18 Economic Assessment

18.1 Introduction

This economic assessment was conducted to meet the requirements outlined in the Terms of Reference (ToR) for an Environmental Impact Assessment – Bowen Basin Coal Growth Project, October 2008. Potential direct and indirect impacts on the local, regional and national economies as a result of the project have been identified and quantified where possible. Strategies have been provided to mitigate potential negative economic impacts and maximise the potential economic benefits that would potentially occur.

18.1.1 Methodology of Assessment

The value of impacts on the regional economic environment has been assessed using input-output analysis. This approach is based on input-output tables that model the structure of an economy by describing inter-industry relationships. The tables are useful in economic impact analysis as they describe the total impact on an economy from an initial increase in demand in a particular industry. Input-output multipliers obtained from input-output tables capture the direct and indirect effects of an economic stimulus on a region. Input-output multipliers used for the Mackay region were obtained from the 1996/97 Queensland regional input-output tables (August 2004 revision). The 2001-02 System of National Accounts Input-Output Multipliers released by the Australian Bureau of Statistics (ABS 2002) has been used to determine the input-output multipliers at the national level. Input-output tables are not readily available for the State economy and hence it is difficult to reliably quantify the economic impacts at this level.

The objective of this economic assessment is to identify the potential economic impacts of the project, including the direct and indirect impacts. The input-output methodology is one method of estimating such impacts as it focuses on economic activity impacts and enables direct and indirect contributions to output and employment to be estimated from inputs in the form of spending during both the construction and operational periods. This method, therefore, is consistent with the outputs sought from the ToR.

In contrast, cost-benefit analysis estimates cost and benefits (monetised and non-monetised) of a project using discounted cash flow analysis. Unlike the input-output method, the outputs from a cost-benefit analysis would be the net present value (NPV), internal rate of return (IRR) and benefit-cost ratio (BCR). These indicators are decision making indicators to determine whether a project should go ahead or not go ahead (e.g. if NPV is greater than zero, then it is prudent to invest) and to prioritise investment options. The cost-benefit analysis method essentially measures the net worth of a project, not its economic impacts. Cost benefit analysis is data intensive, requires forecast of revenues and benefits, and is generally done internally before the proponents of a project decide to proceed or not proceed.

In summary, the input-output method is an economic impact assessment method, whereas cost-benefit analysis is an economic evaluation method. There is therefore a mismatch between the method referred to in the BMA Bowen Basin Coal Growth Project ToR (i.e. cost-benefit analysis), and the outputs sought by the ToR for the economic component of the EIS (i.e. direct and indirect economic impacts).

18.1.1.1 Types of economic impacts

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

- The direct multiplier effect represents the increase in economic activity (value added) and employment which is directly generated in the industry receiving the initial impact.
- The indirect multiplier effect represents the flow-on impacts that occur from all secondary industries in the economy to support the direct impact.
- The induced multiplier effect represents the change in consumption by the household sector or pay packet effect in response to income changes resulting from the direct and indirect impacts.
- The total multiplier effect is the sum of the direct, indirect and induced multiplier effects outlined above.

18.1.1.2 Measurement of economic impacts

In this assessment, the economic impacts of the project are measured in terms of:

- Output
- Value-added
- Employment.

For the purposes of this assessment, output is used to measure the gross value of production at the national level. The measure includes the value of raw materials that have been generated from previous stages of the production process and thus there is a tendency for double counting.

For this reason, value added is considered to be a better indicator of economic impact and is used to measure the net output impact at the regional level. This measure is equivalent to gross state product as used by the Australian Bureau of Statistics. Unlike the gross output measure used at the national level, only the value of incremental raw materials at each stage of production is included.

Employment measures the number of jobs required to meet the additional production in an economy. Employment may occur through increased use of existing labour or the creation of additional jobs. The measure of employment is equal to the equivalent full-time employment (FTEs).

18.1.1.3 Data and assumptions

The activities associated with the project were broadly categorised as either construction or operation. These individual expenditure profiles were then allocated to the appropriate sectors in the input-output framework to estimate the economic impacts of the development.

For the construction phase, activities were based on a construction period of approximately 24 months and annualised for the purposes of the assessment. Similarly, operating expenditure was provided on an

annualised basis. Using information provided by BMA on the likely contribution to key stakeholders, estimates were made on the proportion of expenditure likely to occur at the regional, state and national levels. The proportions of expenditure were estimated at 39% at the regional level, 32% at the state level and 29% at the national level. These proportions were used to estimate the economic impacts on valued added, output and employment. The amounts are based on 2008/09 Australian dollars.

18.1.1.4 Limitations of the methodology

As noted previously, the multipliers used in this study rely on multiplier tables obtained from the Queensland Office of Government Statistician (August 2004) and the Australian Bureau of Statistics (ABS 2002).

As the table sources are dated, care should taken in terms of the reliability and accuracy of the estimates provided. In particular, the assessment assumes that industrial structure of the Australian economy has remained relatively unchanged since the compilation of the tables. However, it has been recognised that due to the considerable time, complexity and hence cost involved in updating these tables, there is generally a time lag between the time in which these tables are compiled and the current period (ABS 2002). In part, this is acceptable if one considers that "*technological change does not occur very rapidly, so that it is possible to obtain reasonable results for the latest year even though the latest input-output tables may be a few years old. The various multipliers generally remain fairly stable over time*" (ABS 1995, page 6).

It should also be noted that there is a general bias observed with this method to overstate the benefits of a project. 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, page 550). Other associated limitations with the use of input-output multipliers is that they describe average effects, not marginal effects, and thus do not take into account economies of scale, unused capacity, labour supply constraints or technological change (ABS 1995 page 6). For these reasons, range estimates rather than point estimates are provided in order to take into account possible structural changes in the economy since the compilation of the input-output multipliers.

Despite these limitations, the input-output framework provides a means of estimating the economic impact of the project and is intended to be indicative only.

18.2 Existing Economic Environment

The project is located within the Isaac Regional Council local government area, which was established as part of local government amalgamations in March 2008 and includes the former Belyando, Broadsound and Nebo shires. The project site is situated approximately 6 km south-west of Moranbah, north of the existing Peak Downs Mine, on the northern and southern sides of the Peak Downs Highway, in the northern part of the Bowen Basin approximately 160 km west of Mackay and 1,050 km north-west of Brisbane. A demographic profile of the local and regional area is provided in Section 17. The main characteristics of this profile are:

- Significant population growth which is expected to continue.
- A large, transient, non resident population with the majority of employees residing in the local area temporarily to service the mining industry.
- A relatively tight labour market with an unemployment rate below the state average.
- The mining sector comprising the largest employing industry followed by retail trade, accommodation and food services, and construction.
- Machinery operators and drivers followed by technicians and tradespersons comprising the largest occupational categories.
- Local businesses in the region are predominately in the agriculture, forestry and fishing industry followed by retail trade, construction and health and community services.
- Relatively high weekly income compared to the Queensland average.

18.2.1.1 Economic Base and Economic Activity

Traditionally the economic base of the Isaac region has centred on sugar, beef, agriculture and coal mining. More recently there has been a move towards the development of aquaculture, fruit and vegetable growing and goat farming activities (Regional Economic Development Corporation 2008a).

Employment opportunities in the coastal areas of the region are largely centred on service industries while employment opportunities in the west are largely associated with the coal industry.

Coal Mining

The Isaac Regional Council electorate is located within the Bowen Basin, the largest coal reserve in Australia. Providing approximately 83% of Queensland's coal production, the region extends over 60,000 km^2 from Theodore in the south to Collinsville in the north. The Mackay Whitsunday Region is responsible for 48% of Queensland's and 27% of Australian's total coal production.

The mining industry contributed $5.5 billion (51.9%) to the gross regional product for the Mackay Whitsunday Region in the 2007 financial year (Regional Economic Development Corporation 2008c). The production of coal increased by 7.9% over the 2007 financial year to a total of 108.3 million tonnes per annum. In the 2007/08 calendar year there were 97.6 million tonnes of saleable coal exported from the Mackay Whitsunday region, an increase of 2.2% from the previous year. (Regional Economic Development Corporation 2008c).

Mining and Support Services

Engineering support services for the mining industry in the northern Bowen Basin area are predominately located in Mackay. There is a potential for the Isaac Regional Council to enter this mining services market by developing an industrial precinct located in close proximity to the Bowen Basin. The regional economic report on the Mackay Whitsunday region in June 2008, confirms that there are potential development

opportunities for the mining services industry in the Isaac Regional Council local government area. Industrial zoned land is available in both Moranbah and Clermont that is suitable for a number of industrial uses including development opportunities associated with expansion of the mining industry. Stage 2 of the Moranbah Heavy Industrial Estate provides for an additional 18 ha of industrial land. A steady uptake of industrial land in Middlemount has resulted in a supply shortage of industrial land in this area. Opportunities to provide more industrial land are currently being explored in both Middlemount and Dysart. Additionally, industrial zoned land more suitable for general industrial, light industry and warehousing is available in the townships of Nebo and Glenden (*Regional Economic Development Corporation 2008c*).

Agriculture

Agriculture contributed $422.6 million (4%) to the gross regional product for the Mackay Whitsunday Region for the 2007 financial year, a decrease of 18.2% from the previous financial year (*Regional Economic Development Corporation 2008c*). The activities in the region include sugarcane, cattle grazing, grain and horticulture. Agriculture production in recent times has been negatively impacted by drought conditions and fluctuations in global demand, therefore contributing to the recent decline in the gross regional product figure.

In the 2007 financial year the Mackay Whitsunday Region crushed 9.8 million tonnes of sugar cane, traded 1.2 million head of cattle and produced 91,111 ha of grain crops (*Regional Economic Development Corporation 2008c*).

Gas

The Moranbah Gas Project located in the Bowen Basin is the sole provider of gas into the Townsville market. The gas field has an annual production capacity of over 16 petajoules and is one of the largest operating coal seam gas projects in Australia. There is potential for the Moranbah Gas Project to supply gas to the Gladstone market in the future.

18.2.1.2 Potential Economic Opportunities

To date, the Mackay region has been relatively sheltered from the global economic crisis, in comparison to other regional centres with continuing demand for coal, investment in port infrastructure and the high wages in this sector providing an economic buffer. Other factors favouring the region include low and falling interest rates, relatively low unemployment and the amount of investment in the region.

Based on the most recent figures from the Regional Economic Development Corporation (REDC) (December 2008), the region has over $36 billion worth of projects either underway or going through various stages of development. The mining industry remains strong in the region with almost $2 billion in expansions and new ventures currently under construction and a further $8 billion under investigation. These figures represent a 20.9% increase on the previous quarter (Regional Economic Development Corporation 2008)

The latest Regional Development Register (January 2009) maintained by the Regional Economic Development Corporation, reported the value of committed or under-construction major developments in the Mackay Whitsunday Region as being $17.679 billion, with a further $23.576 billion in potential projects currently under investigation. Major projects (in excess of $5 million and excluding residential development) under construction and committed as of January 2009 for the Mackay, Isaac and Whitsunday Regional Council areas include:

Energy:

- Central Queensland Gas Pipeline from Moranbah to Gladstone – ALG Energy/Arrow Energy ($220 million)
- Energy Supply Cannonvale/Jubilee Pocket – Ergon Energy ($32 million)
- Energy Supply Mackay Northern Suburbs (Ergon Energy) ($118 million)
- Increase energy capacity to Dalrymple Bay and Hay Point Coal Ports – ($76 million)
- Mindi Electrical Feeder Substation (Goonyella System) – Queensland Rail ($17.1 million)
- Moranbah Gas Operation – ($60 million)
- Moranbah North Gas Power Unit – Anglo Coal/Energy Developments ($60 million)
- North Queensland Reinforcement project (transmission lines between Nebo and Strathmore substation, Strathmore and Ross substations and Broadsound and Nebo substations) – Powerlink Queensland ($500 million)
- Nebo to QR Bolingbroke transmission line – Powerlink Queensland ($43.8 million)
- Strathmore to Bowen transmission line –Powerlink Queensland ($83 million)

Marine:

- Bowen Marina – Jag Marine ($600 million)
- Mackay Marina expansion – Mackay Marina Pty Ltd ($14 million)
- Port of Airlie Marina Development - Meridien ($500 million)

Mining:

- Carborough Downs Underground Coal project – Vale Australia ($508 million)
- Clermont Open-Cut Coal Mine – Rio Tinto Coal Australia ($1.5 billion)
- Foxleigh Open-Cut Expansion – Anglo Coal (n/a)
- Isaac Plains Coal Expansion project - Vale Australia ($118 million)
- Olive Downs North- Macarthur Coal ($50 million)

- Sellheim Gold Open-Cut – (n/a)
- Vermont Coal project – Bowen Basin Coal ($264 million)

Ports:

- Abbot Point Coal Terminal X25 Expansion – Ports Corporation Queensland ($95 million)
- Abbot Point Coal Terminal X50 Expansion – Ports Corporation Queensland ($818 million)
- Dalrymple Bay Coal Terminal Expansion Stage 7 – Babcock and Brown Infrastructure ($1.1 billion)

Tourism:

- Clarion Hotel Extension – Clarion Hotel Mackay Marina (n.a)
- Dent Island Golf Course – Hamilton West Proprietary Limited ($25 million)
- Horseshoe Bay Resort Development – (n.a)
- Jagabara Championship Golf Course – Laguna Whitsundays Resort ($25 million)
- Mackay Marina Commercial Hub – (n.a)
- Peppers Coral Coast Resort – Latitude Development Group ($140 million)
- Quest Apartments – ($20 million)
- Whitsunday Aviation Village Estate (WAVE) – Whitsunday Airport ($75 million)

Water:

- Mackay Water Recycling project – Mackay Water ($154 million)
- Nebo Road Water Treatment Plan Upgrade – Mackay Water ($10 million)
- Pump Stations Upgrade – Mackay Water ($8 million)
- Sarina Pipeline project – Mackay Water ($9 million)

Roads

- Construction Deviation, Sams Road – Barnes Creek Road ($14.17 million)
- Farellys/Smidtke/Bruce Highway – ($12.3 million)
- Forgan Bridge Duplication – Main Roads ($128 million)
- Holts Road – Golf Links Road/Mackay – Habana Road – ($8 million)
- Hospital Bridge Replacement – Main Roads ($33.6 million)
- Intersection Improvements – Proserpine – Shute Harbour – ($5.43 million)
- Joint Levee Road Mackay – Main Roads ($14.2 million)

- Mackay-Bucasia Road Upgrade – Main Roads ($25.28 million)
- Oxford Downs – Sarina Road project – ($6.03 million)
- Pavement widening at Benhome – Dunwold – ($9.7 million)
- Peak Downs Highway – (Nebo to Mackay) – Main Roads ($6.47 million)
- Peak Downs Highway – (Clermont to Nebo) (Clermont Coal Mine Road project – ($33.63 million)
- Peak Downs Highway – (Clermont to Nebo) Myall Creek – Main Roads ($8 million)
- Peak Downs Highway – (Nebo to Mackay) Boundary Creek – Cut Creek – Main Roads ($6.09 million)
- Peak Downs Highway Widening (Moranbah to Clermont south of Myall Creek) – Main Roads ($8.8 million)
- Realignment at Blackwaterhole Creek and approaches - ($5.8 million)
- Replacement of Sandy Creek Bridge – ($9 million)
- Road Works – Mackay Bucasia Road – ($21 million)
- Sandy Creek Bridge Upgrade – ($6.267 million)
- Urban Congestion Study – ($5 million)

Rail:

- Bolingbroke Substation – QR Network ($30 million)
- Jilalan Rail Yard Upgrade – QR Network ($500 million)

Manufacturing and Industry:

- Evolution Paget Industrial Park – Mirvac & Industrial Commercial Property Solutions ($200 million)
- Harbour City Central – Giant Developments ($20 million)
- Industroplex – FKP Property Group ($40 million)
- Industry East Q – Massland ($57.2 million)
- Mackay Connect Business Park – Pilcher Developments (n.a)
- Mackay Gateway Business Park – Evolve Property Group/Investec Group ($30 million)
- Moranbah Ammonium Nitrate Manufacturing Complex ($935 million)
- Site Business Park – GAP Developments ($17 million)
- South Mackay Industrial Estate – Office of the Coordinator General ($7.4 million)
- Terminus Business Park – Winston Group ($5 million)

Agribusiness:

- Furfural Plant – Proserpine Mill – ($30 million)
- Mackay Renewable Biocommodities (Ethanol) Pilot Plant – ($7 million)
- Sarina Distillery Upgrade – ($17.8 million)

Community Infrastructure:

- Bluewater Trail including Bluewater Lagoon – Mackay Regional Council ($32 million)
- Bowen Foreshore Development – Whitsunday Regional Council ($20 million)
- Mackay Convention Centre – Mackay Regional Council ($29 million)
- New Mackay Hospital – ($405 million)

Professional Services:

- Bridge Road Medical Suites – Bridge Property Group ($17 million)
- SkillsTech Australia College – TAFE ($50 million)

In addition to the committed and under construction project there are also a number of other projects that are currently under study (Regional Economic Development Council 2009).

18.2.1.3 Value of Rateable Properties

The median house price in Mackay City was $386,500 for the year ending March 2008, an increase of 0.7% from the previous year. By comparison median house prices in the former Mirani and Sarina shires

increased by 16.8% (to $350,000) and 6.2% (to $345,000) respectively over the same period (*Regional Economic Development Corporation 2008b*).

The median house price in the former Broadsound Shire grew by 8.7% for the year ending March 2008 to $331,000. For the same period, the median house price in the former Belyando Shire declined slightly by 1.4% to $345,000 (*Regional Economic Development Corporation 2008a*).

The Mackay region recorded 45 industrial property sales valued at $42,316,849 for the year ended December 2007, with an average price of $940,374. Of these industrial property sales, 43 were in the Mackay City and two in the former Sarina Shire (*Regional Economic Development Corporation 2008b*).

The Isaac region recorded nine industrial property sales valued at $5,083,250 for the year ended December 2007 with an average price of $564,805. All nine industrial property sales were in the former Belyando Shire (*Regional Economic Development Corporation 2008a*).

18.3 Potential Impacts and Mitigation Measures

18.3.1 Construction Phase

The construction phase is set to commence in 2011, with a duration of approximately 25 months and an estimated total cost of AUD$4 billion. The number of workers employed will vary throughout the construction and will peak at approximately 1,200 workers. A figure presenting a monthly breakdown on the construction workforce is depicted Section 17 of the EIS.

The construction phase will have a short-term economic impact to the regional and national economy from increased spending and employment. The annualised economic impact of construction has been estimated using input-output analysis and is summarised in Table 18.1

Table 18.1 Annual economic impact of Project construction on the Mackay Region and Australia

	Regional	**National**	**Total**
Value Added or Output (AUD $ Million)			
Direct	240 – 300	203 – 254	443 – 553
Flow-on	120 – 150	189 – 237	309 – 386
Induced	120 –150	408 – 509	527 – 659
Total	**479 – 599**	**800 – 1000**	**1279 – 1599**
Employment (Persons)			
Direct	4762 – 6350	1002 – 1336	5765 – 7686
Flow-on	1198 – 1558	668 – 891	1866 – 2448
Induced	1048 – 1378	2004 – 2673	3053 – 4050
Total	**7009 – 9285**	**3675 – 4900**	**10,684 – 14,185**

Notes: Regional impacts are derived on a valued-added basis. National impacts are derived on an output basis. Figures may not sum precisely due to rounding.

Based on Table 18.1 the total economic impact on the Mackay Region and the national economy for the 25 month construction period is estimated as follows:

- Construction is expected to increase value added of all other industries in the Mackay Region by $479 to $599 million and raise output by $800 million to $1 billion in Australia on an annual basis.
- Expenditure during construction is expected to support the equivalent of approximately 7,009 to 9,285 full-time jobs in the Mackay Region and 3,675 to 4,900 full-time equivalent jobs in Australia on an annual basis.

The direct economic impact from the construction phase will decline towards the end of the construction period as construction tapers off; however, the economic impact on the local region will be sustained by the operational phase of the project.

18.3.2 Operational Phase

Once the operational phase commences, the local region will experience ongoing economic impacts throughout the life of the project, due to the direct link between employment in the local area and the level of spending in the region.

The project will be operational for in excess of 30 years with expected yearly operational costs in the order of AUD$450 to $500 million. Once operational the project is predicted to employ a peak workforce of approximately 495 people. The composition of the workforce is expected to be approximately 70% of personnel comprising operators, drivers, tradespersons, labourers etc and 30% comprising management, supervisory, technical and clerical roles (including contractors, owners and EPCM team).

Based on an operational expenditure of $475 million per annum the annualised operational impact on the Mackay Region and national economies has been estimated and is summarised in Table 18.2.

Table 18.2 Annual economic impact of Project operation on the Mackay Region and Australia

	Regional	National	Total
Value Added or Output (AUD $ Millions)			
Direct	74 – 93	43 – 54	117 – 147
Flow-on	30 – 37	34 – 43	64 – 80
Induced	30 –37	74 – 93	104 – 130
Total	**133 – 167**	**152 – 190**	**285 – 357**
Employment (Persons)			
Direct	211 – 282	165 – 220	376 – 502
Flow-on	315 – 430	165 – 220	480 – 650
Induced	278 – 371	413 – 551	691 – 922
Total	**804 – 1082**	**744 – 992**	**1548 – 2074**

Notes: Regional impacts are derived on a valued-added basis. National impacts are derived on an output basis. Figures may not sum precisely due to rounding.

Based on Table 18.2 the annual economic impact on the Mackay Region and the national economy during the operational phase is estimated as follows:

- The value added to all industries in Mackay is increased by $133 to $167 million annually due to the project operation. Nationally, output is increased by approximately $152 to $190 million on an annual basis.
- The operation of the project will generate an additional 804 to 1,082 jobs in the Mackay Region and 744 to 992 jobs in Australia annually.
- The project will provide significant economic benefits to the Mackay Region and Australian economies during its operational lifetime.

18.3.3 Costs to government

It is expected that government infrastructure will need to be upgraded for the project as outlined below:

- Rail. Some upgrading of the Goonyella Rail system, in addition to the Coppabella-Ingsdon Duplication and the Jilalan upgrades which are underway, will be required and will be carried out by QR. All costs associated with upgrades will be recovered through fees levied to BMA and other rail users for the haulage of coal. BMA is in discussions currently with QR on the extent of rail upgrades required for tonnages associated with BMA growth.
- Port. The product coal will be loaded at the Hay Point Coal Terminal. The Hay Point Coal Terminal is owned and operated by BMA. BMA is currently seeking to expand its export capacity through the expansion of the Hay Point Coal Terminal. Investigations are currently underway into the feasibility of

expanding the terminal from 43 Mtpa to 75 Mtpa. No costs will be incurred by Government for port capacity, given that the Hay Point Coal Terminal is owned by BMA and will be expanded at BMA cost.

- Road. The project will use existing roads, primarily Moranbah Access Road and the Peak Downs Highway. As a result of the project, a number of road improvements will be required, specifically:
    - Overpass of the Peak Downs Highway: The overpass will be funded and constructed by BMA.
    - Access to the Caval Ridge MIA from the Peak Downs Highway: The intersection will be funded and constructed by BMA.
    - Upgrades to the intersections at Moranbah Access Road-Peak Downs Highhway and Winchester Road – Peak Downs Highway: Traffic modelling indicates that DTMR's DOS will be exceeded as a result of the project, therefore requiring an upgrade by DTMR to which BMA will contribute.
- Power.A 66kV line from the Moranbah-Peak Downs line will be developed by BMA. Access into the 132 kV network will be supplied by Powerlink, whilst the 132/66 kV new transformational capacity will be installed by BMA. Any required modifications to the Moranbah substation will be undertaken by Ergon Energy.
- Water. The project will source water from the Eungella-Bingegang Pipeline. The water pipeline accessing this line will be constructed by BMA. No additional costs to government are expected.
- Accommodation: The construction workforce will mostly reside in Denham Village to be located on the Moranbah Access Road. The operational workforce and their families will reside mostly in private accommodation in Moranbah. No Government accommodation will be required.

The project workforce and their families will use services provided by state and local government (e.g. educational, medical and municipal services) however such services would be provided if the workers lived elsewhere in the State or within Australia. Increased costs to the Isaac Regional Council will be offset by the rates charged to the new residents. No significant increase in overall costs to government is anticipated.

18.3.4 Other economic benefits

In addition to the economic benefits that are estimated to arise from direct expenditure by BMA during project construction and operations (as outlined in the previous sections) the project is also expected to generate economic benefits in the form of project induced flows to government revenues.

18.3.4.1 Royalty payments from coal production

The project is expected have an average production of 8 Mtpa of coal over the operating period of the project. The production of this coal will generate royalty payments to the Queensland Government. In Queensland, coal royalties are assessed according to a two tiered coal royalty system which results in an increasing variable rate of royalty once the price of coal exceeds $100 per tonne per quarter. Specifically

coal companies pay 7% of value up to A$100 per tonne and 10% of the value thereafter. For example, a price of A$100 per tonne attracts a rate of 7% of coal value, A$150 per tonne attracts 8% and A$200 per tonne attracts 8.5%.

On this basis, and subject to exchange rate variations and coal price fluctuations over the life of the mine it is estimated that in excess of A$130 million per year in royalty payments would be made to the Queensland Government over the 30 year operation of the project. As indicated, the amount of royalties is dependant upon the pro

18.3.4.2 Other payments

In addition to the royalty contributions outlined above, the use of land for the project is expected to contribute to local government rates. Specifically Isaac Regional Council charges different rates for use of its land. The project would be categorised as Category (23) Mining (401-700) based on an operational workforce of 495 people. The local government rate contributions are expected to assist in the funding of a wide range of services to the benefit of the local community, including the management and maintenance of critical social and economic infrastructure such as local roads, libraries, sporting grounds and swimming pools, parks and playgrounds, community halls and street lighting as well as providing services such as waste collection, information and economic development.

18.3.4.3 Rail and port charges

Major infrastructure enabling the operation and growth of the coal industry includes transport (rail and ports). Coal from the proposed Caval Ridge Mine will be transported by rail to the Hay Point Coal Terminal.. It is expected that in excess of A$100 million per annum could be expected to be paid in rail and port charges over the 30 year operational period of the project.

18.3.5 Short and long-term economic impacts

18.3.5.1 Impacts on the local economy

At the local level, economic impacts are related to industry actions due to the link between the level of employment in an area and the level of spending in that area. The project requires a substantial construction and operational workforce. The source of these workforces will be influenced by the effect of the current global financial crisis on the region. Despite the recent reports of major job losses in the mining industry, the Queensland Resources Council (QRC) is still reporting that employment in the Queensland resources sector is remaining at near record levels and that the underlying skill shortages will persist as many companies continue to plan for growth. If this is the case then it is likely that the majority of the construction and operational workforces will need to be sourced from outside the region. However if the global financial crisis results in an economic downturn in the region then the pressure on the current labour marked may be alleviated to some extent and a significant proportion of the workforces could be sourced from within the region.

The size of the economic impact on the local region would depend on how many of the externally sourced project employees relocate to the area permanently (or are able to be retained within the region should redundancies occur in other operations). A person who resides in an area on a permanent basis would spend more money in local businesses. Spending would be on a variety of items such as food, beverages, personal consumables, personal services and education. This is in comparison to employees that commute to the area and reside in temporary accommodation for the duration of their shifts. These employees would have less interaction with the community and their spending in local businesses will be smaller.

At this stage it is anticipated that approximately 10% of the construction workforce (5% existing residents and 5% new residents from outside the area) and approximately 30% of the operational workforce (15% existing residents and 15% new residents from outside the area) will reside in the local area on a permanent basis. As discussed in Section 17, some project employees who relocate to the area permanently will also bring their families. If employees who relocate to the area also bring their families the economic impact on the local region will be greater. If the employees' family relocates, the household expenditure in the local businesses will be greater and will be in a wider range of goods and services (due to greater number of individuals of varying ages and sex). Additionally, a family would have more involvement and interaction with the local community, which is associated with increased spending in local businesses.

Surveys on the spending patterns of residents in the township of Nebo have found that approximately 15% of total household expenditure is spent in the township (*Central Queensland University 2003*). Nebo township, however has a relatively small number of local businesses offering a limited scope of goods and services. Moranbah, by comparison, is a more substantial town with a greater variety of local businesses offering an increased range of goods and services. Hence it is expected that the residents in the township of Moranbah would spend more than 15% of their total household expenditure in the township.

The survey performed by Central Queensland University (CQU) also found that Nebo residents spend a larger proportion of their expenditure in Mackay. Mackay is a larger regional centre and would offer a wider variety of goods and services and provide greater choice for consumers than the surrounding townships. Expenditure that occurred in Nebo were in the categories of food, groceries and alcohol; hair, beauty and personal; motor vehicles repairs; motor vehicle purchases and education. No expenditure was made in the clothing and footwear; house and garden; and medical care and health categories in Nebo. In contrast, high levels of expenditures were reported in Mackay across all categories apart from recreation and holidays, and education.

The Australian Bureau of Statistics reports an Australian average weekly household expense of $893 (*Household Expenditure Survey and survey of Income and Housing Catalogue No. 6540.0.00.001*). Based on the survey on spending patterns of residents in the township of Nebo it is estimated that an employee and their household that permanently relocate to the area would spend at least $134 per week locally, with the remainder being spent on a more regional basis.

This weekly spend of $134 has been used to calculate the impact on local businesses from spending by project employees and their families. As highlighted above the weekly spend would be higher in Moranbah township as there is a greater range of goods and services offered. Therefore the impacts on the local economy as presented below are likely to be underestimated.

The weekly expenditure by the construction workers who relocate to the area for the construction phase is estimated at $16,080. Assuming 52 working weeks, the total annual expenditure in local businesses by these construction workers during the construction phase is approximately $836,160.

The project will employ a peak operational workforce of approximately 495 employees. It is expected that 30% or 148 employees would either be employed from the local area or relocate to the local area on a permanent basis. Based on the information above, the combined weekly spending in local businesses by operational employees would be approximately $19,832 and assuming 48 working weeks, the total annual expenditure would be approximately $951,936. As mentioned above the spending by project employees and their families on a variety of items will benefit numerous local businesses in the region.

Additional economic impacts will flow on to the regional economy due to spending in regional businesses by project employees who relocate to the Isaac Regional Council area on a permanent basis with their families. Input-output tables have been used in Section 18.3.1 and Section 18.3.2 to quantify the economic benefits at the regional level.

18.3.5.2 Impacts on local business and employment

Local businesses

An economic impact on the local economy resulting from this project would be spending by project contractors in local businesses. These benefits would be maximised by project contractors using local businesses to supply goods and services, where possible. Section 17 discusses the actions undertaken by BMA to encourage contractors to purchase goods and services from local businesses where possible to maximise the economic impact on the local economy. It is recognised, however, that local businesses would not be able to meet all the requirements of the contractors and hence some goods and services would have to be purchased from outside the region regardless of encouragement by BMA.

Results from surveys of businesses in the Nebo and Coppabella townships have found that several local businesses depend on business from coal mines to remain operational. Only one of the respondents of a survey indicated that coal mines did not have an effect on their business (*Central Queensland University 2003*). Hence local businesses will be benefited if some proportion of the project's budget is spent in the region.

Spending in local businesses by the project employees and contractors will have flow on effects to the local economy. In the short-term, local businesses will experience increased profitability and may even be required to hire additional employees. It is noted however that some local businesses are operating under

capacity due to staff shortages and wage disparities. In turn these businesses may not be able to take full advantage of increased patronage or would be placed under further pressure.

In the long-term the project will provide new business opportunities, such as expansion in existing businesses and attracting new businesses to open in the area. Benefits from expansion and new businesses include greater choice of products for consumers, an increase in the range of services offered locally, and the potential for lower prices due to increased competition. This would also help to broaden the economic base of the Isaac Regional Council and encourage local business diversity. This will be discussed in more detail in Section 18.3.5.5.

Employment

The increased economic activity from spending in local businesses by project employees and their families and contractors is expected to create additional jobs as the effect filters through the local economy. However, it is difficult to estimate the flow on effects on employment at the local level. The effects will depend on the spending patterns of employees and contractors of the project.

The ability of local businesses to attract new employees to the area is likely to be hindered by the lack of available housing in the Isaac Regional Council local government area (refer to following section).

18.3.5.3 Impacts on local housing and accommodation

If the regional economy continues to grow (as indicated by the amount of development proposed for the region) then the construction and operational workforces for the project are likely to be sourced from external locations due to the low unemployment rate and skills shortage within the Isaac Regional Council local government area. An influx of workers into the region who require both temporary and permanent accommodation will place additional pressure on housing demand and supply. The township of Moranbah already experiences high occupancy of short-term accommodation, shortage of housing supply and high rental prices. Detrimental effects on the local region include lack of short-term accommodation for persons outside of the mining industry (i.e. tourists), lack of affordable accommodation driving non-mining workers out of the area, and project employees and their families not having the option to relocate to the local area on a permanent basis. The impact on housing demand and supply has been discussed in detail in Section 17.

In summary, it is not anticipated that the project would have a significant impact on the value of properties surrounding the project site due to its proximity to the existing Peak Downs Mine. Increased demand for housing in the local area, as a result of project employees moving to the area on a more permanent basis, could however result in additional pressure on the local housing market and further increases in the price of housing.

18.3.5.4 Workforce Impacts

The project will have a substantial impact on the local workforce. The Isaac Regional Council local government area is characterised by a relatively tight labour market, a low unemployment rate and a

shortage in skilled labour. As noted previously despite the recent reports of major job losses in the industry, the QRC is reporting that employment in the Queensland resources sector is still at near record levels. As such, it is considered likely that unless a significant downturn occurs in the regional economy, the majority of both the construction and operational workforces will need to come from outside of the region. To mitigate this to some extent, the project start up coincides with the completion of other projects in the area. This would allow for a natural progression of workforces to the project.

If on the other hand, a downturn in the regional economy occurs there will be more opportunities to source workforces from the local and regional area. In such a scenario, BMA should give preference to local and regional employees to ensure that mining workers remain in the local area and the economic impacts to the local and regional economies are maximised.

As is characteristic of most construction projects throughout Queensland, at the present time, some imported labour will be required particularly during the construction phase of the project. As outlined in Section 17.2.4.2, 45.6% of the working population of the state suburb of Moranbah and 38.9% of the working population of the Isaac Regional Council local government area are employed in the mining sector. By comparison only 8.3% of the working population of the Mackay Regional Council local government area and 1.7% of the working population of Queensland where employed in the mining sector. This highlights the dependence of the Isaac Regional Council local government area on the mining industry. As the project moves into the operational phase, this dependence is likely to increase.

The project can have a positive impact on the local workforce by indirectly attracting workers who are seeking employment to the Isaac Regional Council local government area. It is anticipated that a proportion of project employees and their families would relocate to the region on a permanent basis. There is potential that the family member who is not a project employee would be in search of a job in the local area. There would be a positive impact on the local economy if the non-project employee family member is employed in a part-time or full-time position. These family members are likely to be workers from various professions with differing skill levels. An influx of families relocating to the region on a permanent basis may help to ease the pressure on the local labour market.

A survey undertaken in 2005 on mining companies and contracting firms in the Central Highlands found that 100% of the respondents indicated that they had experienced a shortage of skilled labour across a range of occupations within the professional, trades and operator categories. In particular the greatest shortage was for mining engineers in the professional category, diesel fitters and electrical from the trades category, and open-cut examiners and various plant operators from the operator category (*Central Highlands Development Corporation 2005*).

Hence a skill shortage exists in the local area and this shortage is not limited to a particular job category. The Minerals Industry National Skills Shortage Strategy indicates that the category with the largest labour shortage is tradespersons and semi-skilled workers. The shortage in lower skilled professions suggests that the focus should also be on attracting workers to the mining industry rather than just the provision of training.

There is currently a shortage in labour in the mining industry in Australia and overseas. The shortage is considered to be greatest in inland areas such as the Isaac Regional Council local government area. This highlights the difficulty of the local region to attract and retain labour in inland areas. The region needs to develop a strategy to attract workers from regional coastal centres and overseas locations.

Some recommendations developed by a study into the National Skills Shortage in the Mineral Industry (Lowry et al. 2006) to address the skills shortage in the mineral industry throughout Australian included:

- Heightening the focus on the development of appropriate training systems, with a particular emphasis on designing systems for the provision of quality on-the-job training; and
- Identifying and targeting alternative labour reservoirs. Alternative sources identified by the study included:
  - The manufacturing sector, which is projected to experience further decline in non-professional occupational categories over the next decade. While this sector offers a pool of labour with broadly compatible skills there are location issues that will need to be addressed.
  - Women, however there are a number of crucial challenges associated with targeting women including the provision of childcare in remote areas, design of family friendly policies such as flexible rosters and changing the traditionally masculine culture associated with mining.

In order to address the skill shortage in the local region BMA is committed to work with the government, education facilities and industry to promote various programs. These programs are aimed to raise awareness of mining-related careers, ensure the accessibility of training and education and improve skills retention within the company. Programs initiated by BMA include the Skills for Growth program, which is part of BMA's community investment commitment. Through programs such as this BMA support scholarships, the Engineering Extension Program, cadetships, universities and whole of industry measures such as the Queensland Mining and Energy Academy. A detailed list of the programs promoted by BMA has been included in Section 17.

18.3.5.5 Lost Opportunity Cost from Land Use by Directly Affected Property Owners

As discussed in Section 17.5.3.2, the majority of the land required for the project is currently owned by BMA; however agreements for compensation for land use or land purchases are underway for land that is not owned by BMA.

Lost economic opportunities as a result of changes to land use are restricted to loss of agricultural land and an animal boarding facility. In terms of lost agricultural opportunities this loss will be restricted to cattle grazing with no intensive agricultural land use and no good quality agricultural land located within the project area. Lost economic opportunities may also occur as a result of relocation or close down of the animal boarding facility.

18.3.5.6 Impact on Economic Base of Isaac Regional Council local government area

It is important to address the long-term impacts of the project on the Isaac Regional Council local government area. The economic base of the Isaac Regional Council local government area is becoming less diversified with a move away from agriculture and primary production and towards mining. The importance of mining to the local economy will intensify in the near future with a number of new coal mines and mine expansions proposed for the region. The increased reliance on coal mining will make the local region more susceptible to fluctuations in world commodity prices, industry rationalisation, cost reduction measures, and changes to employment policy and work practices. Workers employed by the mining industry have limited connection and involvement with the local community, raising concern that if there is a downturn in the local mining industry these workers are unlikely to remain in the region and help contribute to future economic development. Research by Nebo Shire Council has indicated that not all locals wish to depend on the mining industries but rather see the success of the mining industry as an opportunity to support other potential economic opportunities (Nebo Shire Council, 2006). As discussed in Section 18.3.5.2 the increased profitability of local businesses due to spending by project employees and contractors may promote business expansion and attract new businesses to the region. The region has also been experiencing growth in the tourism area and the services industry. Along with agriculture, there is potential to expand these industries which will help to diversify the economic base of the region. However, the Isaac Regional Council local government area is still faced by the issue of the sustainability of non-mining business expansion and the ability for it to be sustained beyond the life of the mining industry.

It is the responsibility of the local community, Isaac Regional Council, Mackay Whitsunday Regional Economic Development Corporation, Queensland Government, and the mining industry to work together to ensure the economic sustainability of the local economy in the future.

Key issues identified by the former Nebo Shire Council to ensure sustainable economic growth in the future include:

- Access to adequate/available water resources
- Youth retention and development
- Infrastructure – hard, soft, social
- The need to diversify to reduce dependency levels on coal mining
- Availability of land and housing developments.

These key issues are also applicable to the former Belyando and Broadsound Shires. In order to support the Isaac Regional Council in addressing the above key issues BMA has implemented the following programs:

- Provided financial support to the former Belyando, Broadsound and Nebo Shire Councils to employ a Hinterland Economic Development Manager. The purpose of this Economic Development Manager is to

promote the region to potential residents and tourists as well as establishing an environment that will attract and retain small business and industry.

- BMA has a wide-reaching community investment program, which in the 2008 financial year, saw BMA invest $22 million in Bowen Basin and Central Queensland communities.
- BMA established its Community Partnership Program in 2002, which provides $1 million per annum to the Bowen Basin region. The initiatives of this program include:
  - youth development
  - economic development/business and skills training
  - community development and welfare
  - community, safety sport, wellbeing and recreation
  - arts, entertainment and cultural development
  - environment and sustainable development.
- BMA invested $3.25 million in significant landmark projects (2007/08 financial years), to further improve its host communities. Landmark projects are coordinated in conjunction with state and commonwealth government, regional councils and in some cases, other coal companies and industry bodies.
- BMA provided $14.8 million (2008 financial year) in regional infrastructure support including rates, subsidies, special levies and allocations including the maintenance of local roads and airports and other council infrastructure, facilities and water.
- BMA invests $925,000 per year (plus wages and salaries) in its Skills for Growth program, which provides cadetships, scholarships and Engineering Extension programs, as well as support for industry initiatives such as the Queensland Minerals and Energy Academy, the Mining Industry Skills Centre and the Coalfields Excellence Training Centre.
- BMA's individual mine and port operating sites also invest around $4.7 million (annually) in local sporting, community and not-for-profit groups.
- BMA will continue to implement and evolve its community investment program throughout the Bowen Basin. An avenue for the implementation and monitoring of any economic initiatives will be through the established Growing BMA Community Reference Group. This group includes representatives from government agencies, social service providers and business development groups.