although outside of the defined local study area, rental information for Rockhampton and Brisbane are also included to highlight the regional differences. Table 4 also highlights the substantial rise in median weekly rent prices between 2007 and 2011, particularly between 2010 and 2011.

Table 4 Median weekly rents for selected centres[13]

Dwelling structure	June 2007	June 2008	June 2009	June 2010	June 2011
Emerald					
- 2 bed flat	$240	$250	$260	$290	$350
- 3 bed house	$360	$360	$370	$395	$450
Rockhampton					
- 2 bed flat	$180	$200	$210	$220	$230
- 3 bed house	$250	$270	$275	$280	$300
Brisbane					
- 2 bed flat	$310	$350	$350	$360	$380
- 3 bed house	$330	$360	$370	$380	$390

The ability of local non mining businesses within Emerald to attract new employees is already hindered by the lack of affordable housing. Rents in Emerald are substantially higher than that in Rockhampton which is a significantly larger business centre.

2.6 Education

At the time of the 2006 Census, only 30.0% of the population in the Barcaldine RC LGA had a post-school qualification, as opposed to 46.7% for Central Highlands RC LGA and 50.4% for Queensland (Table 5).

The low proportion of post-school qualifications within the Barcaldine RC LGA is a result of a number of factors including the region's isolation in central western Queensland and its historical reliance on agriculture for employment which did not require post-school qualifications for most positions.

Table 5 Post-school qualifications[14]

	Barcaldine RC	Central Highlands RC	Queensland
Bachelor Degree	183	1,670	405,904
Diploma	113	909	204,039
Certificate	372	4,317	554,243
Other	293	2,336	396,682
Total Qualifications	961	9,232	1,560,868
% over 15 with a qualification	**30.0%**	**46.7%**	**50.4%**

In comparison to the Barcaldine RC LGA, the Central Highlands RC LGA has a more diverse business economy, with a substantially lower reliance on Agriculture, Forestry and Fishing. Mining and support service providers dominate the Central Highlands economy, and correspondingly 46.7% of the population held post-school qualifications.

The establishment of mining and associated infrastructure/service support sectors within Barcaldine RC LGA is expected to lead to training opportunities that will increase the number and proportion of local residents with formal training qualifications.

[13] Source: Residential Tenancies Authority (2011), *Median Rents: June Quarter 2011.*
[14] Source: ABS, Census of Population and Housing 2006, *Basic Community Profile*

2.7 Labour

Labour profile

The Barcaldine RC LGA is characterised by a small labour market of approximately 2,200 people spread over a very large land area of 53,600 square kilometres. Of interest is the unemployment rate of 3.2% in comparison to 5.5% for the September 2011 quarter for Queensland. The lack of job growth prospects within the Barcaldine RC LGA is likely to encourage job seekers to relocate to other areas such as the coalfields, Rockhampton and Gladstone which offer more diversified industry bases coupled with economic growth opportunities, and extensive social, educational, health and recreational facilities.

The neighbouring community of the Central Highlands RC LGA has a much larger workforce of over 19,200 people, coupled with a low unemployment rate of only 2.5%. A large proportion of the Central Highlands RC LGA workforce are now either employed directly by mining firms or employed by firms providing goods and services to the mining sector.

Table 6 Labour market profile for the September Quarter 2011[15]

	Barcaldine RC LGA	Central Highlands RC LGA	Queensland
Unemployed	71	485	137,000
Labour force	2,227	19,283	2,470,000
Unemployment rate	3.2%	2.5%	5.5%

As highlighted within Section 2.3, it is proposed to source the FIFO workforce from key major metropolitan centres across the state including south-east Queensland (60% of the SGCP workforce), Townsville (15%), Cairns (9.5%), Bundaberg (5%), Maryborough (5%) and Proserpine/Whitsunday/ Bowen region (5%). These later centres have relatively large work forces, and relatively large numbers of skilled and unskilled labour resources available for engagement.

Occupations

Based on 2006 Census, most employed persons within the Barcaldine RC LGA were either Managers or Labourers. This corresponds with employment opportunities generally limited within the Agriculture Forestry and Fishing sector to Managers and farm hand (labourers), and the significant number of small businesses operating within the Agriculture, Forestry and Fishing sector. Figure 5 below illustrates the breakdown of employment by occupation for the study area.

[15] Source: DEEWR (2011), Australian Government Department of Education, Employment and Workplace Relations, *Small Area Labour Markets Australia*

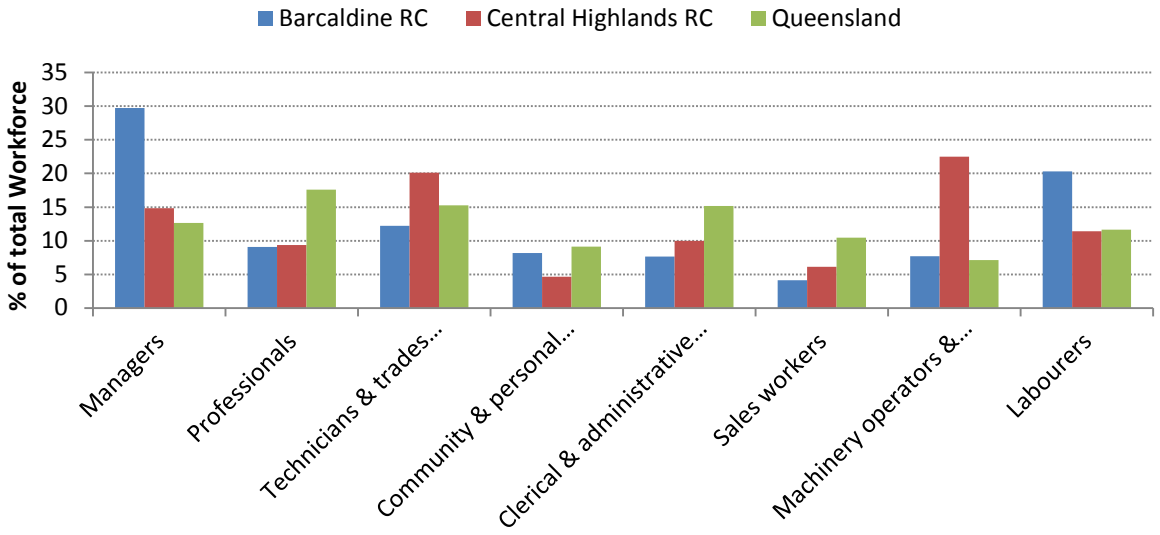

Figure 5 Overview of employment by occupation within the study areas (2006)[16]

2.8 Industries

2.8.1 Employment and industry of occupation

The economic base for Barcaldine RC LGA in terms of employment and income has traditionally been Agriculture, Forestry and Fishing, as indicated below in Figure 6. Within the Barcaldine RC LGA in 2006, Agriculture Forestry and Fishing accounted for approximately one in three jobs. In addition, a number of other industries (eg Construction, Wholesale and Retail Trade, Transport, etc.) are linked to providing goods and services to local farms, and therefore the significance of Agriculture, Forestry and Fishing in terms of jobs is even greater than the 33.5% directly identified.

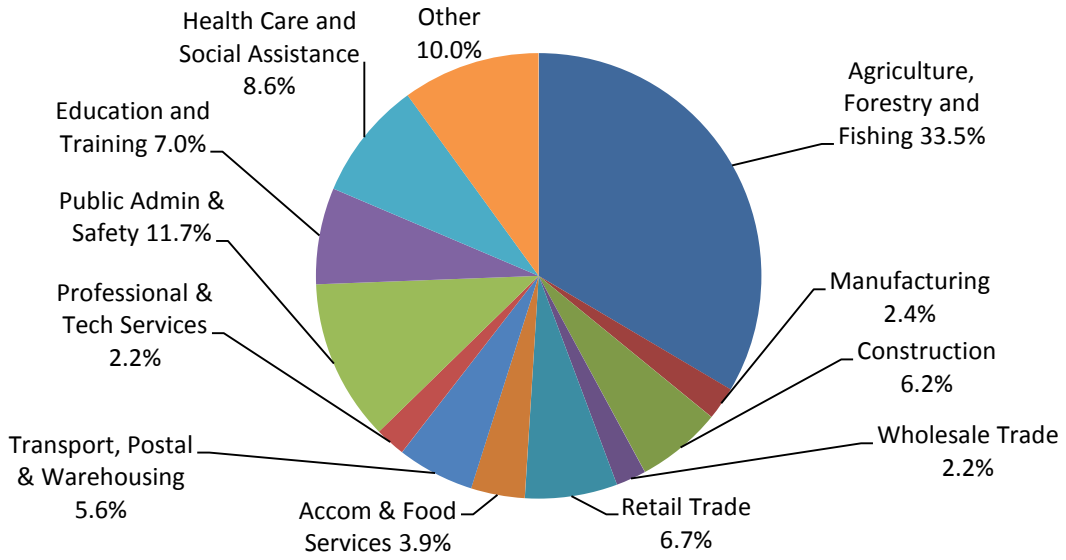

Figure 6 Industry of employment for Barcaldine RC LGA (2006)[17]

[16] Raw data sourced from ABS (2007), *2006 Census Community Profile Series*
[17] Raw data sourced from ABS (2007), *2006 Census of Population and Housing, Basic Community Profile*

Table 7 below provides an overview of employment by industry for the Barcaldine RC LGA, Central Highlands RC LGA and Queensland.

Table 7 Industry of Employment across the study area (% of workforce in 2006)[18]

	Barcaldine RC LGA (%)	Central Highlands RC LGA (%)	Queensland (%)
Agriculture, Forestry and Fishing	33.5	12.2	3.4
Mining	0.7	22.3	1.7
Manufacturing	2.4	3.7	9.9
Electricity, Gas, Water and Waste Services	1.5	0.5	1.0
Construction	6.2	8.7	9.0
Wholesale Trade	2.2	2.7	3.9
Retail Trade	6.7	8.6	11.6
Accommodation and Food Services	3.9	6.2	7.0
Transport, Postal and Warehousing	5.6	4.4	5.1
Information Media and Telecommunications	0.4	0.5	1.4
Financial and Insurance Services	0.2	1.3	2.9
Rental, Hiring and Real Estate Services	0.6	1.6	2.1
Professional, Scientific and Technical Services	2.2	2.7	5.6
Administrative and Support Services	0.4	2.1	3.1
Public Administration and Safety	11.7	4.8	6.7
Education and Training	7.0	6.4	7.6
Health Care and Social Assistance	8.6	4.2	10.2
Arts and Recreation Services	0.9	0.4	1.3
Other Services	5.3	6.7	6.5

Figure 7 below graphically highlights the key industry sectors from Table 7 above. Other than Agriculture Forestry and Fishing, Barcaldine RC LGA had a higher proportion of the workforce engaged in Public Administration and Safety in 2006, highlighting its significance as a key regional centre for the provision of government services.

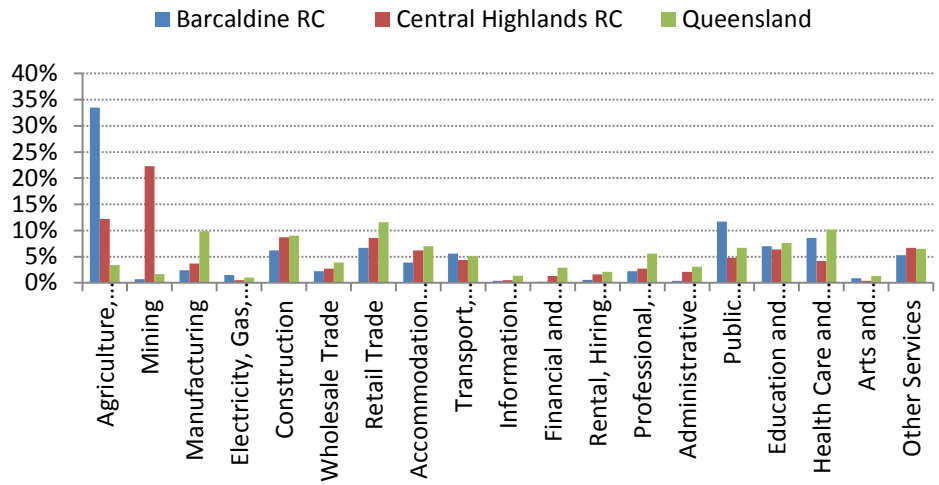

Figure 7 Industry of employment for selected regions

[18] Source: ABS (2007), *2006 Census of Population and Housing, Basic Community Profile*

Figure 7 above also highlights the employment characteristics for the Central Highlands RC LGA as at 2006. Mining is the dominant employer accounting for 22.3% of the total workforce, followed by Agriculture Forestry & Fishing at 12.2% of the local workforce.

More recent insights (June 2009) into industry of employment for Barcaldine RC LGA and Central Highlands RC LGA are provided below in Tables 8 and 9. These tables highlight the number of businesses within each sector, grouped according to number of employees.

It is noted that over half of all businesses in Tables 8 and 9 have no employees, particularly within Agriculture, Forestry and Fishing. However, these businesses provide employment and income for the business owner, which in many cases involves partnership and family structures thereby providing employment and income for a number of people.

Key observations for the Barcaldine RC LGA (Table 8):

- 67% of businesses did not record as having any employees
- 125 (22%) businesses recorded as having 1-4 employees, with another 57 (10%) recording 5–19 employees, the majority of which were within Agriculture Forestry & Fishing
- Only three businesses employed more than 19 employees within the region, all of which were within the Agriculture Forestry & Fishing sector employing 50-99 employees each

It is evident that from a business employment prospective, Agriculture, Forestry and Fishing dominates within Barcaldine RC LGA.

Key observations for Central Highlands RC LGA (Table 9):

- 61% of businesses did not record as having any employees
- 742 (23%) businesses recorded as having 1-4 employees, with another 373 (12%) recording 5–19 employees. Of the businesses employing 5-19 employees, 73 (20%) were within Agriculture, Forestry and Fishing, 54 (14%) within Construction and 45 (12%) within Other Services.
- Nine businesses employed between 100-199 employees, of which three were within the Mining industry. The three businesses in the Accommodation/Café/restaurants/Food services industry and three in the Other Services industry were likely to have direct and indirect links to the Mining sector.

In comparison to the neighbouring Barcaldine RC LGA, the Central Highlands RC LGA has a significantly larger and more diverse business sector, employing a far larger workforce and involving firms with large employee bases. The significance of Mining in terms of direct and indirect employment is clearly evident.

Table 8 Business count by employee size for Barcaldine RC LGA June 2009[19]

Industry	Non employing	1-4 employees	5-19 employees	20-49 employees	50-99 employees	100-199 employees	200+ employees	Total
Agriculture Forestry & Fishing	266	83	24	-	3	-	-	376
Mining	-	3	-	-	-	-	-	3
Construction	24	9	9	-	-	-	-	42
Wholesale trade	-	3	-	-	-	-	-	3
Retail trade	12	6	12	-	-	-	-	30
Accommodation cafes &	6	3	-	-	-	-	-	9

[19] Source:ABS (2010), *Counts of Australian Businesses including Entries and Exits, June 2007 to June 2009,* Cat. No. 8165.0.

Industry	Non employing	1-4 employees	5-19 employees	20-49 employees	50-99 employees	100-199 employees	200+ employees	Total
restaurants								
Transport & storage	15	6	3	-	-	-	-	24
Financial and insurance	9	-	-	-	-	-	-	9
Rental, hiring & real estate	31	3	-	-	-	-	-	34
Professional, scientific & technical services	3	-	6	-	-	-	-	9
Administrative & Support services	3	-	-	-	-	-	-	3
Public Admin & safety	3	-	-	-	-	-	-	3
Education & training	-	3	-	-	-	-	-	3
Arts & Recreat' services	3	-	-	-	-	-	-	3
Other Services	6	6	3	-	-	-	-	15
Total	**381**	**125**	**57**	**0**	**3**	**0**	**0**	**566**

Table 9 Business count by employee size for Central Highlands RC LGA June 2009[20]

Industry	Non employing	1-4 employees	5-19 employees	20-49 employees	50-99 employees	100-199 employees	200+ employees	Total
Agriculture	892	219	73	9	3	-	-	1,196
Mining	45	28	3	9	-	3	-	88
Manufacturing	45	21	24	6	-	-	-	96
Electricity & Utilities	3	3	-	-	-	-	-	6
Construction	228	112	54	18	6	-	-	418
Wholesale trade	18	15	9	-	-	-	-	42
Retail trade	48	36	39	18	-	-	-	141
Accommodation cafes & restaurants	18	27	24	9	6	3	-	87
Transport & storage	73	45	18	3	-	-	-	139
Media & Communication	3	-	-	-	-	-	-	3
Financial and insurance	76	6	3	-	-	-	-	85

[20] Source:ABS (2010), *Counts of Australian Businesses including Entries and Exits, June 2007 to June 2009,* Cat. No. 8165.0.

Industry	Non employing	1-4 employees	5-19 employees	20-49 employees	50-99 employees	100-199 employees	200+ employees	Total
Rental, hiring & real estate	261	27	18	3	3	-	-	312
Professional, scientific & technical services	60	67	24	9	-	-	-	160
Administrative & Support services	30	28	12	6	-	-	-	76
Public Admin & safety	-	3	6	-	-	-	-	9
Education & training	3	9	9	-	-	-	-	21
Health care	18	9	6	3	-	-	-	36
Arts & Recreat' services	9	6	6	-	-	-	-	21
Other Services	82	66	45	12	-	3	-	208
Not Classified	30	15	-	3	-	-	-	48
Total	**1,942**	**742**	**373**	**108**	**18**	**9**	**0**	**3,192**

2.8.2 Types and numbers of businesses by turnover

Table 10 highlights the type and turnover of businesses within Barcaldine RC LGA. Key observations include:

- There was a total of 566 businesses recorded within the Barcaldine RC LGA in 2009
- The majority of businesses operated within the Agriculture, Forestry and Fishing sector (66.4%), followed by Construction (7.4%) and Rental/Hiring/Real Estate (6.0%)
- 227 (40%) businesses had a gross annual turnover of less than $100,000, while another 98 (17.3%) businesses had a turnover between $100,000 and $200,000
- 12 businesses had a gross turnover of between $2 million and $5 million (nine in the Agriculture, Forestry and Fishing industry and three in the Retail Trade industry)
- Six businesses (all Agriculture Forestry & Fishing) had a turnover of between $5 million and $10 million, while another three businesses (all Agriculture, Forestry and Fishing) had a turnover of between $10 million and $20 million

Table 10 Business count by gross turnover for the Barcaldine RC LGA (June 2009)[21]

Industry	$0 to $100 k	$100 k to $200 k	$200 k to $500 k	$500k to $1 m	$1 m to $2 m	$2 m to $5 m	$5 m to $10 m	$10 m to $20 m	Total
Agriculture, Forest' & Fishing	158	56	79	44	21	9	6	3	376
Mining	-	3	-	-	-	-	-	-	3
Construction	24	3	3	9	3	-	-	-	42
Wholesale trade	-	-	-	-	3	-	-	-	3

[21] Source: ABS (2010), *Counts of Australian Businesses, including Entries and Exits, June 2007 - June 2009*, Cat No. 8165.0

Industry	$0 to $100 k	$100 k to $200 k	$200 k to $500 k	$500k to $1 m	$1 m to $2 m	$2 m to $5 m	$5 m to $10 m	$10 m to $20 m	Total
Retail trade	12	-	3	9	3	3	-	-	30
Accommodation Cafes & restaurants	3	6	-	-	-	-	-	-	9
Transport and storage	6	9	6	3	-	-	-	-	24
Financial and insurance	9	-	-	-	-	-	-	-	9
Rental, Hiring & Real Estate Services	12	6	10	6	-	-	-	-	34
Professional & Technical services	-	-	6	3	-	-	-	-	9
Admin & Support services	-	3	-	-	-	-	-	-	3
Public Admin & Safety	-	3	-	-	-	-	-	-	3
Education & training	-	3	-	-	-	-	-	-	3
Arts & Recreational services	3	-	-	-	-	-	-	-	3
Other Services	-	6	6	3	-	-	-	-	15
Total Businesses	**227**	**98**	**113**	**77**	**30**	**12**	**6**	**3**	**566**

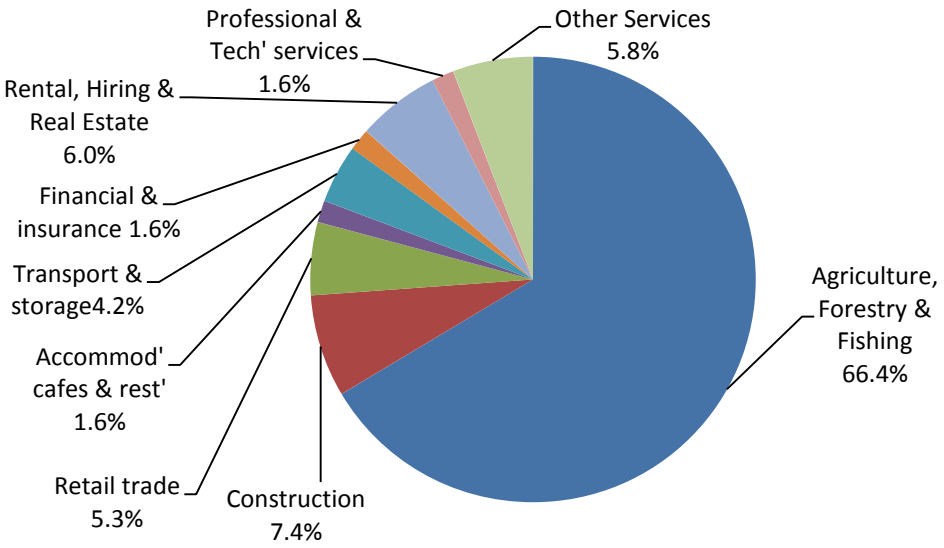

Figure 8 Breakdown of businesses in the Barcaldine RC LGA by industry

Table 11 indicates that three mining businesses existed within Barcaldine RC LGA in 2009 which were employed in the mining industry and which had an annual gross turnover of between $100,000 and $199,000. The mining sector also includes extractive resources and quarries.

Figure 9 below highlights the proportional breakdown of businesses by industry for the Barcaldine RC LGA against that of Central Highlands RC LGA and Queensland. The significance of the Agriculture, Forestry and Fishing sector in terms of business numbers is evident for Barcaldine RC LGA, and to a lesser degree, the Central Highlands RC LGA.

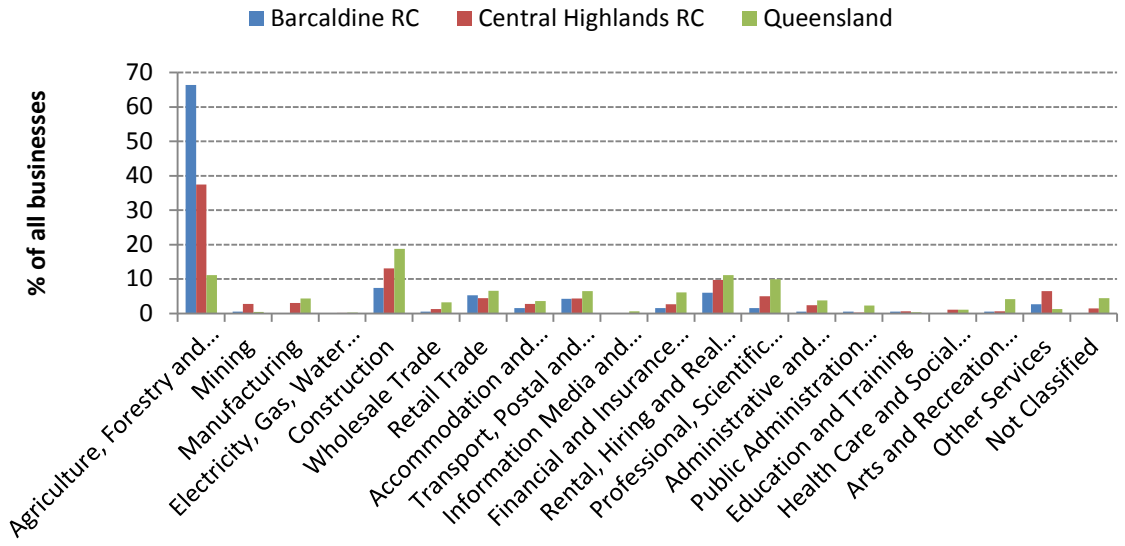

Figure 9 Business count by industry for selected regions

2.8.3 Key industries relevant to the project

Although a wide range of industries are likely to be impacted either directly or indirectly by the SGCP at the local, regional and State level, the following have been examined in more detail:

- Mining
- Manufacturing
- Construction
- Agriculture
- Mining support

Mining

Queensland's coal mining industry has grown rapidly in recent years with numerous new mines commencing over the past five years, growing from 43 in 2004-05 to 56 coal mines operating in 2009-10. In addition, a number of existing mines have substantially increased operations and production volumes. Figure 10 below illustrates that the growth in saleable coal production has also increased from approximately 170 million tonnes in 2005-06, to 205 million tonnes in 2009-10[22].

[22] Raw data sourced from Department of Employment, Economic Development and Innovation (Mining and Safety), *Yearly coal mining tables, 2009-10,* http://mines.industry.qld.gov.au/mining/coal-statistics.htm.

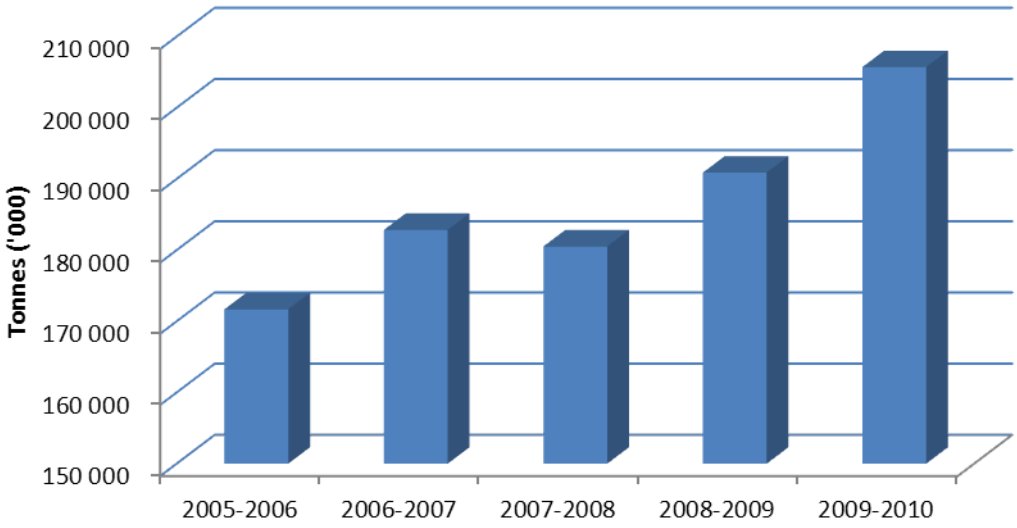

Figure 10 Overview of saleable coal production within Queensland[23]

Of the 205 million tonnes of saleable coal mined in 2009/10, 183 million tonnes (89%) was exported to 37 countries. The value of these exports in 2009/10 was $24.5 billion. An additional 22 million tonnes (predominantly thermal coal) was supplied to domestic markets (coal fired power stations). Figure 11 below highlights the substantial jump in coal export values for 2008-09 due to record high export coal prices. In 2009/10 market prices for coal eased, however Queensland exported an additional 23.7 million tonnes.

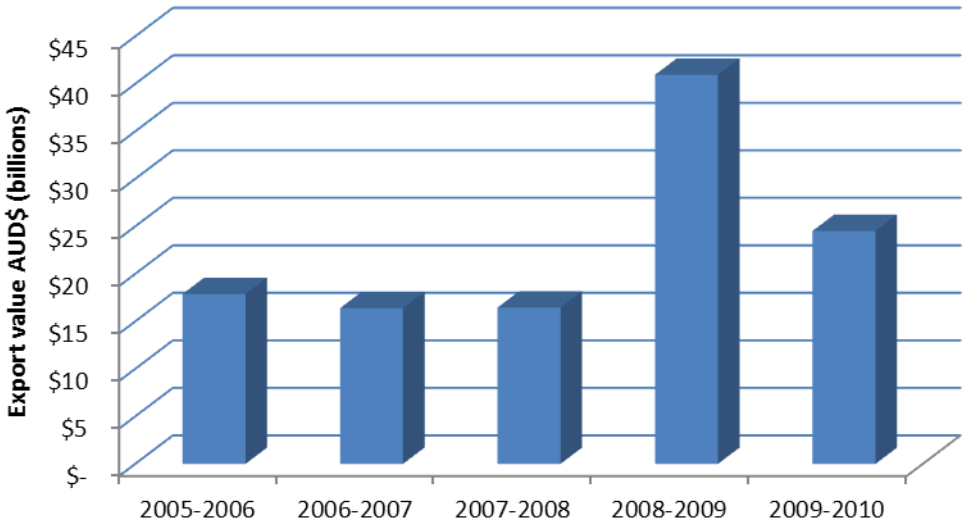

Figure 11 Value of coal exports from Queensland[24]

[23] Raw data sourced from Department of Employment, Economic Development and Innovation (Mining and Safety), *Coal Statistics, Table 1 Queensland coal industry 5 year summary*. *www.dme.qld.gov.au/mines/coal_statistics.cfm,* and Department of Mines and Energy (2007), Queensland's world-class Coals, Mine Production and Developments, Report published November 2007.

[24] Department of Employment, Economic Development and Innovation (Mining and Safety), *Coal Statistics, Table 1 Queensland coal industry 5 year summary*. *www.dme.qld.gov.au/mines/coal_statistics.cfm,* and Department of Mines and Energy (2007), Queensland's world-class Coals, Mine Production and Developments, Report published November 2007.

Queensland's coal mining industry comprises three distinct geographic regions: Northern, Central and Southern. The SGCP is located within the Central Queensland cluster which includes Mackay, Fitzroy and Central West SD, and currently has 49 operating coal mines.

Figure 12 below provides an overview of coal production from the Central Queensland zone, along with coal production out of the Southern and Northern zones. Over the five year period between 2005-06 and 2009-10, coal production has grown across all regions. In 2009-10 the Central region produced over 82 million tonnes of saleable coal, representing 40% of the State's total.

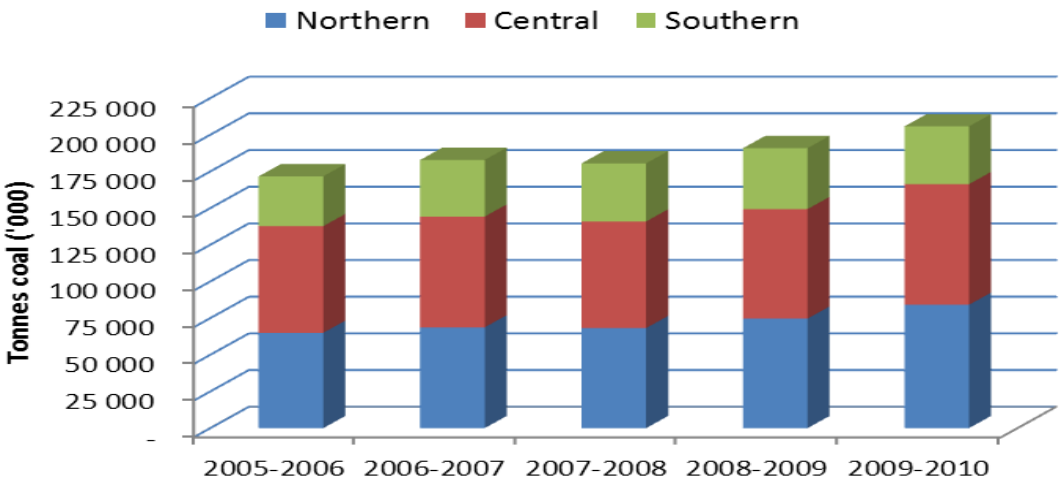

Figure 12 Overview of saleable coal production within Queensland by production zone[25]

The significance of mining to the Queensland economy is highlighted below in Figure 13. In 2000, Manufacturing was the largest sector valued at approximately $10.4 billion, while mining was the sixth largest sector at $5.7 billion. In 2010 mining had grown to be the largest sector valued at $23.5 billion, with manufacturing second at $18.5 billion.

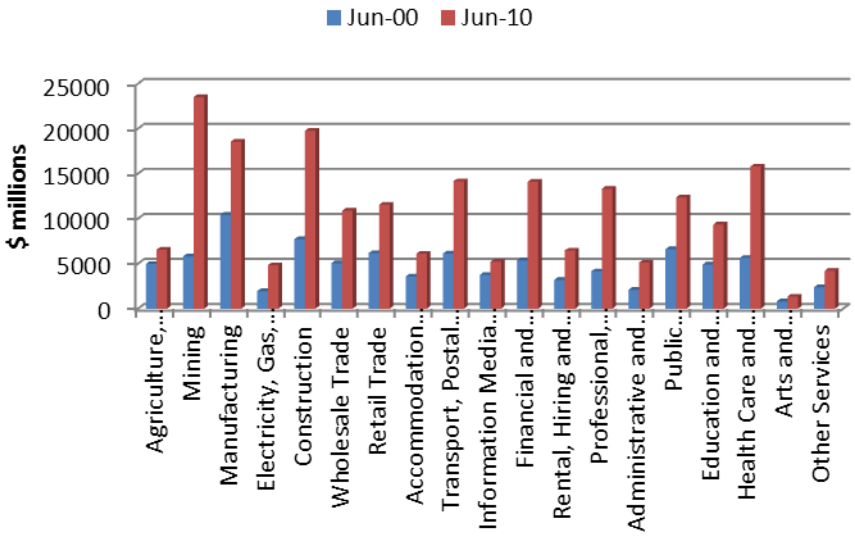

Figure 13 Total factor income by industry group within Queensland[26]

[25] Department of Employment, Economic Development and Innovation (Mining and Safety), *Coal Statistics, Table 1 Queensland coal industry 5 year summary www.dme.qld.gov.au/mines/coal_statistics.cfm*

With a number of new mining activities and proposed expansion of existing mines (including energy and LNG), the significance of the Mining industry in terms of employment, value-adding and income will continue to grow rapidly in comparison to all other sectors of the Queensland economy.

In terms of employment within the Mining sector, forecast growth over the next two years is predicted to see mining employment grow from 43,100 in 2009-10 to 50,000 by 2011-12 (OESR 2010).

Manufacturing

The manufacturing sector is heavily linked to the Mining sector in terms of providing products and services, and also in terms of sourcing inputs (eg iron ore) for manufacturing.

In 2010 the Manufacturing sector was the second most significant industry in terms of economic activity within Queensland after mining (Figure 13 above). The sector grew from $10.4 billion in 2000 to $18.5 billion in 2010, an increase of over $8 billion. Employment growth is forecast to see the workforce within the manufacturing industry grow from 180,800 in 2009-10 to 189,600 by 2011-12 (OESR 2010).

Construction

The Construction sector is also significant in terms of jobs and income across the study area. Table 11 below highlights the significance of the Construction sector across the study area. Within the Barcaldine RC LGA, building approvals were heavily skewed towards non-residential construction, while within the Central Highlands RC LGA Construction was evenly split between residential and non-residential.

Table 11 Significance of construction activities across the study region[27]

	Barcaldine RC LGA	Central Highlands RC LGA	Queensland
Proportion of local workforce (2005-06)	6.2%	9.3%	9.0%
Value of residential construction approvals for the 12 months ending June 2011 (proportion %)	$3.9 m (90%)	$47.2 m (50.6%)	$8.0 billion (54.8%)
Value of non-residential construction approvals for the 12 months ending June 2011 (proportion %)	$0.43 m (10%)	$46.1m (49.4%)	$6.6 billion (45.2%)

It is estimated that a large proportion of the construction activity illustrated above in Table 11 is linked to mining activity in the following ways:

- Directly, with on mine site construction of accommodation camps, amenities, offices, sheds, roads and other mine related infrastructure
- Indirectly, with the construction of private dwellings in local townships to house mining employees and their families
- Indirectly, with the construction of commercial shop fronts, offices, sheds and supporting infrastructure in neighbouring townships accommodating mining support businesses

[26] Source: ABS (2011), Australian National Accounts: State Accounts, Table 4 Expenditure, Income and Industry Components of Gross State Product, Queensland, Cat. No 5220.0.

[27] Data sourced from Office of Economic and Statistical Research, Queensland Government. *Queensland Regional Profile*, on-line database, and ABS, *Building Approvals, Queensland, June 1011* (Cat. no. 8731.0)

Agriculture forestry and fishing

As indicated earlier, agriculture, forestry and fishing is the dominant industry in the local and regional study areas, particularly within Barcaldine RC LGA. Table 12 provides a summary of the key production and economic statistics pertaining to agriculture forestry and fishing across the study areas.

Note that the statistics highlighted in Table 12 relate only to farm gate production. There are significant economic activities (jobs and income) generated off farm along the food and fibre value chain within the local communities, particularly within processing and manufacturing (meat processing, cotton ginning, etc.).

Table 12 Significance of agricultural activities across the study areas[28]

	Barcaldine RC LGA	Central Highlands RC LGA	Fitzroy SD	Queensland
Number of employees engaged in Agriculture in 2005-06 (% of total workforce)	547 33.5%	1,720 12.2%	4,727 5.4%	61,735 3.4%
Number of Businesses engaged in Agriculture in 2005-06 (% of total businesses in region)	378 66.7%	1,185 39.6%	4,119 26.0%	46,624 11.1%
Value of Crops (2005-06) (% of total agriculture output)	$2.7 m 2.5%	$133.1m 29.6%	$220.7m 26.3%	$4.17 billion 47.9%
Value of livestock (2005-06) (% of total agriculture output)	$97.0 m 88.5%	$316.1m 70.3%	$612.9m 73.0%	$4.13 billion 47.4%
Value of livestock products (2005-06) (% of total agriculture output)	$9.9m 9.1%	$0.4m 0.1%	$6.5m 0.8%	$415 4.8%
Total value of agriculture (2005-06)	$109.6m	$449.6m	$840.1m	$8.7 billion

Barcaldine RC LGA

Agriculture, Forestry & Fishing forms the backbone of the economy in the Barcaldine RC LGA, particularly in terms of employment and income. As indicated in Table 12, one third of registered businesses in 2005-06 were engaged in the Agriculture, Forestry & Fishing industry along with two-thirds of all employment positions.

Due to limited water supplies (other than for stock purposes), low rainfall, and high variability in rainfall, it is unlikely that alternative agricultural practices will ever displace the existing extensive grazing (beef and sheep) systems.

Central Highlands RC LGA

In 2005-06 the value of Agriculture, Forestry & Fishing at the farm gate was approximately $450 million. Although the Agriculture, Forestry & Fishing industry dominates in terms of the number of businesses engaged (39%), it only engaged 12.2% of the local workforce (whereas mining engaged 22.3%).

As rainfall across parts of the Central Highlands RC LGA is generally higher than in the Barcaldine RC LGA, and water is available from the Fairbairn Dam and Emerald Irrigation Scheme, a wider variety of agricultural (cropping) activities are undertaken. In 2005-06 approximately $133 million of cropping was undertaken which included $47.6 million in cotton, $47.1 million in cereal grains, $9.5 million in

[28] Source: ABS, *Agricultural Commodities, Australia, 2005-06*, (Cat. no. 7125.0)

grapes, $6.6 million in legumes and $2.5 million in hay production. Many of these crops would have been under irrigation.

Mining and support services

The coal mining sector invests heavily in mining equipment, production materials and skilled labour given its highly mechanised extractive and bulk handling tasks. Servicing mining equipment and on-site facilities and infrastructure requires a wide array of products and services from other business sectors, many of which will be sourced from within the region, particularly Emerald, Rockhampton, and Gladstone. Other key sectors that rely on mining activity for income (other than construction and manufacturing mentioned above) include property and business services, transport, accommodation & food service, professional scientific and technical services, retail, wholesale and retail trade, education and training, financial and insurance services, and Information and Telecommunications. Therefore, the mining industry's total contribution to local and state economies is well above the direct contributions identified earlier.

A number of specialised inputs such as mining engineering support services are more likely to be sourced from larger business centres such as Rockhampton, Mackay, Gladstone and Brisbane.

2.9 Size of the regional economy

An overview of the state' economy was highlighted earlier within Figure 13. In 2010 the Mining industry dominated in terms of total factor income (economic income and value adding), valued at $23.5 billion. The next largest sector is manufacturing valued at $18.5 billion.

Of interest to this project is the size of local and regional economies related to SGCP. The most readily available information regarding local economies is Gross Regional Product (GRP) reported by the Queensland Government (Treasury) at the Statistical Division (SD) level. The latest information available relates to 2005/06.

The SGCP is located within the Central West SD. The neighbouring Fitzroy SD is expected to potentially provide substantial business and economic links. Table 13 and 14 below highlights the regional economies of Central West SD and Fitzroy SD for 2000-2001 and 2005-06.

Table 13 Composition of GRP by industry for Central West SD (current prices)[29]

Industry	2000-2001		2005-06		Change in composition
	($m)	(%)	($m)	(%)	(Percentage points)
Agriculture, forestry and fishing	276.9	35.7	230.6	41.4	5.7
Mining	21.7	2.8	18.4	3.3	0.5
Manufacturing	6.2	0.8	2.2	0.4	–0.4
Electricity, gas and water	12.4	1.6	14.5	2.6	1.0
Construction	68.3	8.8	27.9	5.0	–3.8
Wholesale trade	26.4	3.4	11.7	2.1	–1.3
Retail trade	46.5	6.0	26.7	4.8	–1.2
Accommodation, cafes and restaurants	26.4	3.4	17.8	3.2	–0.2
Transport and storage	38.8	5.0	25.6	4.6	–0.4

[29] Source: Office of Economic and Statistical Research, Queensland Treasury, *Experimental Estimates of Gross Regional Product, 2005-06*

Industry	2000-2001		2005-06		Change in composition
	($m)	(%)	($m)	(%)	(Percentage points)
Communication services	18.6	2.4	10.6	1.9	–0.5
Finance and insurance	17.1	2.2	10.6	1.9	–0.3
Property and business services	38.0	4.9	15.0	2.7	–2.2
Government administration and defence	43.4	5.6	46.8	8.4	2.8
Education	38.8	5.0	26.7	4.8	–0.2
Health and community services	38.0	4.9	32.9	5.9	1.0
Cultural and recreational services	6.2	0.8	5.6	1.0	0.2
Personal and other services	14.7	1.9	10.6	1.9	0.0
Ownership of dwellings	35.7	4.6	22.8	4.1	–0.5
Gross value added	**774**	**100**	**557**	**100**	

Key observations from Table 13 for Central West SD:

- The economy contracted from $774 million in 2000-01 to $557 million in 2005-06
- All sectors with the exception of utilities and government administration and defence contracted in absolute terms
- Agriculture, forestry and fishing is by far the largest contributor to the economy, representing 41.4% of GRP in 2005-06, followed by Government Administration and defence at 8.4%

Table 14 Composition of GRP by industry for Fitzroy SD (current prices)[30]

Industry	2000-2001		2005-06		Change in composition
	($m)	(%)	($m)	(%)	(Percentage points)
Agriculture, forestry and fishing	$889.3	7.4	$508.0	3.6	–3.8
Mining	$2,559.6	21.3	$5,546.0	39.3	18.0
Manufacturing	$1,562.2	13.0	$1,439.4	10.2	–2.8
Electricity, gas and water	$1,153.6	9.6	$832.6	5.9	–3.7
Construction	$636.9	5.3	$959.6	6.8	1.5
Wholesale trade	$492.7	4.1	$381.0	2.7	–1.4
Retail trade	$648.9	5.4	$592.7	4.2	–1.2
Accommodation, cafes and restaurants	$276.4	2.3	$239.9	1.7	–0.6
Transport and storage	$672.9	5.6	$677.4	4.8	–0.8
Communication services	$180.3	1.5	$127.0	0.9	–0.6
Finance and insurance	$264.4	2.2	$282.2	2.0	–0.2

[30] Source: Office of Economic and Statistical Research, Queensland Treasury, *Experimental Estimates of Gross Regional Product, 2005-06*

Industry	2000-2001		2005-06		Change in composition
	($m)	(%)	($m)	(%)	(Percentage points)
Property and business services	$612.9	5.1	$606.8	4.3	–0.8
Government administration and defence	$264.4	2.2	$268.1	1.9	–0.3
Education	$504.7	4.2	$451.6	3.2	–1.0
Health and community services	$468.7	3.9	$437.5	3.1	–0.8
Cultural and recreational services	$60.1	0.5	$56.4	0.4	–0.1
Personal and other services	$192.3	1.6	$169.3	1.2	–0.4
Ownership of dwellings	$600.8	5.0	$550.4	3.9	–1.1
Gross value added	**$12,041.0**	**100.0**	**$14,126.0**	**100.0**	

Key observations from Table 14 for Fitzroy SD:

- The economy expanded from $12.0 billion in 2000-01 to $14.1 billion in 2005-06
- All sectors with the exception of mining, construction, transport, finance and government contracted in absolute terms
- The economic contribution of mining to the economy more than double from $2.6 billion in 2000-2001 to $5.5 billion in 2005-06
- The significance of mining to the local economy expanded from 21.3% (2000-01) to 39.3% (2005-06)
- Construction was the only other sector to have grown in relative terms between 2000-01 and 2005-06, with mining likely to have driven demand directly and indirectly for residential and commercial construction within the region

Table 15 below provides an overview of employment growth for a range of SDs, providing an indication of economic growth. The Central West SD experienced a contraction in employment of -1.1% in 2009-10 and was forecast to contract in 2010-11 by -0.1%. In 2011-12 positive employment growth was forecast at 1.2%. As indicated earlier, mining dominates the economy of the Fitzroy SD. Although Fitzroy's employment workforce was projected to have contracted by -0.8% in 2009-10, strong growth of 5.0% in 2010-11 and 7.4% in 2011-12 was forecast, which along with Mackay (which also has a significantly expanding mining sector) are projected to expand most rapidly going forward.

Table 15 Projected employment growth[31]

Statistical Division	2009-10 (%)	2010-11 (%)	2011-12 (%)
Brisbane	0.7	2.2	2.6
Moreton	1.5	3.9	4.0
Wide Bay-Burnett	0.8	2.6	3.1
Darling Downs	1.3	1.7	2.4
South West	0.0	0.5	2.0
Fitzroy	-0.8	5.0	7.4
Central West	-1.1	-0.1	1.2

[31] Source: Office of Economic and Statistical Research, Queensland Treasury, *Queensland Employment Projections by Industry and Statistical Division, 2009-10 to 2011-12, Summary Report, August 2010.*

Statistical Division	2009-10 (%)	2010-11 (%)	2011-12 (%)
Mackay	-0.5	5.8	5.9
Northern	1.0	2.9	2.5
Far North	0.9	2.4	2.7
North West	-3.4	2.6	1.7

2.10 Other potential economic development opportunities

Within the Central Queensland region (as defined by DEEDI Mines & Energy, and including the Statistical Division areas of Central West, Mackay and Fitzroy), there are a wide array of new proposed mining and energy projects as highlighted below in Figure 14.

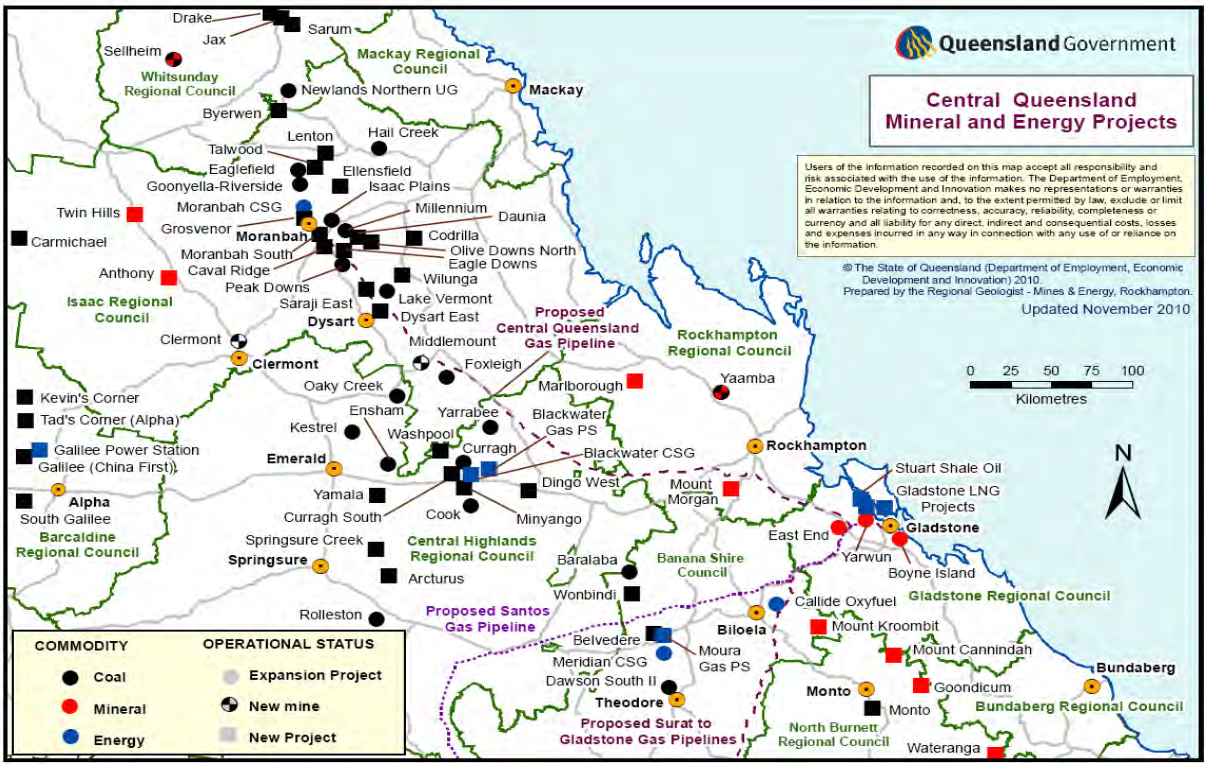

Figure 14 Central Queensland minerals & energy projects[32]

As illustrated below in Table 16, there are 48 coal proposals over the next six years (2012-2017), including expansions of existing mining operations and proposed new mines. The sum capital expenditure total for these coal projects is in excess of $35 billion+, boosting capacity by over 410 Mt.

Table 16 Summary of Central Queensland coal development projects[33]

Expected Start-up Date	Number of Projects	Estimated Cap Expenditure	New Capacity
2012	9	$2,417m ++	43.7 Mt
2013	17	$6,309m ++	68.3 Mt
2014	14	$17,080m ++	206.5 Mt

[32] Source: Department of Employment, Economic Development and Innovation (Mines and Energy). Nov 2010 Quarterly Report.
[33] Source: Department of Employment, Economic Development and Innovation (Mines and Energy). Nov 2010 Quarterly Report.

Expected Start-up Date	Number of Projects	Estimated Cap Expenditure	New Capacity
2015	5	$4,850m ++	75 Mt
2016	2	$3,800m	12.0 Mt
2017	1	$1,300m	4.5 Mt

Figure 15 below highlights current exploration and mining projects within the Galilee Basin, including:

- SGCP
- Galilee Coal Project (proposed by Waratah Coal) - open-cut and underground coal mine (capacity of 40 Mtpa), development of a railway line from the mine near Alpha to the Abbot Point State Development Area (APSDA) near Bowen (447 km standard gauge railway line), a coal stockyard and transfer infrastructure (at APSDA) and ship berths (within the proposed multi cargo Facility at the Port of Abbot Point). Total investment of $7.63 billion, providing 6000 jobs during construction and 1500 jobs once operational. Projected completion date of 2014.
- Kevin's Corner (initially proposed by Hancock Galilee Pty Ltd and recently acquired by GVK) - open-cut and underground coal mine adjoining the Alpha Coal Mine site (north west of Alpha). Proposed capacity up to 30 million tonnes per annum. The proposal also includes a rail load-out facility, and a rail spur (to link with Alpha Cola mine site). Total investment of $6.6 billion, providing up to 2,500 construction jobs, and 2,000 operational positions, expected completion 2013.
- Alpha Coal Project (initially proposed by Hancock Prospecting Pty Ltd and recently acquired by GVK) - open-cut coal mine 40 km north west of Alpha, with initial export capacity of 30 million tonnes per annum. The proposal also includes a new 495 km railway, new port facility at Abbot Point, and water and electricity infrastructure. Total investment of $7.9 billion (mine $3.4 billion, rail $2.8 billion and port $1.7 billion), providing 3,740 construction jobs, and 2,650 operational positions, expected completion 2013.
- Carmichael Coal Mine and Railway (proposed by Adani Mining Pty Ltd) - open-cut and underground coal mine with a yield of 60 Mtpa (from 2022) and railway line to the Port of Hay Point

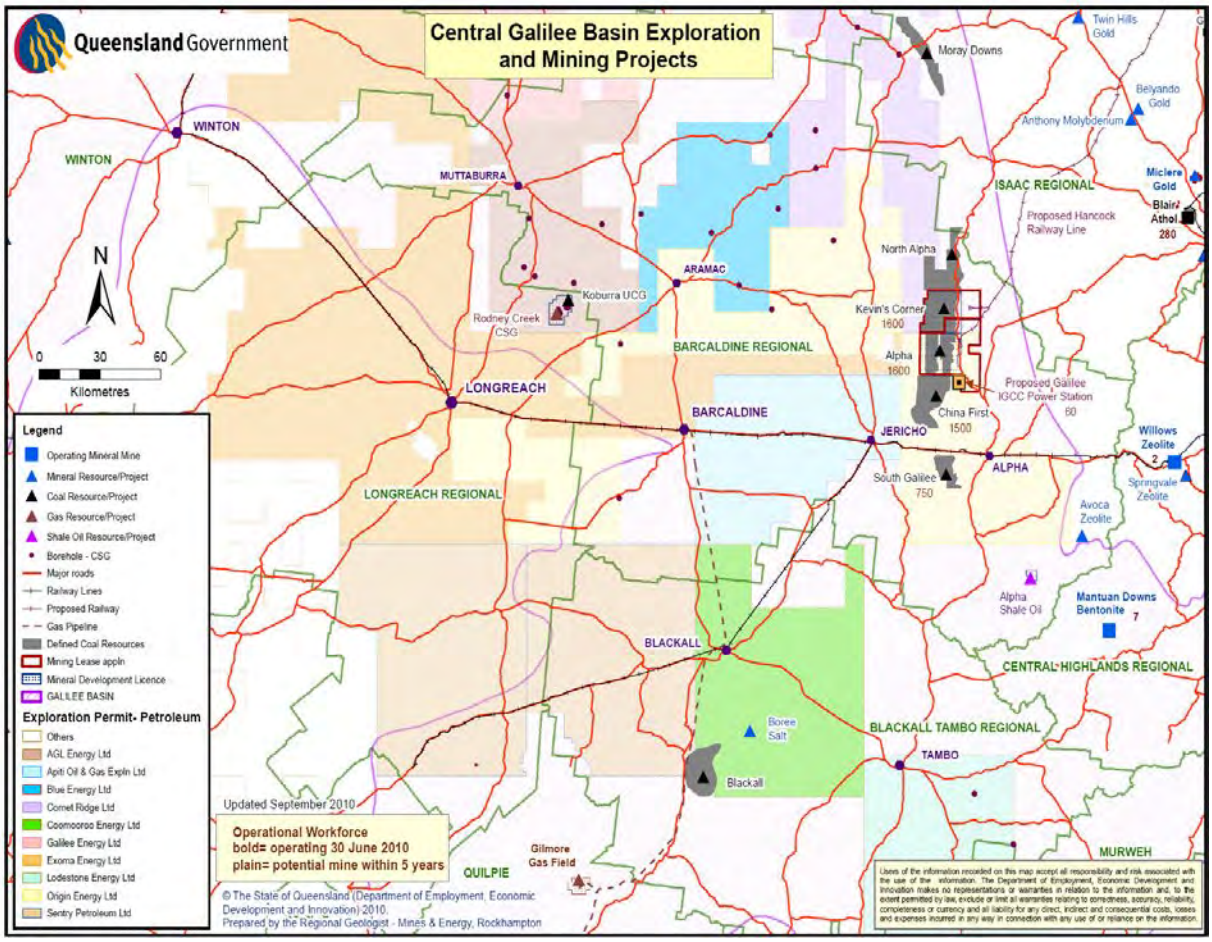

Figure 15 Proposed coal projects within the Galilee Basin[34]

In addition to the numerous mining projects highlighted above across the Central region, there are also a number of infrastructure proposals (identified by the Coordinator-General as significant projects) that impact upon the SGCP including:

- Galilee Basin Power Station. Proposed for development 30 km north west of Alpha, it will consist of two 450MW modules, with construction of the second dependent on demand, and also include geosequestration of CO^2 in western Galilee Basin. Expected completion is 2017, will provide 1000 jobs during construction, and 60 when operational. Investment of $1.25 billion (excluding geosequestration costs).
- IsaLink High Voltage Direct Transmission Line (Stage 1). An 1100km high voltage direct current transmission line connecting Queensland's North West Minerals Province to the National Electricity Market. It will extend from Rockhampton to Mount Isa to the Ernest Henry Mine near Cloncurry. An investment of $800 million and 300 staff for construction is proposed.

[34] Source: Department of Employment, Economic Development and Innovation (Mines and Energy).

3 Project economic environment

The following section examines in detail the proposed SGCP development, and its economic impacts on local and regional economies and Queensland. The analysis identifies changes in output, income; employment and value added that is either directly and/or indirectly linked to the SGCP development.

3.1 Purpose of SGCP

Table 17 below highlights the key operating parameters of SGCP impacting the economic environment.

Table 17 Key features of the proposed SGCP

Item	SGCP
Coal resource	Two primary target seams (D1 and D2 seams), interpreted to consist of three plies varying in thickness from 0.5 to 4.5m and containing sub-bituminous high volatile perhydrous coals. The resource in the two seams is estimated at approximately 1,179 Mt (includes measured, indicated and inferred resource).
Mine life	2015 - 2047
Mining method	Multiple mining operations including both open pit and underground
Mining rate capacity	Up to 17 Mtpa
Projected Capex	$3.7 billion
Projected Opex	$21.4 billion
Water supply	Connors River Dam and Pipeline, Moranbah to Alpha Pipeline and on-site (eg. combination of groundwater, dewatering, surface water harvesting).
Rail	SGCP will rely on third party access to any railway line built to transport coal from Galilee Basin to Abbot Point.
Port	Abbot Point Coal Terminal (APCT)
Mine workforce	Up to 1,600 during construction Up to 1,288 during operations

3.2 Economic Impact Assessment

Linear Input-Output (I-O) modelling is utilised to examine the direct and indirect impacts associated with the construction and operation of the SGCP upon the state economy, in terms of output, household income, value added, and employment. In relation to the generation of employment numbers, I-O modelling assumes past relationships between expenditures employment numbers at the state level, and these direct employment numbers may differ to actual project employment projection numbers for the project as outlined in detailed feasibility studies.

Specifically economic aggregates were presented including:

- Direct: increase in economic activity directly generated in the industry receiving the stimulus

- Indirect – Industrial Support: flow-on impacts from industries that support the directly impacted industries

Note that I-O modelling has the capacity to identify second round indirect impacts referred to as consumption-induced. However, as it usually involves a degree of double counting the measured impacts, it has been excluded from this analysis.

The I-O model developed for this project utilised the National 2006-07 I-O tables, Queensland State Accounts and various ABS Census data to impute an I-O table that was representative of the Queensland economy for the purposes of modelling the economic impacts of SGCP. For more information regarding I-O modelling, see Appendix A.

3.3 Projected product coal production

The SGCP execution will involve a staged ramp-up to the maximum production level of 17 Mtpa, as described below in Table 18.

Table 18 Projected product coal production

Element	Stage 1	Stage 2	Stage 3
Approximate Provisional Commencement Date of Mine Stage	2015	2017	2019
Product Coal	Up to 5 Mtpa	Up to 10 Mtpa	Up to 17 Mtpa
Mining Method	Open cut mining	Open cut and underground mining	Open cut and underground mining

3.4 I-O modelling phases

For economic modelling purposes, the following three phases involving construction and/or operations have been used:

- Modelling Phase One: Construction, covering the period between 2013 and 2014 (inclusive). Predominantly Capex activities are incurred in Phase 1 including site preparation, access roads, water (boring, pumps, treatment facility), accommodation village, generator mobilisation, early works sediment dam, piping/underground services, dragline pad, on-site high voltage power (transformers, switchgear, etc.), materials handling, storages and warehousing, administration/offices, etc.
- Modelling Phase Two: Operational ramp-up of production: covering the period between 2015 and 2018 (inclusive). This covers the initial four years of mining operations in which production rates start at 5.4 Mtpa product coal in 2015 and increase to 10.7 Mtpa product coal in 2018.
- Modelling Phase Three: Operational production maturity: covering the period between 2019 and 2047 (inclusive). This covers the main operational period of the SCCP with production rising from 12.9 Mtpa product coal in 2019 to a peak production rate of 16.58 Mtpa in 2024, before ceasing production in 2047 at 9.6 Mtpa.

3.5 Economic impact areas

The SGCP has the potential to positively impact the local, state and national economies. At the local Barcaldine RC LGA level, there will be a minor increase in the demand for labour, local services and supplies. Due to the limitation of small area data and limitations with I-O modelling, the economic

impacts for the local community have been based solely upon an assessment of mining employee income of those expected to reside locally.

Demand from the mine site for employees, goods and services are expected to spill over into the wider region.

At the State level, there will be substantial increases in mining royalties, rail freight and port handling charges, as well as demand for medium and large sized businesses from across the state supplying products and services to the mining industry. In addition, the FIFO workforce will be sourced from various locations throughout Queensland, as described in Section 2.3.

At the national level, the increased coal production will raise Australia's coal exports and tax revenues, having a positive impact on the national trade balance and Federal budget.

For each of the economic modelling phases, namely Phase One, Phase Two and Phase Three, the economic impacts of the SGCP are individually examined based on projected direct expenditure (less purchases on products/equipment sourced from overseas) on labour, goods and services. I-O modelling was utilised to examine the indirect flow-on implications in terms of total output, household income, value added effects, and employment to the Queensland's economy.

This analysis also examines the proposed economic outputs of the SGCP, and identifies the financial and economic implications for:

- Service providers along the transportation value chain, particularly rail and port operators
- All levels of governments (particularly state and federal), both in terms of potential costs associated with the requirement to provide additional infrastructure and service support, and also potential sources of additional revenue (associated charges and tax streams).

3.6 Proposed mining expenditure

AMCI provided the detailed capital expenditure (Capex) and operating expenditure (Opex) projections.

3.6.1 Capex

Proposed total Capex for the SGCP is approximately $4.2 billion over the life of the project. The Pre-Feasibility Study (PFS) provided a disaggregation of this total Capex by input cost item as highlighted below in Table 19. For the purposes of only capturing expenditure on goods and services of local content for I-O modelling, itemised expenditure proposals under each of the headings (and by site location) has been estimated the proportion of Capex spent related to local goods and services only.

Table 19 Summary of Capex for SGCP

Project	Labour	Construction plant	Materials	Equipment	Freight	Subcontract[3]
Total Capex costs[1]	$539.7m	$200.5m	$1,386.6m	$965.0m	$3.1m	$1,093.1m
Mining[2]	20%		5%			11%
Manufacturing[2]	17.5%	60%	65%	30%		13.5%
Electricity, gas, Utilities[2]	5%					
Construction[2]	57.5%					64%
Transport[2]					100%	

Project	Labour	Construction plant	Materials	Equipment	Freight	Subcontract[3]
Rental, Hiring & real estate[2]						1.5%
% imported[2]	- %	40%	30%	70%	- %	10%
Total	100%	100%	100%	100%	100%	100%

[1] Source: Attachment 17A, SGCP PFS.
[2] Aurecon Hatch estimates based on review of item descriptions
[3] Costs associated with external parties constructing the on-site accommodation village, and the construction of rail and port facilities off-site.

Having identified the amount of expenditure pertaining to the purchase of local goods and services, expenditures to industry sectors was calculated based on the type of activity represented, rather than allocating the expenses to industry sectors based on the type of the enterprise involved in the transaction (for the purposes of I-O modelling).

In terms of the estimated Capex labour expenditure of $539.7 million over the course of the project, the staff engaged would most likely be sourced totally from construction related firms. However, for the purposes of I-O modelling, the labour sector has been disaggregated to better reflect the activity and sector contribution. These labour costs have been disaggregated in the following way:

- 57.5% of the labour cost is assigned to the construction sector, to highlight that the majority of labour engaged for the Capex activities are likely to be construction labourers
- 20% of the labour cost assigned to the mining sector, representing onsite employees undertaking specific tasks related to mine pit preparation (extraction of topsoil for open mine pit, extraction of quarry materials for roads on facilities at the mine site), and mining services
- 17.5% of the labour cost assigned to the manufacturing sector, representing onsite employees undertaking on site fabrication and assembly activities related to equipment and facilities (therefore linked to light manufacturing sector under I-O analysis)
- 5% of the labour cost assigned to the electricity, gas and utilities sector, representing onsite employees undertaking specific tasks related to fit-out of utilities (power & water) at the mine site, particularly electricity/power supply

At the time of modelling annualised Capex expenditure was not available. Based on a desktop review of proposed activities and total expenditures, an estimate of disaggregated Capex expenditure was modelled as follows:

- 49% of Capex in Phase One: Construction (2013 and 2014)
- 41% of Capex in Phase Two: Ramping Up Production (Operational): (2015 to 2018)
- 10% of Capex in Phase Three: Production Maturity (Operational): (2019 to 2047)

3.6.2 Opex

Projected total Opex for the SGCP is approximately $21.7 billion over the life of the project (2015 to 2047 inclusive). For the purposes of the I-O modelling, Opex specifically related only to the purchase of local goods and services were analysed and incorporated as economic stimuli.

Note that the PFS for the SGCP incorporated annual royalty payments as an Opex expense, but these have been excluded for the purposes of I-O modelling on the basis that taxes/royalties themselves do not directly create jobs and income.

The PFS financial modelling was based upon a comprehensive bottom-up approach, in which inputs such as labour were modelled on an hourly basis. Similarly, equipment, facilities, etc. were modelled on a per item basis, and associated energy/fuel/water requirements were comprehensively identified based on the number of equipment/facilities engaged.

Table 20 below highlights the disaggregation of projected Opex by mine site function, being mining, handling and processing, rail and port charges, and other (management and support services).

Table 20 Summary of Opex for SGCP (over 2015 to 2047)[35]

Project	Total expenditure
Mining	$10.3 billion
Handling & Processing	$1.9 billion
On-site supporting infrastructure	$2.8 billion
Rail & ports charges	$5.9 billion
Other: Administration, Management, Support services, Workplace & Safety, Training, etc.	$0.8 billion
Total	$21.7 billion

For each of the key functions listed above in Table 20, substantial detail was modelled in terms of main input costs defined as labour, plant (R&M), electricity, fuel, water, consumables, and overheads.

For the I-O modelling, the input costs categories have been estimated against key functions listed above in Table 20, in order to apportion each input expense against the likely source for the product/services. For example, the rail and port charges are all attributed against the transport sector within the I-O model highlighting that the transport sector is the key industry providing those services, and therefore accruing the rail and port charges arising from the transport of SGCP coal.

3.7 Economic benefits identified by I-O modelling

3.7.1 Phase One: Construction (2013 to 2014)

The construction phase is set to commence in 2013 once approvals are received, and extend out to the end of 2014. As indicated earlier, a number of on-site activities are planned including site preparation, access roads, water (boring, pumps, treatment facility), accommodation village, generator mobilisation, early works sediment dam, piping/underground services, dragline pad, on-site high voltage power (transformers, switchgear), materials handling, storages and warehousing, administration/offices, etc.

Key modelling input assumptions for Phase 1 are as follows:

- Total projected Capex expenditure over this two year period is $2.03 billion
- It is estimated that only $1.55 billion is likely to be locally sourced (remaining $0.48 billion consisting of imports, excluded from the modelling)
- Modelling an annual average of $773 million per annum as the direct economic stimulus (via expenditure) on local goods and services

The following table summarises the Phase One “Construction” (2013 – 2014) impact of the SGCP annualised construction expenditure on the Queensland and national economies.

[35] Source: Attachment 18A, South Galilee Coal Project, Pre-feasibility Study.

Table 21 Annual economic impact of Phase One

	Value added ($m)	Income[2] ($m)	Employment (FTE persons)	Output ($m)
Mining	$106.73	$17.72	146	$180.65
Manufacturing	$156.70	$82.39	999	$535.58
Electricity, Gas, Water & Waste Services	$15.92	$5.47	61	$31.59
Construction	$171.61	$74.73	1,139	$501.05
Wholesale Trade	$23.11	$14.66	96	$51.53
Retail Trade	$9.21	$6.06	59	$15.97
Accommodation & Food Services	$4.31	$2.44	31	$9.11
Transport, Postal and Warehousing	$34.86	$14.87	161	$70.80
Information Media & Telecommunications	$7.12	$2.43	20	$14.62
Financial & Insurance services	$25.73	$12.07	50	$33.67
Rental, Hiring & Real Estate Services	$21.89	$8.21	88	$40.72
Professional, Scientific & Technical Services	$33.97	$24.74	201	$71.85
Administrative & Support Services	$15.46	$13.36	86	$29.84
Public Administration & Safety	$4.93	$3.86	38	$8.08
Other[1]	$15.56	$8.46	119	$32.11
Direct impact	$265.75	$114.78	1,505	$773.35
Indirect – Industrial support	$381.36	$176.69	1,791	$853.82
Total Queensland	$647.11	$291.47	3,296	$1,627.15
Rest of Australia	$54.84	$9.34	132	$200.32
Total Australia	**$701.95**	**$300.81**	**3,428**	**$1,827.47**

[1]*Includes the sectors of Agriculture Forestry & Fishing, Education & Training, Health Care & social assistance, Arts & recreational services, and Other services.*
[2]*Defined as Compensation of Employees (wages and salaries)*
FTE = Full Time equivalent employment positions for one year
Source: Aurecon Hatch

The economic impacts resulting from direct project expenditure of $1.55 billion ($773 million per annum) on the Queensland economy during Phase One "Construction" over two years are estimated to:

- Increase total output across all industries by $3.3 billion ($1.63 billion per annum)
- Increase household income by $583 million ($291.5 million per annum)
- Create direct employment opportunities for 1,505 FTE, and another 1,791 indirect FTE positions
- Increase Gross State Product by $1.29 billion ($647.1 million per annum)

Nationally and inclusive of the above Queensland impacts, the SGCP Phase One will:

- increase total output across all industries by $3.7 billion ($1.827 billion per annum)
- increase household income by $601 million ($300 million per annum)
- support the creation of 3,428 FTE's nationally
- increase Gross National Product by $1.4 billion ($701.95 million per annum)

3.7.2 Phase Two: Operational ramp-up of production (2015 to 2018)

Phase two signifies the commencement of coal production and export from SGCP. Coal production is projected to commence at 5.4 Mtpa product coal in 2015 and increase gradually to 10.7 Mtpa product coal in 2018.

Significant Capex expenditure is still on-going during this period, as preparations for underground mining are undertaken. As indicated earlier, 41% ($1.72 billion) of total Capex expenditure is projected for Phase Two.

Key modelling input assumptions for Phase Two are as follows:

- Total projected Capex and Opex expenditure over this four year period is $3.11 billion
- Total Capex expenditure is projected at $1.72 billion. It is estimated that only $1.22 billion of this is likely to be locally sourced (remaining $496 million involving imports, excluded from the modelling). This equates to an average annual expenditure of $306 million.
- Total Opex expenditure is projected at $1.39 billion. It is estimated that all of this expenditure is for local goods and services. This equates to an average annual expenditure of $348 million.
- Modelling an annual average of $654 million per annum in mine related expenditure (the projected demand for Queensland goods and services)

The following table summarises the impact of the SGCP annualised expenditure during Phase Two on the Queensland and national economies.

Table 22 Annual economic impact of Phase Two

	Value added ($m)	Income[2] ($m)	Employment (FTE persons)	Output ($m)
Mining	$294.50	$49.90	514	$505.27
Manufacturing	$81.60	$42.90	651	$278.90
Electricity, Gas, Water & Waste Services	$11.10	$3.80	53	$22.00
Construction	$54.80	$25.40	483	$165.00
Wholesale Trade	$15.60	$9.90	81	$34.80
Retail Trade	$6.00	$4.00	48	$10.50
Accommodation & Food Services	$3.00	$1.70	27	$6.30
Transport, Postal and Warehousing	$24.50	$10.50	140	$49.80
Information Media & Telecommunications	$4.40	$1.50	15	$9.10
Financial & Insurance services	$16.80	$7.90	41	$21.90
Rental, Hiring & Real Estate Services	$12.60	$4.90	66	$24.20

	Value added ($m)	Income[2] ($m)	Employment (FTE persons)	Output ($m)
Professional, Scientific & technical Services	$23.70	$17.20	175	$50.10
Administrative & Support Services	$8.90	$7.70	62	$17.10
Public Administration and Safety	$3.50	$2.80	34	$5.80
Other[1]	$10.70	$6.40	103	$22.00
Direct impacts	$307.02	$80.18	1,057	$654.01
Indirect – industrial support	$264.68	$116.32	1,436	$568.76
Total Queensland	$571.70	$196.50	2,493	$1,222.77
Rest of Australia	$48.45	$13.20	125	$150.52
Total Australia	**$620.15**	**$209.70**	**2,618**	**$1,373.29**

[1]*Includes the sectors of Agriculture Forestry & Fishing, Education & Training, Health Care & social assistance, Arts & recreational services, and Other services.*
[2]*Defined as Compensation of Employees (wages and salaries)*
FTE = Full Time equivalent employment positions for one year
Source: Aurecon Hatch

The economic impacts resulting from direct project expenditure of $2.6 billion ($654 million per annum) on the Queensland economy during Phase Two are estimated to:

- Increase total output across all industries by $4.9 billion ($1.22 billion per annum)
- Increase household income by $784 million ($196 million per annum)
- Create direct employment opportunities for 1,057 FTE, and another 1,436 indirect FTE positions
- Increase Gross State Product by $2.3 billion ($571 million per annum)

Nationally and inclusive of the above Queensland impacts, the SGCP Phase Two will:

- Increase total output across all industries by $5.5 billion ($1.37 billion per annum)
- Increase household income by $839 million ($209.7 million per annum)
- Support the creation of approximately 2,600 FTE's nationally
- Increase Gross National Product by over $2.5 billion ($620.2 million per annum)

3.7.3 Phase Three: Production maturity (2019 to 2047)

Phase Three (production maturity) involves the period between 2019 and 2047 (inclusive). This covers the main mining operational period of the SCCP with production rising from 12.9 Mtpa product coal in 2019 to a peak production rate of 16.58 Mtpa in 2024, before ceasing production in 2047 at 9.6 Mtpa.

Key modelling input assumptions for Phase Three are as follows:

- Total projected Capex and Opex over this 29 year period is $20 billion
- Total Capex is projected at $432 million. It is estimated that only $283 million of this is likely to be locally sourced with the remaining $149 million involving imports (excluded from the modelling)
- Total Opex is projected at $19.5 billion. It is estimated that all of this expenditure is for local goods and services. This equates to an average annual expenditure of $670 million.

- Modelling an annual average of $680 million per annum in mine related expenditure (that is, the projected demand for Queensland goods and services)

The following table summarises the Phase Three "Production Maturity" (2019 – 2047) impact of the SGCP annualised expenditure on the Queensland and national economies.

Table 23 Annual economic impact of Phase Three

	Value added ($m)	Income[2] ($m)	Employment (FTE persons)	Output ($m)
Mining	$468.65	$78.08	805	$795.56
Manufacturing	$23.41	$12.31	187	$80.01
Electricity, Gas, Water & Waste Services	$9.28	$3.19	44	$18.42
Construction	$14.76	$6.84	130	$44.45
Wholesale Trade	$12.24	$7.77	63	$27.28
Retail Trade	$4.62	$3.04	37	$8.01
Accommodation & Food Services	$2.40	$1.36	22	$5.08
Transport, Postal and Warehousing	$20.44	$8.72	118	$41.51
Information Media & Telecommunications	$3.23	$1.11	11	$6.65
Financial & Insurance services	$14.43	$6.77	36	$18.88
Rental, Hiring & Real Estate Services	$10.30	$3.86	52	$19.17
Professional, Scientific & technical S	$21.28	$15.50	157	$45.02
Administrative & Support Services	$5.86	$5.06	41	$11.30
Public Administration & Safety	$3.18	$2.49	31	$5.21
Other[1]	$8.44	$5.48	84	$16.96
Direct impact	$396.62	$67.76	714	$680.60
Indirect – industrial support	$225.90	$93.82	1,104	$462.91
Total Queensland	$622.54	$161.58	1,818	$1,143.51
Rest of Australia	$52.75	$9.61	91	$140.78
Total Australia	**$675.29**	**$171.19**	**1,909**	**$1,284.32**

[1]*Includes the sectors of Agriculture Forestry & Fishing, Education & Training, Health Care & social assistance, Arts & recreational services, and Other services.*
[2]*Defined as Compensation of Employees (wages and salaries)*
FTE = Full Time equivalent employment positions for one year
Source: Aurecon Hatch

The economic impacts resulting from direct project expenditure of $19.7 billion ($680 million per annum) on the Queensland economy during Phase Three are estimated to:

- Increase total output across all industries by $33.1 billion ($1.14 billion per annum) increase household income by $4.7 billion ($161 million per annum)
- Create direct employment opportunities for 714 FTE, and support the creation of another 1,104 FTE positions indirectly
- Increase Gross State Product by $18.1 billion ($622 million per annum)

Nationally and inclusive of the above Queensland impacts, the SGCP Phase Three will:

- Increase total output across all industries by $37.2 billion ($1.28 billion per annum)
- Increase household income by $5.0 billion ($171 million per annum)
- Support the creation of approximately 1,900 FTE's nationally
- Increase Gross National Product by $19.6 billion ($675 million per annum)

3.7.4 Decommissioning

The proposed SGCP is based upon conservative extraction rates and estimates of the available coal reserve. At this stage, based on identified coal reserves and proposed extraction technologies, coal production is proposed up until 2047. A detailed decommissioning plan will be developed well in advance of this time.

Cessation of mining activities at SGCP will impact the economy within the Barcaldine RC LGA the most. The magnitude of the economic impacts will be influenced by a range of factors at that time including:

- The number of employees involved at the SGCP mine site at time of decommissioning, and the possibility of staging decommissioning over a period of time
- The number of mine site employees and their families permanently residing locally
- Continued expansion and development of other mining projects within the region including Alpha Coal Project, Kevin's Corner, Galilee Coal Project and Carmichael Coal Mine
- Actual market demand and price of coal at the time of decommissioning

The decommissioning phase of the SGCP will also impact the communities where the FIFO workforce resides and where significant mine product/service supplies are sourced from (eg Emerald). However, these larger economies have a large and diverse economic base to absorb the redundant economic activity from the SGCP mine cessation with the majority of its available labour force employed in other industries (eg retail, construction, accommodation, food service, transport, healthcare and agriculture). In addition, SGCP mining employees are more likely to find employment in other mining projects within the Bowen Basin on either existing or new projects at the time.

3.8 Local significance

At the local level, a relationship can be drawn between the level of employment and spending in the area. As indicated earlier, the unemployment level is very low within the Barcaldine RC LGA and the neighbouring Central Highland RC LGA. With other major coal projects also proposed to commence in the Galilee Basin in the next few years including the Alpha Coal Project, Kevin's Corner, Galilee Coal Project and Carmichael Coal Mine proposing to start in the next few years, the significance of mining to local businesses and communities within this region will increase significantly. As of the latest 2006 Census only 12 people, or 0.73% of the workforce identified in Barcaldine RC LGA were employed in the Mining sector. The availability of appropriately skilled employees from within the Barcaldine region will be limited to a small number, to be spread over a number of potential mining projects within the Galilee Basin.

The level of economic impact that the SGCP will have upon the Barcaldine RC LGA is determined by:

- The take–up of new jobs generated by the Galilee Basin mining projects by residents in the Barcaldine region (also includes mining staff that relocate permanently to Alpha over time)
- The number of goods and services provided by local businesses (e.g. catering services, short-term accommodation and property services)

Based on the analysis to date, it is not possible to determine the likely allocation of operating expenditure to local businesses within the Barcaldine or Central Highlands RC LGAs.

3.8.1 Local employment income

Based on the expenditure proposed for Phase One (2013 to 2014 inclusive), it is estimated that a construction related workforce will be approximately 1,600 personnel. Due to the short-term nature of this phase, the need for skilled construction workers, and the lack of locals available with these skillsets, it is envisaged that the construction workforce would be FIFO, with on-site accommodation constructed to house the workforce.

Project planning indicates that the SGCP will employ approximately 880 staff during the first stage of production (2015-2018), and gradually increase as production increases up to 1,290 staff. As the workforce within the Barcaldine RC LGA is relatively small, and the other proposed mining and energy projects within the region will each require a similar or larger operational workforce, it is proposed that the majority of the SGCP workforce (99.5%) will be FIFO (accommodation village provided on-site).

It is conservatively estimated that approximately 0.5% of the operational mining workforce (2015 to 2047 inclusive) will reside locally or will relocate to Alpha, equating to approximately six full time operational positions.

Based on the latest ABS report (February 2011), average weekly earnings in Queensland was $1,268.00 ($66,113.52 per annum). Table 24 below highlights national average weekly earnings by industry, however the ABS does not report for Agriculture within this latest series. Of interest is the national average salary estimate for mining personal of approximately $108,000 per annum.

Table 24 Average weekly earnings by industry group for Australia (2011)

	Average weekly earnings[1]	Annual salary[2]
Agriculture	Not reported	
Mining	$2,086.90	$108,811
Manufacturing	$1,102.90	$57,505
Electricity, Gas, Water & Waste Services	$1,596.00	$83,215
Construction	$1,274.30	$66,442
Wholesale Trade	$1,105.90	$57,662
Retail Trade	$614.00	$32,014
Accommodation & Food Services	$485.60	$25,319
Transport, Postal and Warehousing	$1,168.90	$60,946
Information Media & Telecommunications	$1,358.50	$70,832
Financial & Insurance services	$1,356.50	$70,728
Rental, Hiring & Real Estate Services	$1,024.40	$53,412
Professional, Scientific & Technical S	$1,314.40	$68,533
Administrative & Support Services	$893.00	$46,561
Public Administration and Safety	$1,248.30	$65,086
Education & Training	$1,019.10	$53,136

	Average weekly earnings[1]	Annual salary[2]
Health Care & Social Assistance	$876.20	$45,685
Arts & Recreational services	$725.10	$37,807
Other Services	$841.70	$43,886

[1] ABS (2011) *Average Weekly Earnings, Australia.* Cat. No. 6302.0
[2] Calculated by multiplying the average weekly earnings by 52.14

An estimate of the average annual salary for agricultural workers/labourers is $35,000, which equates to the salary levels in the retail trade, accommodation and food, and the arts and recreational services sectors.

Future Alpha based direct employees of the SGCP (up to approximately eight during construction and six during operations) may spend a proportion of the annual salary income on local products and services.

According to the ABS data from the most recent household income and expenditure survey, average household expenditure on goods and services (other than Income tax, mortgage repayments and superannuation and life insurance) was 76.3% of gross household income[36].

For the purposes of this study, it is projected that 60% of the expenditure on goods and services by employees residing within Barcaldine RC LGA will be spent locally, whilst the remainder is spent elsewhere (travel, holidays, purchase of goods and services from outside the region). Table 25 below highlights the projected expenditure by SGCP mining staff on local goods and services.

Table 25 Annual projected expenditure on local goods and services within the Barcaldine RC LGA by SGCP employees

	SGCP operational mine staff residing in Barcaldine RC LGA
Number of employees residing within Barcaldine RC LGA	6
Average annual salary	$108,000
Total annual salary income	$648,000
Total annual expenditure goods & services within Barcaldine RC LGA[1]	$295,488

[1] Calculated as 60% of the net expenditure undertaken on goods and services, which itself was identified by ABS as 76.3% of total income.

Using current expenditure habits and salaries, it is estimated that the six SGCP staff residing within the Barcaldine RC LGA during operations are likely to spend approximately $295,500 per annum on local goods and services.

Employment strategies for local residents

In addition to direct mining staff, the project will require an extensive number of supporting personal including:

- Administrative: administrative officers/clerks, reception and mail, payroll, recruitment, community liaison officer, stores/purchasing clerks, warehousing clerk, etc.
- Technical support: IT support, geologists, engineers (mechanical, mining, electrical, chemical environmental), surveyors
- Safety: site security, health rehabilitation officer, OH&S officers, first aid nurse, etc.
- Trades: carpenters, plumbers, scaffolders, electricians, fitters and turners

[36] Based on data sourced from ABS (2011), *Household Expenditure Survey, Australia: Summary of Result 2009-10,* Qld Data Tables, *Cat. No. 6530.0.* Data for the Fourth Quintile, Gross Household Income.

- Miscellaneous: cooks, cleaners, gardeners/grounds maintenance

The majority of these positions are likely to be required throughout the operational life of the project, representing a significant number and array of new permanent positions. The proponents of the SGCP realise the value of employing local and regional residents including:

- Local employees are more likely to remain with the project over a much longer period of time, reducing recruitment and training costs
- Locals do not incur substantial travel time and costs (in comparison to FIFO personnel)
- Local salaries end up supporting local businesses

As a long-term project involving a significant investment at the location over a period of 35 years, SGCP is seeking to establish a constructive long-term relationship with the local community. As such, SGCP will proactively seek to employ locals by:

- Promoting certain vacancies locally, particularly where matching skillsets with the local workforce has been identified
- Employing on-site training and development programs, particularly for local indigenous community members
- Offering employment flexibility for certain positions, to enable casual employment of locals seeking seasonal engagement, or to employ parents/carers during school hours to fit in with family commitments

A detailed wider Human Resources Strategy will be developed during the DFS (Definitive Feasibility Stage) that details the more specific recruitment strategies to be employed during the contracted construction phases and the initial operations phases.

A Workforce Management Plan (WMP) will be developed as part of the draft Social Impact Management Plan (SIMP), appended to the SGCP EIS.

3.8.2 Local businesses

SGCP mine expenditure

The SGCP is proposing substantial expenditure on Queensland supplied goods and services amounting to:

- $770 million per annum during Construction (2013 - 2014)
- $650 million per annum during Phase 2 (2015 - 2018)
- $680 million per annum during Phase 3 (2019 - 2047)

Whilst the majority of this expenditure relates to the engagement of contractors and direct staffing costs, a significant proportion will be spend for the purchase of goods/consumables and services. The SGCP recognises the benefits of sourcing local inputs including:

- Capacity to deal with local businesses directly, face to face
- Being in close proximity to operations, local businesses have the capacity to respond rapidly
- Spending locally supports local businesses and jobs
- For a number of services, transportation costs are minimised thereby lowering costs

As such, the SGCP will employ procurement strategies that seek to maximise the provision of goods and services from the local community. A Local Industry Participation Plan (LIPP) will be developed as part of the draft SIMP, appended to the SGCP EIS.

The SGCP will therefore have substantial benefits to local and regional businesses, increasing annual sales and turnover, boosting profitability and increasing the potential for them to hire additional employees.

Competition for employees

As indicated earlier, a relatively small proportion of the SGCP annual expenditure will be directed towards local businesses for the provision of goods and services, including: property services, on-site facilities maintenance, security, provision of catering services, provision of short-term accommodation (hotels/motels), and local transport companies to name a few. The preliminary operating budget prepared for the SGCP provides insufficient detail to estimate the mining expenditure that is likely to accrue to local businesses within the Barcaldine RC LGA.

As indicated earlier, the Barcaldine RC LGA has been characterised by a constrained labour market for a number of years, consisting of a small workforce with low unemployment and shortages in skilled labour. As indicated earlier, approximately 33% of the labour force was engaged within the Agricultural Forestry and Fishing sector.

SGCP proposes to use a FIFO workforce, however locals will be employed where they are appropriately qualified. The average annual salary within the agricultural sector is $35,000, whereas in mining it is $108,000, three times as much. A number of existing businesses within the Barcaldine RC LGA, particularly agricultural businesses with employees accustomed to working long hours in harsh conditions, using heavy equipment, may lose employees to mining activities within the Galilee Basin including SGCP. Other businesses including retail, accommodation, and other services, may also lose employees directly, and/or incur significant additional cost to retain staff.

Due to the seasonal nature of agriculture, there are periods of time in which work and income opportunities for agricultural workers decline (e.g. during droughts that may last several months to several years). There may be opportunities for local residents to obtain work at SGCP during such times in order to remain within the region. To be able to capitalise on the seasonal availability of local casual staff, the SGCP will need to identify specific job opportunities at SGCP and align training programs to enable the employment of local residents.

Prices for goods and services provided by local firms

The costs of goods and services within Alpha may also be impacted, with some prices appreciating and others possibly declining. For communities in western Queensland, key items such as groceries are priced higher to account for transport costs. However, population growth may result in the establishment of new retail outlets introducing competition and price reduction for certain lines.

3.8.3 Housing

SGCP is proposing to accommodate all its FIFO employees at a purpose built on-site accommodation village. As indicated earlier, a small number of SGCP employees will reside locally.

As a result, some pressure may be placed on the housing market in Alpha. As the majority of the SGCP workforce will reside in the on-site accommodation village, the direct impact on housing is not likely to be significant.

As indicated earlier, the Barcaldine RC LGA had a projected population of 3,376 residents (2009), and a total of 1,208 residencies in 2006 (of which 1,114 were separate houses). The township of Alpha has a total population of 416 (2009 estimate), indicating approximately 150 residencies within town.

As indicated within Table 3, Barcaldine recorded 22 house sales in 2011 for an average price of $196,000. Alpha recorded 2 house sales averaging $247,000 in 2011, achieving price growth of

16.2% per annum over the last 3 years. These prices may indicate that the property prices within Alpha have already appreciated as a result of property market speculation.

The proposed commencement of SGCP and the cumulative impacts resulting from the neighbouring mining and energy projects with similar start dates[37] may increase the demand for existing houses (and empty housing lots) in Alpha. Depending on the actual demand that eventuates, availability of new house lot developments and economic conditions, house prices within Alpha may experience rises in the longer term similar to other mining communities.

Upon approval and commencement of the proposed mining projects, existing Alpha property owners may gain capital appreciation. However, the negative repercussions may include a corresponding increase in rental rates for all dwellings. In addition, local businesses seeking to employ may incur higher costs with relocating and accommodating employees in Alpha.

Clearly AMCI is unable to directly address the cumulative issue as housing demand and supply is dependent on a number of factors beyond its control. In addition the quantum and the timing of the release of residential land is a local government responsibility. However, SGCP will assist long-term planning by providing accurate and timely planning updates and working with the relevant stakeholders (local government authorities and others) engaged in accommodation planning.

A Housing and Accommodation Plan (HAP) will be prepared as part of the draft SIMP, appended to the SGCP EIS.

SGCP is supportive of the Queensland Government's Major Resource Projects Housing Policy (August 2011) which advocates:

"Where a fly-in, fly-out workforce is proposed, the proponent must work with local communities, councils, unions and the state government to make sure that the liveability and sustainability of towns is protected and that workers have choice about where they live."[38]

SGCP advocates a consultative approach with key stakeholders to proactively identity opportunities for engagement and collaboration between the proposed mining project and the local community. The draft SIMP appended to the SGCP EIS describes the Community Partnership Program proposed by AMCI to manage, allocate and monitor collaborative community funding.

Based on the proposed construction of an on-site accommodation village to house the FIFO workforce, the impacts on housing as a direct result of the SGCP are predicted to be minor. Up to six SGCP employees are anticipated to reside in Alpha during the operations phase.

As a greenfield development, it is difficult at this stage to predict the housing impacts associated with the indirect and secondary population growth in the Galilee Basin. However, considering the cumulative impact with other mining and energy proposals for Galilee Basin, the existing permanent housing stock within the Barcaldine RC LGA, particularly Alpha, may require expansion.

To assist the regional planning associated with infrastructure services and release of greenfield residential blocks, SGCP will:

- Regularly engage with all levels of government, particularly the Barcaldine RC LGA, to inform the planning process in advance of major staged developments and implications for SGCP workforce
- Regularly monitor accommodation needs of SGCP employees, particularly for those seeking to reside locally
- Regularly monitor the local (Alpha township) housing market in terms of availability and pricing, and seek to collaborate with other stakeholders (government, other companies, and community representatives) to address major housing issues

[37] Also depending upon the housing policies of these other projects.
[38] The Coordinator-General, Queensland Government (2011), *Major Resource Projects Housing Policy: Core principles to guide social impact assessment,* Page 1.

3.8.4 Local community infrastructure and services

Cumulatively, the proposed Galilee Basin mining projects may have a significant impact on the provision of services to local communities, particularly Alpha. Key services likely to be impacted include power, accommodation, education, emergency services and water.

In response to the rapid developments within the mining sector, the Queensland government has released the *Sustainable Resource Communities Policy* which seeks to address many of the social issues associated with mining development and rural communities. Central to this policy is ensuring a strong emphasis on the social impact assessment of projects, but also on bringing mining companies, communities and government together to address the issues potentially affecting the community.

The direct impact of the SGCP on community infrastructure and services will be mitigated to a large degree by the fact that the majority of the workforce will be accommodated at a purpose built village on-site, rather than in the Alpha township. The accommodation village will endeavour to provide a very high level of amenities, recreational and emergency services facilities.

Any potential impact of the SGCP on the capacity of community infrastructure and services will be dependent on a range of influences including population, economic environment of the region and that of the state, the relevant staged timing of this project (and other mining development projects within the Galilee Basin), overseas market demand for commodities, etc. In order to assist with forward social infrastructure planning, the SGCP proponent proposes to consult with all levels of government including the Barcaldine RC LGA and the state government, key infrastructure providers, other mining companies (Galilee Basin proponents) and relevant community stakeholders to ensure that any impacts of the project are understood well in advance and considered in planning proposals.

The establishment of a Social Infrastructure Working Group and Community Partnership Program is described in the draft SIMP, appended to the SGCP EIS.

3.9 State significance

As highlighted by the I-O modelling, the SGCP offers substantial economic value-adding opportunities and employment for Queensland, driven largely by its expenditure on goods and services including labour.

Although the SGCP PFS identified the likely size of transactions for goods and services throughout the life of the project; it did not provide any indication of location (where the transactions are likely to occur or where the goods and services are sourced from), other than occurring within the state of Queensland.

However the PFS has examined in detail the workforce requirements for the project along with likely source location for the FIFO staff. Based upon the income and expenditure information presented earlier within Section 3.7.1 it is possible to estimate the state significance of SGCP from the prospective of mining salary income and likely expenditure habits. Table 26 highlights the projected regional salary income and expenditure directly linked to SGCP employees.

Table 26 Annual projected mining salary income and expenditure on regional goods and services by employees directly associated with the SGCP during the operational phase

	SEQ[3]	Far North Qld[4]	Central Qld[5]	Rest of Qld[6]	Total Qld
Number of SGCP employees residing within the region	774	316	129	71	1,290
Average annual mining salary[1]	$108,000	$108,000	$108,000	$108,000	$108,000
Total annual salary income	$83.6m	$34.1m	$13.9m	$7.7m	$139.3m
Total annual expenditure goods & services within the region[2]	$38.1m	$15.6m	$6.4m	$3.5m	$63.5m

[1] Average earnings for mining sector in Australia, as highlighted within Table 23.
[2] Estimated at 45.6% of total gross income. Calculated as 60% of the net expenditure undertaken on goods and services, which itself was identified by ABS as 76.3% of total income. See Section 3.7.1 for more detail.
[3] South East Queensland including the Gold and Sunshine Coasts, and Brisbane greater region, accounting for 60% of FIFO workforce
[4] Includes Cairns (9.5% of SGCP workforce) and Townsville (15%)
[5] Includes Bundaberg (5% of SGCP workforce) and Maryborough (5%)
[6] Includes Barcaldine RC LGA (0.5% of SGCP workforce) and Proserpine/Whitsunday/Bowen region (5%)

As highlighted by Table 26, the projected income and expenditure of the SGCP FIFO workforce has significant annual benefits for a number of regions throughout Queensland (based on current estimates of permanent residency). The potential supply of FIFO staff from Far North Queensland would provide $34 million in salary income to the region resulting in approximately $15.6 million in annual expenditure on goods and services by SGCP employees. The projected income and expenditure amounts for SEQ is much higher with approximately 774 FIFO staff possibly sourced from the region.

Other benefits to the state economy are described in Section 3.10.

3.10 Other benefits to the state and national economies

3.10.1 Balance of payments

The SCGP would result in a significant increase in thermal coal exports from the region. For the purposes of modelling, thermal coal production from the SGCP has been disaggregated as:

- Phase One – Construction only (2013-2014) with no coal production
- Phase Two – Ramp-up Production (2015-2018) with coal production commencing in 2015 at 5.4 Mtpa (product coal), increasing to 10.7 Mtpa in 2017. Average annual production over this period is approximately 7.8 Mtpa.
- Phase Three - Production Maturity (2019-2047) with coal production over this 29 year period fluctuating between approximately 9.6 and 16.6 Mtpa. Average annual production over this period is 14.4 Mtpa (product coal).

The value of thermal coal has varied in recent years, as highlighted below.

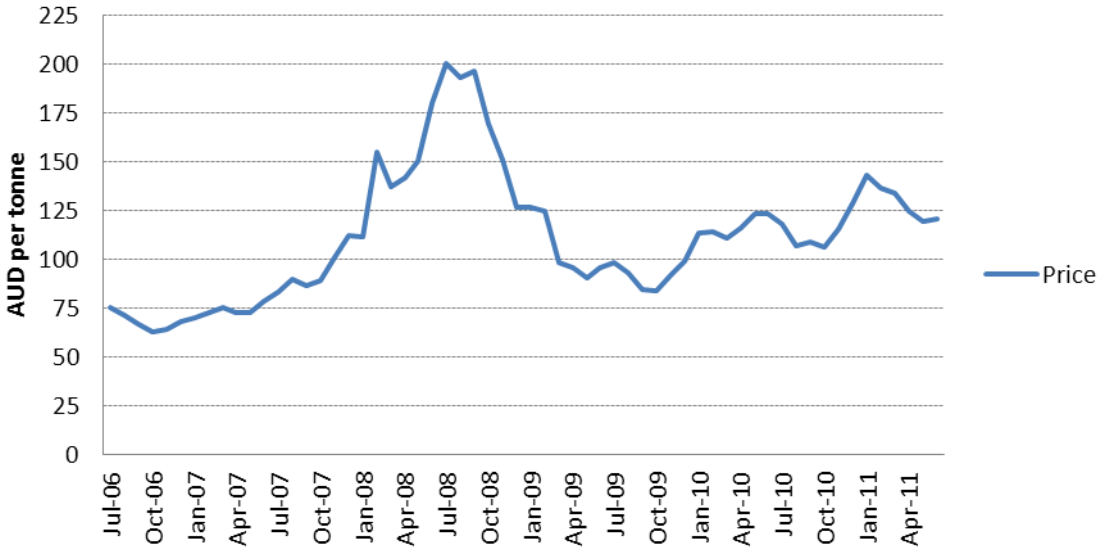

Figure 16 Monthly prices for thermal coal[39]

Since January 2009, the price of thermal coal has varied between $90 and $140 per tonne, and as of June 2011 Australian thermal coal was priced at $120 per tonne.

For the purposes of this analysis, future thermal coal prices are estimated at $90 to $140 per tonne. Table 27 highlights the expected export value of coal generated from SGCP (in 2011 constant prices).

Table 27 Additional coal exports attributed to SGCP

	Average annual coal tonnage	Additional coal export value[1]
Phase Two (2015-2018)	7.8 Mtpa	$702 million to $1.09 billion per annum
Phase Three (2019-2047)	14.4 Mtpa	$1.30 billion to $2.02 billion per annum
Total production	447.5 Mt	$40.3 billion to $62.7 billion

[1]Note that the thermal coal price is held constant in this calculation at between $90 and $140 per tonne (constant 2011 prices)

As indicated in Table 27 the market value of coal mined from SGCP during Phase Two is approximately $1.3 billion to $2.0 billion per annum, which will have significant positive impacts for Australian's net trade account. Over the life of the project, exports from SGCP are conservatively valued at approximately $40.3 billion to $62.7 billion.

3.11 Impacts to rural properties

Rural Property values

As indicated above the cumulative impacts resulting from the proposed mining and energy projects (including SGCP) with similar start dates may increase the demand for existing houses (and empty housing lots) within Alpha. Depending on the actual demand that precipitates, availability of new house lot developments and economic conditions, house prices within Alpha may rise in the longer term to comparable levels at other mining communities (eg Blackwater and Emerald).

[39] Raw data sourced from www.indexmundi.com/commodities

Values for rural grazing holdings may follow a different path. Where a significant part of the surface of any property is required for the mining operations, the property may be acquired preferably by negotiation by the SGCP proponent.

There are no proposals to acquire the properties neighbouring the mine site. These properties are commonly valued based on their grazing productive capacity driven largely by area and grazing/stocking rate carrying capacity animals per unit area. However, valuations of grazing properties directly adjoining major mining projects may be impacted by a number of factors including[40] [41]:

- Perceived off-site pollution effects (e.g. noise, air quality, surface water, transport, groundwater impacts etc.)
- Reduced visual amenity
- Fear of encroachment due to future expansion of mining operations
- Closure of neighbouring property road ways, stock routes, water access points etc

In addition to MLA 70453 south of the Capricorn Highway, the SGCP also involves the development of an infrastructure corridor between the mine site and the Galilee Basin common user rail line. The corridor is proposed to align as far as practicable with the SunWater water pipeline easement. Properties that are affected by this easement may be impacted, however this will be dependent upon the impact that the infrastructure corridor has upon internal property movement, and the distance between main residencies and the rail line (potential exposure to noise pollution at night).

Distribution effects of the proposal including proposals to mitigate any negative impact on disadvantaged groups

As indicated above, house value appreciation has already occurred in Alpha as a result of the announcements of proposed Galilee Basin mining and energy developments. If and when these projects commence, residential housing values and rental costs may appreciate further. As with many rural communities, a number of long-term residents have been attracted to Alpha due to the relatively low rents and lifestyle attraction of the rural community. SGCP proposes to engage proactively with the local government to monitor housing and accommodation issues at Alpha, and work collaborative on possible solutions (as directed with the recently released *Major Resource Projects Housing Policy* (August 2011). Mitigation measures to address potential impacts on disadvantaged groups are detailed in the draft SIMP, appended to the SGCP EIS.

Impact upon property management

It is envisaged that properties impacted by the surface footprint of the mine will be acquired for mining purposes. The developed infrastructure on these properties including residencies, cattle handling facilities, watering point, sheds will be maintained where possible; however it is unlikely that the current grazing activities will be maintained.

Properties north of the mine site that either adjoin or are dissected by the infrastructure corridor may incur disruption to management practices, including access to water points and movement of cattle. The SGCP proponent proposes to compensate land holders for property management impacts (e.g. realignment of fences, movement of watering points, establishment of new water points as a result of the SGCP activities).

[40] To date, there is insufficient market data to indicate the magnitude of capital depreciation likely to be encountered by properties neighbouring major mine sites.

[41] It should also be noted that property speculation could also be a factor. Rural properties purchased by mining companies are generally well above perceived market values, and appreciation in values may result due to the limited stock of rural properties on the market as properties are consumed for mining.

AMCI will proactively engage with landholders impacted by the infrastructure corridor, to identify restrictions placed on movement of livestock within the infrastructure corridor and identify remedial strategies. Mitigation measures to address potential impacts on existing agricultural land uses and management practices will be detailed in the draft SIMP, appended to the SGCP EIS.

Movement of cattle, stock routes

Gazetted stock routes are significant for regional western communities and businesses. There are two significant stock routes within close proximity to the SGCP, one along the Alpha-Tambo Road and another along the Capricorn Highway.

The Alpha-Tambo Road stock route is not located within the mine footprint, nor does it cross any proposed access points to the mine.

The stock route following the Capricorn Highway is located on the northern side of the existing Central Line rail corridor. Although the proposed SGCP rail spur line dissects the stock route, provisions will be made to enable cattle to use the stock route and cross the SGCP rail spur line.

3.12 Costs to government

Potential costs to government are discussed in this section and mainly relate to general costs for the coal system as opposed to specific costs associated with this particular project:

Rail

A new private rail infrastructure corridor from the Galilee Basin directly to the APCT has been proposed by other Galilee Basin coal mining proponents. The SGCP will negotiate with these parties for third party access.

SGCP will be responsible for seeking all necessary approvals, subsequent establishment and maintenance of a rail spur line linking SGCP to the rail corridor within the Galilee Basin.

As such, there are no additional railway infrastructure costs to be met by government.

Port

Coal will be loaded at APCT, which is also planned for progressive large scale expansion over the next five years. No additional cost is expected to be incurred by the government, as all capital costs incurred for the port expansion will be met by proponents.

Road

It is planned that the SGCP will utilise the existing road network. Potential contributions to road rehabilitation and maintenance and proposed road upgrades (eg intersection of Capricorn Highway and the Mine Access Road) are discussed in the road and transport assessment for the EIS.

Water

AMCI is a Foundation Customer for the Connors River Dam and Pipeline Project. This water application may be supplemented by a combination of groundwater, dewatering, surface water harvesting, however these options will not result in additional cost to the government.

Regional infrastructure and services

See earlier discussion within Section 3.7.4 *Local government infrastructure and services.*

Accommodation

See earlier discussion in Section 3.7.3 *Housing.* No significant increase in overall government cost is anticipated to result from the SGCP.

3.13 Local government revenue

For the Barcaldine RC LGA a proportion of the new employment and local mine expenditure generated by the SGCP will stimulate housing and commercial/ retail development. To the extent that new land is developed or converted into higher value use, local government revenues will increase through increased rates and other charges.

However, an estimate of the likely revenue generated would depend critically on actual market for residential/commercial development on greenfield sites, and the capacity of the local government authority to provide appropriately zoned land to meet demand.

SGCP seeks to proactively engage the local government authorities on a regular basis to ensure sufficient infrastructure is in place regional to cater for the project and the needs of the local community on a sustainable basis.

3.14 State government revenues

This section considers the possible impacts on state government revenues arising from the SGCP including:

- Coal royalties
- State payroll taxes
- Land tax
- Tenure rent
- Port dues
- Other state taxes/duties

3.14.1 Coal royalties

The SGCP is expected to export on average up to 7.8 Mtpa of product coal for the first four years, and up to 14.4 Mtpa for the following 29 years. The production of this coal would generate royalty payments to the Queensland Government. Under the current two-tiered coal royalty system, companies pay 7% of the value up to AUD100 per tonne and 10% of the value thereafter. For example, a price of AUD100 per tonne attracts a rate of 7% of coal value, AUD150 per tonne attracts 8% and AUD200 per tonne attracts 8.5%.

Subject to exchange rate variations, coal price fluctuations over the life of the mine and likely transfer to the Australian Government's Minerals Resource Rent Tax (MRRT), the estimated royalty payments that would be made to the Queensland Government are estimated at $49 to $85 million per annum for the first four years, before increasing to $90 million to $158 million per annum for the following 29 years as indicated in the table below. Over the life of the project, total coal royalties payments are estimated at $2.82 billion to $4.92 billion.

Table 28 Additional coal royalties to the Queensland Government

	Additional coal tonnage	Royalties to the Queensland Government
Phase Two (2015-2018)	7.8 Mtpa	$49.1 million to $85.8 million pa
Phase Three (2019-2047)	14.4 Mtpa	$90.72 million to $158.4 million pa
Total Production	447.5 Mt	$2.82 billion to $4.92 billion

Note that the thermal coal price used in this calculation is $90 and $140 per tonne (constant 2011 prices)

3.14.2 State payroll tax

Companies or groups of 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. The current payroll tax is 4.75% of total taxable wages (Queensland Office of State Revenue).

The employment attributed to the SGCP is assumed to comprise direct staff and contractors over and above any exemption or payroll tax deduction levels. Average earnings for mining industry personnel are estimated conservatively at $108,000 per annum. The table below highlights the SGCP staffing levels and forecast State payroll taxes.

Table 29 State payroll taxes to the Queensland Government

	Average staff levels SGCP[2]	Payroll taxes to the Queensland Government[1]
Phase One (2013-2014)	1,600	$8.2 m per annum
Phase Two (2015-2018)	880	$4.5 m per annum
Phase Three (2019-2047)	1,290	$6.6 m per annum
Total (over the life of the project)	-	$226.4 million

[1]In current dollars, assuming conservative average mine site wages of $108,000 per annum, and payroll tax of 4.75%.
[2]Average staffing levels obtained from detailed feasibility planning undertaken for SGCP.

Assuming that the full value of SGCP wages attracts payroll tax, it is estimated that the Queensland Government would receive payroll tax revenues over the life of the project of $226.4 million. Note that this analysis only examines the level of payroll tax generated by the mine site staff, and that flow-on jobs created by the SGCP may also generate significant amounts of payroll taxes to the Queensland government.

3.14.3 State land tax

The state government imposes land tax on the owners of freehold land in Queensland under the *Land Tax Act 2010*. The land tax is charged against the unimproved land value. Annual rate for companies, trusties and absentees holding property with an unimproved land valuation of over $5 million is $75,000 plus 2 cents for each dollar taxable value over $5 million[42].

A review of unimproved rural property unit rates within the Barcaldine RC LGA identified a range from approximately $300 per ha through to $650 per ha for properties larger than 500 ha (grazing beef/sheep), based on valuations completed June 2011[43].

SGCP is seeking a Mining Lease and infrastructure corridor covering an area of approximately 31,222 ha, covering a number of individually held private properties.

Assuming a range for property unimproved valuation of $300 to $650 per ha, the potential land tax payable to the State Government will equate to approximately $162,000 to $381,000 per annum.

3.14.4 Tenure rents

SGCP is currently liable for tenure rents associated with (Exploration tenures) EPC 1049 and 1180, which currently is $127.05 per sub-block (1st September 2011 to 31st August 2012)[44]. A total of 438 sub-bocks lie across EPC 1049 and 1180, incurring current annual tenure rents of $55,647 per annum payable to the state government.

[42] Office of State Revenue, Queensland Government: *Land tax rates information sheet.*
[43] Data sourced from www.onthehouse.com.au
[44] Data sourced from Mines, DEEDI, Queensland Government. *Rental rates and payments on mining and petroleum tenements*

The project proponent has also applied for MLA 70453 which covers 30,822 ha in total. Mining lease tenure rents are charged at a rate of $49.05 per ha (Variable rate).

Based on the area of 30,822 ha (MLA 70453), the annual mining lease tenure rent will be approximately $1.5 million.

3.14.5 Port dues

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

- Harbour dues
- Tonnage dues
- Port security charge

Note that these charges vary between port locations. Based on cost schedules published for Port of Hay Point, Port dues payable has been estimated at $2.3 million per annum for the first four years, before increasing to $4.2 million per annum for the following 29 years as indicated in the table below. Over the life of the project, total Port dues are estimated at approximately $130.4 million.

Table 30 Additional port dues payable

	Additional coal tonnage	Port dues payable
Phase Two (2015-2018)	7.8 Mtpa	$2.3 million pa
Phase Three (2019-2047)	14.4 Mtpa	$4.2 million pa
Total Production	447.5 Mt	$130.4 million

Note that these calculations are based upon the published charges for Port of Hay Point. Harbour dues $0.045 per tonne, Tonnage due of $0.2442 per gross registered tonne, and $0.0022/GRT for Port Security Charge. Data sourced from www.nqbp.com.au

3.14.6 Other state duties and taxes

Over the life of the project, SGCP will be liable to the following state based taxes and duties:

- Transfer/stamp duty: applicable when buying certain types of property
- Vehicle registration duty: applicable when registering or transferring the registration of a vehicle
- Queensland Competition Authority (QCA) Levy, fee imposed QCA on beneficiaries of its regulatory services which includes rail and port services
- Insurance duty: charged on contracts of general, life and accident insurance

3.15 Australian government revenues

This section considers the possible impacts on Australian government revenues arising from the SGCP including:

- Proposed Minerals Resource Rent Tax
- Personal income tax
- Company tax
- Goods and services tax
- Import duties

3.15.1 Proposed minerals resource rent tax

The Australian Government has proposed a Minerals Resource Rent Tax (MRRT) regime for the mining of iron ore and coal in Australia.

The Australian 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.

Key features of the MRRT are:

- Limited to iron ore and coal companies whose resource profits exceed $50 million per annum
- The MRRT will apply a tax rate of 30% to the value of the resource, rather than the value added by the miner
- New investment will be treated in the form of an immediate write off, rather than depreciated over a number of years
- It will broadly adopt the same category of non-deductible expenditure that currently applies to the Petroleum Resources Rent Tax
- The MRRT will carry forward unutilised losses at the long term government bond rate plus 7%
- It will provide transferability of deductions thereby supporting mine development because it means a company can use the deductions that flow from investments in the construction phase of a project to offset the MRRT liability from another of its projects that is in the production phase
- States and territories will keep existing royalties with the Australian Government providing companies with refundable credits for current state royalties paid
- Recognition of past investments will be provided through a credit that recognises the market value of the investment written down over a period of up to 25 years. Unlike other costs, this starting base will not be uplifted. However, those companies that wish to use their current written down values of the project's assets, excluding the value of the resource, will be provided with an accelerated depreciation over five years. This starting base will be able to be uplifted at the government's long term bond rate plus 7%.
- The MRRT will recognise the particular characteristics of different commodities, by applying a taxing point as close to the point of extraction as practicable, and using appropriate pricing arrangements to ensure only the value of resources extracted is taxed
- The MRRT will provide a 25% extraction allowance to further shield from tax the important know-how and capital that mining companies bring to mineral extraction

The MRRT Bill 2011 passed the lower house in November 2011, and will apply to all new coal projects from July 2012 at a rate of 30% of the taxable profit. The only concession made was to increase the profit threshold at which the tax applies, from $50 million to $75 million.

SGCP will be liable to MRRT based on the taxable profits achieved. Future profits are highly variable based upon market prices, costs, and input resources consumed, and it is not possible to project the profit levels and corresponding MRRT liabilities.

3.15.2 Personal income tax

As highlighted earlier, a substantial workforce is required during the life of the project, in which average earnings for mining industry personnel are estimated conservatively at $108,000 per annum. The table below highlights the SGCP staffing levels and forecast income taxes.

Table 31 Additional income taxes to the Australian Government

	Ave staff levels SGCP[2]	Additional income taxes to the Australian Government[1]
Construction (2013-2014)	1,600	$44.7 m per annum
Ramping Up Production (2015-2018)	880	$24.6 m per annum
Production Maturity (2019-2047)	1,290	$36.0 m per annum
Total (over the life of the project)	-	$1.2 billion

[1]Calculated using 2011 tax rates applicable to gross income of $108,000, and ignoring Medicare levy, and potential deductions including Spouse tax offset, private health insurance offset, etc, Using the online ATO Tax calculator (www.calculators.ato.gov.au) income tax payable upon $108,000 was calculate at $27,910.
[2]Average staffing levels obtained from detailed feasibility planning undertaken for SGCP.

Based on the projected SGCP workforce numbers and 2011 personal income tax rates, it is estimated that employees of SGCP will make income tax contributions over the life of the project of approximately $1.2 billion.

As highlighted earlier within Section 3.6, the SGCP will stimulate additional employment positions within other sectors both directly and indirectly (industrial support), providing additional personal income tax revenue opportunities for the government.

3.15.3 Company tax

The company tax rate in Australia is 30% of profit[45]. Over the life of the SGCP a number of firms will be liable to pay company tax including:

- The SGCP proponents
- Firms providing goods and services directly to SGCP
- Support firms benefiting indirectly by the SGCP

The level of profits generated by firms engaged by SGCP will be impacted by a range of factors including business structure, local market conditions and competition, international market price for thermal coal, etc. Due to these and many other variables, it is not possible to estimate the likely company tax revenues associated with SGCP.

3.15.4 Goods and services tax

Goods and Services Tax (GST) is a broad-based tax of 10% on most goods, services and other items sold or consumed in Australia[46]. As such, it will apply to a range of goods and services purchased by SGCP over the course of the project. GST revenue is collected by the federal government, but disbursed to the states.

A significant proportion of Opex related expenditure was based on contractor rates (outsourcing of certain mining activities to third parties), which would attract GST. However, if the project proponents alternatively utilised their own management, staff and equipment to undertake the same activities then GST would be avoided.

Due to the uncertainty at this stage regarding the engagement of third parties, it is not prudent to forecast possible GST receipts attributable to SGCP.

[45] Sourced online from ATO at http://www.ato.gov.au/content/44266.htm
[46] Sourced online from ATO at http://www.ato.gov.au/businesses/content.aspx?doc=/content/00221985.htm

3.15.5 Import duties

As highlighted earlier, SGCP is projected to incur significant Capex expenditure, a proportion of which will be associated with the purchase of heavy equipment and materials from overseas. For a number of these imported items, import duties will be applicable, which for many items is approximately 5%. However, a number of countries have a free trade agreement with Australia which provide either exemptions or concessions.

A number of imported goods for the SGCP are likely to incur import duties over the course of the project; however it is not possible at this stage to forecast the likely extent of these duties.

3.16 Rail and port charges

New private rail infrastructure from the Galilee Basin directly to APCT is proposed by other Galilee Basin coal mining proponents, and SGCP will negotiate with these parties for third party access.

Table 32 Additional income to rail and port authorities

	Coal tonnage	Approximate rail charges[1]	Approximate port charges[2]
Phase Two (2015-2018)	7.8 Mtpa	$117 million	$37.1 million
Phase Three (2019-2047)	14.4 Mtpa	$216 million	$68.4 million
Total Production	447.5 Mt	$6.7 billion	$2.1 billion

[1]Based on rail charge rate estimate by Aurecon Hatch of approximately $15.00 per tonne

[2]Based on port charge rate estimate by Aurecon Hatch of approximately $4.75 per tonne, based on DBCT Management (www.dbct,.com.au/coalchain/charges.aspx) Terminal Infrastructure Charge of $2.9016/tonne, Handling charge Fixed of $1.1175/tonne, and Handling Charge Variable of $0.7301/tonne.

Based on the estimated rail and port charges over the life of the mine for a total 447.5 million tonnes of coal, the SGCP will provide the private rail operator will approximately $6.7 billion in fees and the port operator with approximately $2.1 billion in fees.

Note that during construction, particularly during Phase One (2013 – 2014) and Phase Two (2015 – 2018), heavy equipment and materials will require haulage to SGCP site. The existing rail network operated by Queensland Rail will be used where practicable, providing additional rail charge income to service providers.

3.17 Ecosystem impacts and alternative land use

3.17.1 Ecosystem impacts

The land surrounding the proposed SGCP consists of low density cattle grazing stations. The majority of the land is categorised as “unsuitable for dry land cropping” or “marginal to unsuitable for grazing”. The post-mining land use for the SGCP will be a combination of grazing land and native bushland.

The majority of the SGCP area and surrounds has been modified/cleared through cattle grazing, which has altered the landscape.

Approximately 591 ha of remnant vegetation is proposed to be cleared for the SGCP. Where rehabilitation activities do not return the final landforms to a grazing land use, native bushland species will be established. This vegetation and associated ecosystem may provide goods and services, many of which are both difficult to fully identify and value from an economic perspective. In addition there is other vegetation that will be cleared from the site that may have some value; however this loss of vegetation is acknowledged but not monetised in this assessment.

The general benefits of an ecosystem are stated as:

- Provisioning services such as food, water, timber and fibre
- Regulating services that affect climate, floods, disease, wastes and water quality
- Cultural services that provide recreational, aesthetic and spiritual benefits
- Supporting services such as soil formation, photosynthesis and nutrient cycling

As many of these services and products fall outside the current market system, the full value of the ecosystem from an economic perspective is difficult to estimate (Skinner & Hall 2007).

In valuing the 591 ha of remnant vegetation that is proposed to be cleared as part of the SGCP, the estimated economic value of this ecosystem has been calculated utilising two approaches:

- Comparison to past studies
- As a carbon sink

Comparison to past studies

The most useful study identified was by Curtis (2003) who undertook a study to place an economic value of the ecosystem of the Wet Tropics World Heritage Area of north-east Queensland.

Curtis (2003) identifies a total of 10 ecosystem services, and valued each utilising various methodologies including multiple criteria analysis (evaluates and ranks alternatives based on preferences (weights) for multiple-criteria and the values of those criteria) and Delphi panel (the formation of an interactive panel of experts, each of which are asked to share their expertise and work toward a consensus resolution of matters of opinion). Curtis (2003) identifies the value of remnant ecosystems within the Wet Tropics at $210 to $236 per ha per annum. However, this analysis is based upon perceived willingness to pay by various stakeholders.

In considering this ecosystem valuation, the following key points are acknowledged relating to the Wet Tropics in Far North Queensland when compared to the SGCP in Central Queensland:

- The Wet Tropics is located within a higher rainfall region than the inland SGCP site
- The Wet Tropics can be considered to have a higher significant ecosystem value compared to the SGCP site due to higher ecosystem productivity resulting from a broader spectrum of fauna and flora and diversity of ecosystems

BushBids is a market based instrument that has been recently introduced to protect native vegetation on private land in the Eastern Mount Lofty Ranges of South Australia, where only 8.4% of the original vegetation remains. Through two rounds of single-sealed bid reverse auctions, stewardship agreements covering 2,256 ha of fragmented native grassland and grassy woodland were awarded to protect vegetation that also contained threatened plant and animal species. The combined result for both round one (2008) and round two (2011) was a bid price of $59 per ha per year (Woodlands BushBids Report 2011, South Australian Murray-Darling Basin Natural Resources Management Board).

A value of $59 per ha/pa, as offered by the BushBids project to maintain highly valued remnant vegetation on private properties within South Australia, provides a useful market indicator of the economic value. However it only involved a total of 70 sites, with the average being 58 ha per property. Within the environment at SGCP in which there are significance reserves of remnant vegetation dominating the landscape, the likely economic value would be substantially lower than the transactions captured for the BushBids project of $59 per ha/pa.

For the purposes of this project, $59 per ha/pa has been applied. The economic value assigned to the 591 ha of remnant vegetation to be cleared is estimated at $34,869 per annum in total.

Carbon sink

A second economic valuation technique considered is to value the area of remnant vegetation to be cleared for the SGCP as a carbon sink (sequestration). In some ways, this methodology relies on partial market signals which are easier to validate from an economic perspective. As a carbon sink, the remnant vegetation has two carbon values: stored carbon within its current state, and an annual sequestration value. Maraseni et al (2006) provide a useful indication of soil carbon within a spotted gum location in a low rainfall area of South East Queensland. A remnant forest was observed to contain approximately 300 tonne soil carbon per ha, and was able to sequester approximately 2 to 3 tonnes per annum.

Assuming a carbon value of $23 per tonne (which is the current price proposed for carbon tax), then the potential value of the 591 ha of remnant vegetation at SGCP is calculated as:

- $4.1 million in total carbon currently stored in the soil (300 tonne ha soil carbon, which is assumed to be totally lost upon clearing)
- $40,780 per annum, being the annual value of carbon sequestered by the remnant vegetation based on carbon sequestered into the soil at 3 tonnes per annum

3.17.2 Alternative land use

Alternative land use for the proposed SGCP site is low intensity cattle grazing. To the extent that mining operations reflect a higher economic use of the land, there would be, prima facie, a net economic benefit from a change in land use.

Examining the 2005/06 Agricultural Census for the former Jericho Shire (amalgamated with Barcaldine and Aramac to become the Barcaldine RC LGA); a total of $53.4 million in livestock and cropping products was produced over a total area of holding of 2,106,858 ha. This equates to an average value of gross return from livestock grazing and cropping across the former Jericho Shire of approximately $25.35 per ha/pa. It is noted that this value would include a wide spectrum of grazing operations from improved pastures, through to low quality native pastures.

The SGCP site is categorised as Suitability Class 2 (quality grazing land) to Class 4 (marginal for grazing).

The foregone opportunity cost of the SGCP mine site of 31,222 ha (30,822 ha within MLA 70453, and the 400ha required for the rail spur rail link) for cattle grazing is estimated at $791,480 per annum, based on production and financial data from the 2005/06 census year. Note that production rates (stocking rates) and market prices vary from year to year, however the $791,480 gross annual grazing value is considered to be reflective of current environment.

Effective rehabilitation of the site after completion of mining operations will allow for the restoration for native and improved vegetation and re-introduction of cattle grazing in some areas, where suitable and sustainable.

3.18 Summary of the indirect impacts arising from SGCP

This section highlights a number of potential benefits and costs that may arise with the construction and operation phases of SGCP, impacting future development activities within the local and state economies.

3.18.1 Beneficial impacts

A number of potential beneficial impacts have been identified linked with SGCP including:

- SGCP provides a wide array of revenue opportunities for all levels of government including local, state and national
- SGCP offers the potential to diversify the economic base through direct expenditure attributed to the mine and to the flow on expenditure impacts through the local and region economies
- The SGCP involves substantial capital for developing utilities infrastructure including:
  - potential sourcing of raw water via a new pipeline from the proposed Connors River Dam
  - potential sourcing of power from Powerlink Queensland's Galilee Basin Transmission Project
  - installation of on-site telecommunications including fibre-optics
- In order to transport and export the volumes of product coal produced, extensive rail and port handling facilities are required, AMCI will work with the State Government, QR National and other resource companies to obtain third party access to this infrastructure to improve the economies of scales for all users and stakeholders
- SGCP proposes to utilise the existing Alpha Aerodrome located 5km west of Alpha for FIFO workforce. The Alpha Aerodrome would be upgraded and a number of new flight services and air transport operators are likely to establish charter services and possibly other air transport services opportunities subject to the constraints of the Alpha airstrip.
- Provision of employment throughout Queensland, as SGCP workforce will be FIFO due to the lack of locally available labour
- Local labour will be encouraged where practicable
- A small number of SGCP employees are expected to reside in Alpha
- The SGCP is expected to provide private sector business investment opportunities and increase the provision of goods and services available for consumption locally
- The SGCP will require an extensive array of products and services to service the site during construction and subsequently during the operational phases. Local/regional businesses will be ideally suited to supply directly and indirectly to SGCP, boosting local business revenue options outside the existing agricultural dominated environment.
- SGCP will support the development and establishment of local and regional mining sector value chains, businesses that provide technical support services to mining and bulk transport operators
- The value of residential and commercial properties in Alpha and neighbouring areas has already increased due to property speculation in anticipation of future mining operations within the Galilee Basin, providing existing land owners with capital gains
- Exports from SGCP will support the strength of the Australian dollar (AUD) which increases the buying power of the AUD to purchase imported products and services by all consumers

3.18.2 Potential adverse impacts

Without appropriate mitigation measures, a number of potential adverse impacts have been identified linked with SGCP including:

- A total of 31,222 ha of productive agricultural grazing land will be taken out of production, estimated to support approximately $791,480 worth of annual beef production (gross farm gate estimate). A number of local businesses supplying the existing agricultural businesses will incur loss of revenue as a result of mining operations.
- The infrastructure corridor may require livestock fencing to restrict the movement of livestock, potentially disrupting existing stock movements and affecting local agricultural property management practices

- The SGCP may attract labour resources from existing local businesses as a result of the higher salaries offered
- To maintain labour resources, existing non-mining businesses may incur higher labour costs impacting business viability
- SGCP will require substantial inputs in addition to labour, including construction materials, consumables, and support technical services (eg construction, catering, accommodation, etc.) that may lead to potential shortages in local supply and increases in prices. This may inhibit the emergence of non-mining related activities and businesses.
- The rentals for residential and commercial properties may also increase placing financial pressure upon existing residents and businesses and possibly forcing some individuals and/or businesses to relocate
- The SGCP may impact the perceived market value of neighbouring rural properties, particularly if market premiums currently exist associated with perceived amenity values of undistributed landscapes and natural rural production systems
- The SGCP will require the removal of 591 ha of remnant vegetation

3.19 Assessment of the cumulative impacts

A number of mining and energy development projects have been proposed in the Galilee Basin, and have been determined to be 'significant projects' by the Coordinator-General, including:

- Galilee Coal Project
- Alpha Coal Project
- Kevin's Corner
- Carmichael Coal Mine and Railway
- Galilee Basin Power Station
- IsaLink High Voltage Direct Transmission Line (Stage 1)

This section examines the major cumulative impacts (both positive and negative) likely to occur from the concurrent undertaking of the abovementioned projects.

3.19.1 Potential beneficial cumulative impacts

The following beneficial cumulative economic impacts have been identified:

Provision of common user infrastructure

Product coal produced at the SGCP and other proposed coal mines in the Galilee Basin requires extensive new bulk rail transport infrastructure, in order to ship coal products to key export markets from the APCT.

The concurrent development of the proposed coal mines will also require:

- Additional electricity transmission (eg via Powerlink Queensland's Galilee Basin Transmission Project) and possibly power generation (eg proposed Galilee Basin Power Station at the mouth of one of the proposed mines)
- Additional external raw water supplies from SunWater's proposed Connors River Dam and Pipeline and the Moranbah-Alpha Pipeline
- Improvements in communication infrastructure (eg fibre optics and wireless communication equipment)

The provision of common user infrastructure is expected to benefit the local area, region and state.

Broadening of the local/regional business base

Each of the mines currently proposed in the Galilee Basin are substantially larger than existing mining operations within Queensland. The concurrent deployment of two or more of these proposed Galilee Basin mines is expected to provide the critical mass to attract specific mining service firms to the local/regional area, broadening the existing business base. Existing businesses will also benefit as a result of greater product and service demand from the multiple projects. With an expanded range and number of businesses operating and clustering of service providers within the local/regional area, potential exists for enhanced synergies between businesses.

The establishment and broadening of the local/regional business community is projected to be a major positive economic stimulus.

Increased local/regional economy

The proposed mining and associated infrastructure projects offer to significantly increase the size of the local and regional economies.

Improved service provision

Other services likely to experience cumulative demand include:

- Health
- Recreational facilities and activities
- Education and training
- Child care
- Public and community services

The increased service provision to the local/regional community is projected to be a positive economic stimulus.

3.19.2 Potential adverse cumulative impacts

The following adverse cumulative economic impacts have been identified:

Loss of labour resources from traditional business sectors

Each of the proposed projects in the Galilee Basin has substantial input requirements (e.g. labour, goods and services). Each of the proposed coal mines has staffing requirements of approximately 700 to over 1,000 persons; hence FIFO is the advocated workforce strategy for the Galilee Basin.

Given that salaries likely to be offered at the proposed mine sites may be higher than those offered by employees in other industries, local businesses may experience difficulties in retaining skilled and unskilled labour. For the majority of existing and non-mining businesses, the increased cost of retaining staff will impact on business profitability and viability.

The loss of skilled and unskilled labour resources to the emerging mining sector is a significant adverse factor across the state, particularly for rural agribusinesses. The potential development of new mining operations within the Galilee Basin may exacerbate this problem.

Crowding out of businesses through higher operating costs

The cumulative demand from the proposed Galilee Basin development projects may also impact directly and indirectly the availability and prices of other inputs including accommodation, residential and commercial property, rental property, construction materials, consumables, etc. In most cases the cumulative impact may result in an increase in price.

The increased demand placed upon the local/regional economy for a range of goods and services (particularly labour and investment capital) is projected to lead to adverse economic impacts to non-

mining related business stakeholders, and also discourage the emergence of new businesses due to the higher cost of operating within the region.

Availability of affordable housing

Although each of the proposed Galilee Basin mining projects is proposing to establish accommodation villages on-site, spill over demand and/or indirect and secondary population growth may impact residential housing in local townships, particularly Alpha.

Investment speculation over the proposed mining developments has already increased house prices in Alpha. Commencement of any of the proposed mining developments may result in an additional spike in market prices (also impacting commercial land valuations within Alpha).

Associated with a rise in house values may be a likely corresponding rise in rental rates which may in turn impact some families or individuals on low incomes.

Each additional mining development may be expected to incrementally increase market prices, adversely impacting housing affordability.

Local infrastructure and public service provision

Each of the proposed development projects has substantial input requirements for utilities (eg. power, telecommunications, water, waste management, roads, public and community infrastructure and services).

In terms of key utilities, each development project is investigating alternative supply options to avoid the existing capacity restricted networks.

However, other infrastructure products and services, such as local roads funded by local and state governments, will require enhanced investment to meet additional demands imposed by the proposed development projects.

In many cases funding restrictions within local and state government budgets may restrict the capacity to improve local infrastructure and service provision, resulting in products and services deteriorating in condition as currently experienced at mining communities within southern Queensland.

Disruption to the local agricultural sector

The SGCP will reclaim 31,222 ha of grazing land that currently produces approximately $590,000 of beef production per annum. The combined loss of grazing land and consequent reduction in annual beef production associated with all of the proposed developments will be substantial for the Galilee Basin.

The direct loss of gross revenue from grazing, much of which is currently re-invested into the local community for the purchase of goods and services and labour, will impact upon a range of existing businesses. In addition, a loss of economies of scale for a wide array of goods and services provided to the agricultural sector may potentially lead to higher input prices.

The magnitude of adverse economic impacts to the local agricultural sector will be highly dependent upon the final number of mines operating within the Galilee Basin.

3.20 Recommended mitigation strategies

The following mitigation strategies are recommended to minimise the key adverse economic impacts:

- Development of a LIPP (in consultation with the LIPP Working Group) to give the local industry full, fair and reasonable opportunity to be considered for SGCP contracts
- Development of a WMP (in consultation with the WMP Working Group) to maximise fair and reasonable employment opportunities for local, regional and Queensland workforces;

- Continuation of the Galilee Basin Community Reference Group forum, to provide local stakeholders with the opportunity to voice concerns and provide input
- Development of a HAP (in consultation with the HAP Working Group)
- Construction of an on-site accommodation village to house SGCP employees
- Ongoing consultation with key stakeholders through the SGC Community Engagement Program;
- Ongoing collaboration with other Galilee Basin mining proponents to address cumulative impacts and establishment of the Community Partnership Program (or similar)
- Development of a Social Infrastructure Working Group to discuss issues relating to health, education, community safety and hard infrastructure
- Development of a Landholder Management Plan, to maintain good working relationships between the SGCP and the affected landholders and address property impacts (eg landholder communications, compensation, property access, complaints and dispute resolution etc.)

4 Conclusions

The following conclusions have been drawn from the preceding economic impact analysis for the SGCP:

Significant economic stimulus to the Queensland economy

The SGCP is estimated to provide significant on-going economic benefits over the life of the project, increasing total industry output by $41.3 billion and boosting value add (Gross State Product) by approximately $21.6 billion during the construction and operational phases of the project.

Economic impact on the Australian economy

At a national level and inclusive of the Queensland impacts, total output is estimated to expand by $46.4 billion over the SGCP's 2 year construction stage and subsequent 33 years of mining. It will contribute an estimated $23.5 billion to value added (Gross Domestic Product) over the same period.

New jobs

The SGCP is projected to create 1,600 direct jobs during construction (2013-2014) and employ approximately 1,290 staff at the mine site during its operational phases between 2019 and 2047.

Support to the local economies

The SGCP will also provide additional employment opportunities for the residents of the Barcaldine RC LGA (particularly the township of Alpha and surrounding areas). It is estimated that a total of six operational employees will reside within the local community, accruing approximately $650,000 per annum in employment income, of which approximately $300,000 per annum is projected to be spent on local goods and services by the employees. In additional SGCP will engage local businesses for goods and services, diversifying and increasing the local economy.

Boost for state government revenue

Subject to exchange rate variations and coal price fluctuations over the life of the mine, the estimated royalty payments alone that would be made to the Queensland Government are estimated at $49 million to $85 million per annum for the first four years, before increasing to $90 million to $158 million per annum over the remaining operational duration of the SGCP. Over the life of the project it is projected that SGCP will generate between $2.8 billion and $4.9 billion in state royalty payments alone. It is expected that the quantum of this payment will remain the same whether collected under the existing Queensland Government system or under the administrative arrangements of the proposed MRRT.

The SGCP will also make incur significant state payroll taxes varying between $4.5 million to $8 million per annum, totalling $226 million throughout the life of the project.

SGCP will also incur other state taxes and duties including:

- Annual tenure rents for the mining leases, estimated at $1.5 million
- Annual land tax liability, estimated at $162,000 to $380,000
- Annual port dues totalling between $2.3 million and $4.2 million ($130 million over the life of the project)
- Stamp duties relating to land/vehicle transfers, and stamp duties relating to annual vehicle registrations and insurance premiums

Boost for state rail and port operators

Based on the need to transport from the Galilee basin to APCT a total of 447.5 million tonnes of product coal over the life of the project, it is estimated that SGCP will generate a total of $6.7 billion in rail fees and $2.1 billion in port fees.

Boost for Federal government revenue

SGCP will be subject to MRRT which applies from 1 July 2012, a profit based tax regime. In addition, SGCP will boost company tax and GST revenues for the Federal government over the life of the project.

Based solely on projected direct employment at SGCP and current tax rates for 2011, it is estimated that SGCP will boost personal income tax revenue for the federal government by $1.2 billion over the life of the project.

Substantial boast to balance of payments

The value of production from the SGCP is projected at $702 million to $1.1 billion for the first four years, before increasing to $1.3 billion to $2.0 billion in the subsequent 29 years. All of the production is assumed to be exported. Over the life of the project, the SGCP will improve Australia's Balance of Payment by approximately $40 billion to $63 billion.

Minor cost in terms of revenues forgone

The project is projected to utilise a total of 31,222 ha which is currently utilised for livestock grazing purposes. The opportunity cost of existing grazing operations is estimated at approximately $791,480 per annum.

The SGCP will also incur an environmental cost which can be estimated in economic terms. The project will require the removal of 591 ha of remnant vegetation, which has an estimated annual value of $34,869. This valuation relates to current market transactions undertaken by communities seeking to preserve remnant vegetation on private lands.

The 591 ha of remnant vegetation also has an economic valuation from the prospective of carbon sequestration. The value of carbon currently stored within the remnant vegetation is estimated at $4.1 million (sink value), and an annual carbon sequestration capacity valued at $40,780 per annum.

5 References

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Appendices

Appendix A
Input output methodology

The impacts on the regional economic environment can be assessed using I-O analysis. As it is an economic impact analysis, it does not address project evaluation matters that are better suited to cost benefit analysis which returns the net economic worth of a project.

The linear I-O approach is based on industry tables that model the structure of an economy by describing inter-industry relationships. It is a useful approach that can describe total impact on an economy from an initial increase in demand in a particular industry. The underlying data set for this analysis was the national 2006-07 Input - Output tables as published by the ABS (2011) (*Australian National Accounts: Input – Output Tables, Electronic Publication. Final Release 2006-07 Tables*, Cat. No. 5209.0.55.001). The compilation of a state based table for Queensland was achieved using published state accounts from ABS (2011) (*Australian National Accounts: State Accounts,* June 1990 – June 2010, Table 1 Gross State Product & Table 10 Expenditure, Cat. No. 5220.0), and updates on state and industry employment using ABS (2011) (*Labour Force, Australia, Detailed, Quarterly*, Table 5 Employed persons by State and Industry, Nov 1984 – May 2011, Cat. No. 6291.0.55.003).

Economic impacts at a regional and national level can be traced through the economic system in a number of difference ways. In this assessment, the following impacts are considered:

- Direct multiplier effects – increases in economic activity (value added) and employment that are directly generated in the industry receiving the impact
- Indirect multiplier effects – flow-on impacts from industries that support the industry receiving the direct impact.

I-O modelling can also identify Induced multiplier effects – changes in consumption by the household sector in response to income changes from the direct and indirect impacts. However, a degree of double counting the flow-on impacts occurs with induced consumption, and therefore these impacts were not incorporated within this analysis.

Economic indicators reported from the I-O modelling include:

- Industry Output
- Value-added
- Employment
- Household income

While Industry Output measures consider the gross value of production, they include the value of raw materials generated in earlier stages of production. There is a potential tendency to double count the impact. Consequently, more attention to the impacts reported should focus upon the Value-added results, as it only considers the value of incremental raw materials at each stage.

Employment measures the number of jobs required to meet additional production in the economy. It may occur through increased use of existing labour or creation of additional jobs, and typically expressed in terms of equivalent full-time employment (FTEs) over a one year period.

There are a number of limitations relating to the application of an I-O methodology which are discussed in the following points:

- This study relies on linkages between mining and downstream/upstream sectors (including households and government) observed at the national level, which is dominated by the coal and iron ore sectors. As such the inter-sectoral relations specifically for SGCP may differ slightly to that observed at the national level for the Mining sector; however these differences are likely to be minor. As such, care should be taken interpreting the specific industry impacts identified within the analysis, and more attention paid to the summary impacts at the state and national levels.

- Further, it should be noted that this method has a general bias to overstate impacts, as the ABS has noted that “the theoretical basis (of multiplier effects) produces estimates which somewhat overstate the actual impacts in terms of output and employment” (ABS 2002). This is mitigated by conservative estimates of the initial construction and operation impacts, and not incorporating the consumption induced impacts.

Inter-industry relationships are implicitly assumed to be linear across the scale of impacts and relative prices for inputs and outputs are assumed to remain in fixed proportion irrespective if supply conditions for inputs. This means that the results of linear I-O analysis do not take into account shortages in factors of production or changes in relative prices of inputs. In effect, these tables do not take into account marginal effects or economies of scale or unused capacity.

Therefore, results obtained from the linear I-O modelling presented within this report should be viewed as indicative only of the scale of the economic impacts resulting from the proposed project.

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