Wandoan Coal Project

Economic impact assessment

Addendum to the EIS technical report

May, 2009

Wandoan Joint Venture

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NCSI Certified Quality System ISO 9001

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1. Economic contribution of agricultural grazing enterprises in Project area

The following Chapter provides an indicative estimation of the likely economic contribution of grazing enterprises in the proposed Wandoan Coal Project mining lease area. In undertaking the assessment, the study briefly reviews the existing economic environment of the Project area with a particular focus on the agricultural industry. Input-Output (I-O) analysis is subsequently applied to measure the direct and indirect economic contribution of grazing enterprises pre-mining.

1.1 Existing economic environment of agriculture industry in the (former) Taroom Shire

The current economic base of the former Taroom Shire is dominated by the agricultural industry.[1] As shown in Table 1-1, agriculture enterprises accounted for the largest number of businesses in the former Taroom Shire, accounting for more than 550 businesses (or 75% of total businesses by industry). This was followed by construction (5.2%), and property and business services (4%). Not surprisingly, the large share of businesses operating in the agriculture sector (see Table 1-2 below) made up the bulk of employment in the locality. Specifically, sheep, beef cattle and grain farming accounted for approximately 691 employed individuals aged 15 years and over, or 51.7% of the working labour force in the locality.

Table 1-1: Number and percentage of businesses by industry in the former Taroom Shire

Industry	Taroom (S) (Count)	Taroom (S) (%)
Agriculture, forestry and fishing	558	75.0%
Mining	0	0.0%
Manufacturing	9	1.2%
Electricity, gas and water supply	0	0.0%
Construction	39	5.2%
Wholesale trade	6	0.8%
Retail trade	27	3.6%
Accommodation, cafes and restaurants	12	1.6%
Transport and storage	24	3.2%
Communication services	12	1.6%

[1] The review of the existing economic environment was based on statistical data compiled for the local government areas and 2006 ABS Census survey results. It is noted that, on 15 March 2008, the Shire of Taroom was amalgamated to form the Dalby Regional Council. Consequently, the reference to Taroom (which included Wandoan) in this section are based on the local government boundaries as they were prior to 15 March 2008. However, this is not seen to be a limiting factor as it reflects an overview of the historical environment, from which the effects of the economic characteristics of the agricultural industry in the Shire can be better understood and anticipated.

Industry	Taroom (S) (Count)	Taroom (S) (%)
Finance and insurance	12	1.6%
Property and business services	30	4.0%
Education	0	0.0%
Health and community services	3	0.4%
Cultural and recreational services	6	0.8%
Personal and other services	6	0.8%
Total	744	100.0%

Source: ABS 2008a

Table 1-2: Top five industries of employment in the former Taroom Shire

Employment type	Locality (Count)	% aged 15 years and over	Australia (Count)	% aged 15 years and over
Sheep, beef cattle and grain farming	691	51.7%	133,275	1.5%
Local government administration	72	5.4%	128,838	1.4%
School education	65	4.9%	414,214	4.5%
Hospitals	31	2.3%	303,923	3.3%
Road freight transport	24	1.8%	162,448	1.8%

Source: ABS 2006 Census

However, it worth noting that the majority of businesses in the former Taroom Shire are classified as non-employing businesses (see Table 1-3 below). In 2006, for example, 70% of businesses were classified as non-employing, while 23% of businesses were classified as employing between one to four people, and 7% employing greater than five people. This trend may reflect the fact that the majority of agricultural enterprises in the locality are small family farms and thus do not employ a large workforce to support on-farm production. In particular, many smaller farms do not rely on farm receipts as the sole source of family income, but earn income from off-farm businesses, investments, and non-farm wages and salaries (see, for example, ABARE 2001 and 2002).

Table 1-3: Employment structure of businesses in the former Taroom Shire – employing and non-employing (2004 – 2006)

	2004		2005		2006	
	Count	%	Count	%	Count	%
Non-employing businesses	495	69%	489	68%	522	70%
Employing businesses: 1 to 4 employees	165	23%	180	25%	168	23%
Employing businesses: 5 or more employees	57	8%	54	7%	54	7%
Total businesses	717	100%	723	100%	744	100%

Source: ABS 2008a

In reviewing the character of the Wandoan locality more specifically, it is observed that the agriculture industry currently accounts for the largest share of employment (see Table 1-4). Based on the 2006 Census data, employment in the agriculture industry accounted for 186 personnel or 46% of total employment in the area. Thus, it is evident that agricultural activity plays an important role in supporting local employment and incomes. This is followed by education and training (8%) and public administration and safety (7%).

Table 1-4: Industry employment shares in Wandoan

Industry	Wandoan (Count)	Wandoan (S) (%)	Queensland (%)	Australia (%)
Agriculture, forestry and fishing	184	46%	3%	3%
Mining	11	3%	2%	1%
Manufacturing	24	6%	10%	10%
Electricity, gas, water and waste services	6	2%	1%	1%
Construction	12	3%	9%	8%
Wholesale trade	10	3%	4%	4%
Retail trade	25	6%	12%	11%
Accommodation and food services	12	3%	7%	6%
Transport, postal and warehousing	15	4%	5%	5%
Information media and telecommunications	0	0%	1%	2%
Financial and insurance services	0	0%	3%	4%
Rental, hiring and real estate services	0	0%	2%	2%
Professional, scientific and technical services	7	2%	6%	7%
Administrative and support services	5	1%	3%	3%
Public administration and safety	29	7%	7%	7%
Education and training	33	8%	8%	8%
Health care and social assistance	13	3%	10%	11%
Arts and recreation services	0	0%	1%	1%
Other services	3	1%	4%	4%
Inadequately described/Not stated	8	2%	3%	3%
Total	397	100%	100%	100%

Source: 2006 Census

1.2 Economic contribution analysis framework

1.2.1 Input-Output analysis

The method used to measure the economic contribution of agricultural grazing producers in the Project area is Input-Output (I-O) analyses. I-O analysis is a well-established and widely used technique for estimating economic impacts of an existing, expanding or new economic activity in a region (see, for example, OESR 2009). The economic contribution of grazing producers

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

- the *direct effect* represents the increase in economic activity (value added) and employment which is directly generated in the industry receiving the initial impact
- the *indirect effect* represents the flow-on impacts that occur from all secondary industries in the economy to support the direct impact
- the *induced 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 effect* is the sum of the direct, indirect and induced effects outlined above.

The economic contribution is measured by means of two key economic indicators – value added and employment. That is:

- *Value added and output contribution* – that is, the net contribution of existing economic activity resulting directly and indirectly from a change in final demand in the region and is equivalent to gross regional product (GRP). The output measure, by contrast, is defined as the *gross* value of production by all industries of the economy that is required to satisfy the change in final demand for the output of that industry.
- *Employment contribution* – that is, the expected employment contribution of existing producers supporting the value added and output contribution, and may encompass farm managers, and administrative personnel, as well as other employees in terms of full-time equivalents jobs.

In applying the I-O method, it is important to note its limitations. Specifically, the method relies on I-O obtained from the Queensland Regional Input Output Tables and ABS Input-Output Tables. However, as the I-O table sources are dated, care should be taken in terms of the estimates provided. In particular, the assessment assumes that the industrial structure of the regional economy has remained relatively unchanged since the compilation of the tables. Other associated limitations with the use of I-O tables 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. For these reasons, range estimates rather than point estimates are provided in order to take into account possible structural changes in the regional economy since the compilation of the I-O tables. In this study, the I-O base estimates are set to range between 80% and 100% to take into account possible biases and uncertainty of the base estimates. Despite these limitations, the I-O framework provides a means of estimating the economic contribution of grazing producers in the region, and is intended to be indicative only. No other warranty, expressed or implied, is made.

1.2.2 Data and assumptions

The anticipated economic contribution of agricultural grazing enterprises is derived from the expected level of recurring capital expenditure and operational expenditure being undertaken by producers in the region. However, due to the limited expenditure data available, a precise estimate of the total expenditure being undertaken by farming operations in the region could not be ascertained. A precise estimate would require the collection of on-farm specific data, and access to records in each agricultural entity in the region. However, the timescale and

scope to complete such an exercise was beyond that of the present study. Thus, high level estimates of expected expenditure in the region were estimated and sourced from Brennan Mayne Agribusiness (BMA) (2009), and used by PB as a basis to determine the economic contribution of agricultural grazing enterprises in the region.

Recurrent capital expenditure data and assumptions

While there is uncertainty about the final level of recurrent capital expenditure being undertaken by grazing enterprises in the Project area, it is expected that each entity would, on average, expend approximately $50,000 per annum in recurrent capital (ABARE cited in BMA 2009). This level of expenditure is based on the assumption that the majority of enterprises in the Project area are categorized as being small (200–400 head of cattle). As there are approximately 20 entities in the Project area, this would translate to a recurrent capital expenditure of approximately $1 million per annum. This data is separated in terms of expected expenditure at the regional, state and national levels.[2] Here, it is expected that the bulk of the expenditure would be expended locally. As a result, it is assumed that around 85% of recurrent expenditure would be expended at the regional level, 10% at the state level, and 5% nationally.

Operating expenditure data and assumptions

Annually, it is expected that between $4 million and $6.3 million is being spent on operating expenses by grazing enterprises in the Project area. This range is based on operating cost of $340 per head to $542 per head of cattle (or an average cost of approximately $121 per ha to $194 per ha). The expected operating expenditure was sourced from BMA (2009), which in turn was drawn from two sources. That is: (i) Meat and Livestock Australia (MLA) benchmarking Cost of Production Calculator (developed by Holmes Sackett and Associates); and (ii) ABARE's (2008) Australian Beef Report 08.1.

Operating expenses, in this context, are inclusive of:

- contractors
- feed
- freight
- marketing costs
- labour
- repairs and maintenance on land, plant and pastures
- insurance
- administration
- rates/agistment
- fuel/oil
- electricity/gas
- interest.

For this assessment, PB has adopted the higher range estimate of $6.3 million to estimate the economic contribution of grazing enterprises in order to illustrate the potential maximum contribution. Within this framework, it is estimated that approximately 90% of the operational expenditure would be expended at the regional level, 5% at the state level, and 5% nationally. The notably higher share at the regional level is consistent with the expectations that agricultural activity in the area will tend to benefit the region more than other areas.

[2] The regional level is defined as the statistical division of Darling Downs (includes the former Taroom, Chinchilla and Murilla Shires, where the Wandoan Project is located), whilst the state level is defined as the rest of Queensland, and national defined as the rest of Australia.

1.3 Potential economic contribution of grazing enterprises in Project area (pre mining)

Based on the projected recurrent capital and operating expenditure amounts, and proportions outlined above, the expected annual economic contribution of the grazing enterprises in the Project area are summarised in Table 1-5. The PB estimates are representative of the total economic contribution of enterprises inclusive of direct, indirect and induced economic activity and employment.

Table 1-5: Potential economic contribution of grazing enterprises in Project area (per annum)

Impact type	Units	Grazing Enterprises Recurrent Capital Contribution		Grazing Enterprises Operational Contribution	
		Lower	***Upper***	***Lower***	***Upper***
REGIONAL					
Value Added	$m	0.6	0.8	3	6
Employment	no.	9	11	60	75
QUEENSLAND					
Output	$m	0.1	0.2	0.4	0.5
Employment	no.	0.9	1.1	3.0	4.0
NATIONAL					
Output	$m	0.1	0.1	0.4	0.5
Employment	no.	0.4	0.6	2.0	3.0

Source: PB estimates.

1.3.1 Regional contribution

- *Recurrent capital contribution*: At the regional level, grazing enterprises are expected to contribute between $0.6 and $0.8 million per annum in revenues associated with goods and services produced in the regional economy. This is expected to support between 9 and 11 direct and indirect jobs per annum.
- *Operating contribution*: By contrast, grazing enterprises are expected to contribute between $3 and $6 million per annum in regional economic activity. This is expected to support approximately between 60 and 75 direct and indirect jobs per annum.

1.3.2 State contribution

- *Recurrent capital contribution*: At the state level, the recurrent capital contribution by grazing enterprises is expected to be between $0.1 and $0.2 million per annum in revenues associated with goods and services produced. This is expected to support approximately one full time equivalent job per annum.
- *Operating contribution* By contrast, the operating contribution of grazing enterprises is expected to be between $0.4 and $0.5 million per annum in revenues associated with

goods and services produced in the state economy. This is expected to support between three and four jobs per annum.

1.3.3 National contribution

- *Recurrent capital contribution*: At the national level, the recurrent capital contribution of the grazing is expected to be between $0.1 and $0.2 million per annum in revenues associated with goods and services produced. This is expected to support between 0.9 and 1.1 jobs per annum.
- *Operating contribution*: by contrast, the operating contribution associated with the production of goods and services by grazing enterprises is expected to be between $0.4 and $0.5 million per annum. This is expected to support between two and three jobs per annum.

1.4 Summary of key findings

In summary, the key findings are as follows:

- the agricultural industry in the former Shire of Taroom has played an important role in supporting economic activity, employment and incomes in the region, accounting for 75% of total businesses and 52% of the work force in the locality (ABS 2006 Census)
- at the regional level, grazing entitles are estimated to contribute between $3.6 and $6.8 million per annum in economic activity resulting directly and indirectly from the recurrent capital and operating expenditure being undertaken. This is expected to support between 69 and 86 direct and indirect full-time equivalent jobs in the region
- at the state and national levels, grazing enterprises are expected to contribute in total between $1 and $1.3 million in revenues associated with the production of goods and services. This is expected to support between six and nine full-time equivalent jobs.

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