

1. Experts Details & Qualifications

1.1 Name

My name is Marcus Robert Brown.

1.2 Address

My business address is:

Economic Associates Pty Ltd
6/220 Boundary Street
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1.3 Qualifications

I hold the following qualifications:

- (a) Bachelor of Economics (Hons); and
- (b) Master of Business Administration.

Annexure A to this report is my curriculum vitae, which outlines my professional experience.

2. Instructions and Summary Answers

I have been instructed by Allens on behalf of Hancock Coal Pty Ltd to prepare a report in response to the following questions. Summary answers in response to these questions are provided below, with further explanation of those answers provided in Part 4 of this report.

- (a) **What type of economic assessment was undertaken for the proposed Alpha Coal Mine for the purpose for the environmental impact statement (EIS)? Why was that type of assessment undertaken?**

An economic impact assessment adopting the input-output model was undertaken for the proposed Alpha Coal Mine. This type of assessment was selected as it generates the data required to respond to the Terms of Reference requirements for the project, and enables the decision-maker to understand the economic impacts of the proposed mine.

- (b) **Did the economic model used in the EIS take into account the economic costs of the proposed Alpha Coal Mine's environmental impacts? If not, why?**

No, the economic model did not take into account the economic costs of the proposed Alpha Coal Mine's environmental impacts. The EIS Terms of Reference required estimates of a range of economic impacts. The impacts specified were in terms of market based impacts. Environmental impacts are assessed in a technical sense, in other parts of the EIS.

- (c) **Was a cost benefit analysis required to be undertaken by the terms of reference for the EIS for the proposed Alpha Coal Mine?**

No, the EIS Terms of Reference for the proposed Alpha Coal Mine did not require the conduct of a cost benefit analysis.

(d) Is it common for a cost benefit analysis to be undertaken for a coal mine approval in Queensland?

No, it is not common for a cost benefit analysis to be undertaken for a coal mine approval in Queensland.

(e) Coast and Country Association of Queensland Inc (C&C) contends that a cost benefit analysis of the proposed Alpha Coal Mine should have been undertaken. Is this economic model appropriate in the circumstances? What are the limitations and challenges of this economic model?

In the context of the Terms of Reference for the Alpha Coal Mine EIS, a cost benefit analysis would be unlikely to sufficiently assess the economic impacts identified in the EIS Terms of Reference because the focus of cost benefit analysis is net benefit rather than impact. While not insurmountable, the preparation of a cost benefit analysis would be hampered by uncertainty regarding the perspective from which the cost benefit analysis was to be undertaken and challenges associated with appropriately valuing non-market impacts (e.g. environmental values).

To the extent that the EIS process in Queensland is about identifying and measuring impacts; mitigating impacts; and, where mitigation is not possible, imposing limits on those impacts, it is questionable whether there is a role for cost benefit analysis.

(f) We refer you to paragraphs 1(d)(ii)(A), 2(d)(ii)(A) and 60 of the Objection of C&C as well as paragraphs 23 to 27 of the Response to the Request for Particulars provided by C&C. Those paragraphs of the objections and particulars make certain statements in relation to the impacts on employment of the proposed Alpha Coal Mine. In that context, please provide your opinion on the following:

(i) What are the likely positive employment impacts of the proposed Alpha Coal Mine, both direct and indirect?

The Alpha Coal Mine is anticipated to generate significant employment demand throughout its construction and operational phases. Peak employment demand is anticipated to occur in Year 4. Throughout the construction phase of the Alpha Coal Mine the supply chain industries likely to experience the most significant stimulus are manufacturing and construction. During the operational phase, the stimulus to other sectors of the economy is more diverse with manufacturing, wholesale trade and transport related sectors anticipated to experience significant stimulus. Details of the employment impacts are summarised in the body of this statement.

- (ii) **What are the possible negative employment impacts of the proposed Alpha Coal Mine, such as impacts on agricultural and manufacturing employment?**

The proposed Alpha Coal Mine is not anticipated to have a negative impact on the demand for labour by other sectors. Any potential negative employment impacts are entirely a labour supply issue and these issues were considered as part of the Social Impact Assessment in the EIS. Accordingly, the mitigation measures to augment labour supply are set out in the EIS and supporting EIS documentation.

- (iii) **The contention by C&C that the proposed Alpha Coal Mine may result in a "net loss of employment in Queensland"?**

I do not consider that the proposed Alpha Coal Mine would result in a net loss of employment in Queensland.

- (iv) **The contention by C&C that the positive economic effects of the proposed Alpha Coal Mine are overstated by "including indirect employment which would likely occur in the absence of the project".**

I do not believe that the economic impact assessment overstates the economic effects of the proposed mine by including indirect employment impacts. The assessment of indirect impacts is to identify the scale of supply chain effects resulting from the project.

- (g) **We refer you to paragraph 1(d)(ii)(A) of the Objection of C&C as well as the Response to Request for Particulars provided by C&C, specifically at paragraphs 23(a)(ii)(A), 23(e)(ii) and 23(f). There are contentions in these parts of C&C's objection and particulars that the proposed Alpha Coal Mine might have an adverse impact by causing "upward pressure on the currency exchange rate". In this context, please provide your opinion on the following:**

- (i) **Will the proposed Alpha Coal Mine exert upward pressure on the Australian currency exchange rate? If so, what is the likely extent, or contribution, of the proposed Alpha Coal Mine and to that upward pressure?**

All other things being equal, an increase in exports places upward pressure on the exchange rate. Exports are a major driver of demand for Australian currency. However, once fully operational the increase in the value of Australian exports as a result of the project would be in the order of 1.1%. This represents the maximum potential effect on the exchange rate. The exchange rate effect would be moderated by an increase in imports in the form of components and inputs associated with the mine project.

- (ii) **Are there other factors which influence the Australian dollar's currency exchange rate? If so, please describe these or provide examples?**

There are a number of other factors that influence the value of the Australian dollar, these factors include: comparative interest rates between

Australia and other countries; comparative quality of Australian dollar denominated securities (e.g. Australian Government debt is one of the few universally AAA rated debts in the world); the volume of international funds seeking investment (quantitative easing related effects); and foreign currency reserve accumulation policies of central banks.

- (iii) In your experience, is the possible impact on currency exchange rates a normal consideration that is assessed when considering the approval of projects such as the proposed Alpha Coal Mine?**

Exchange rate and monetary policy fall within the policy purview of the Australian Government and Reserve Bank of Australia. It is not commonly a consideration of state government planning processes.

- (h) We refer to paragraph 59 of the Objection of C&C Objection as well to paragraph 23(a)(iii)(A)&(C) of C&C's Response to Request for Particulars. Those paragraphs contain contentions that the economic benefits of the proposed Alpha Coal Mine are overstated by the Applicant. In this context, please provide your opinion on the following:**

- (i) Is the foreign ownership status of the Applicant relevant to an assessment of the economic impacts of the proposed Alpha Coal Mine? If so, was this taken into account?**

No, it is not. The focus of the economic impact assessment is the stimulus of where the investment is made, as opposed to the source of the investment funds. In terms of economic impact, the source of investment funds does not have any implications for the extent of impacts.

- (ii) Are the positive economic impacts of the proposed Alpha Coal Mine overstated by:**

- (A) including the profits of the proposed Alpha Coal Mine from export income, which do not accrue to Queensland?**
- (B) expressing export income as a benefit in addition to capital expenditure and taxes whereas capital expenditure and taxes would be paid from export income, effectively double counting those benefits?**

No, the positive impacts of the project are not overstated. Export income is reported to allow an understanding of potential royalty income, which is a relevant consideration for the State. Capital expenditure and taxes are reported, as well as export income, however these impacts are not expressed to be cumulative. The economic impacts of the project can be reported in a variety of ways, and have different implications for different stakeholders. The information presented in the economic impact assessment attempts to satisfy the informational needs of the various stakeholders.

3. Facts and Assumptions

In producing this report, I have relied on the facts and assumptions set out in the following material:

- (a) ABS (2013a) "International Trade in Goods & Services", Catalogue No. 5368.0.
- (b) ABS (2013b) "Australian National Accounts: National Income, Expenditure and Product, Dec 2012" Catalogue No. 5206.0.
- (c) Coordinator General (2009) "Terms of Reference for Environmental Impact Statement-Alpha Coal Project", Queensland Government, June 2009.
- (d) Economic Associates (2010) "Alpha Coal Project (Coal Mine) Economic Impacts Study".
- (e) International Monetary Fund (2012) "Australia: 2012 Article IV Consultation—Staff Report", IMF Country Report No. 12/305.
- (f) Morgan Stanley (2012) "FX Pulse", 9 August 2012 (http://www.morganstanley.com/institutional/research/pdf/FXPulse_20120809.pdf).
- (g) Productivity Commission (various years) "Trade & Assistance Review" (<http://www.pc.gov.au/annual-reports/trade-assistance>).
- (h) OESR (2012) "Bowen Basin Population Report" (<http://www.oesr.qld.gov.au/products/publications/bowen-basin-pop-report/bowen-basin-pop-report-2012.pdf>).
- (i) Queensland Government (2010) "CoalPlan 2030: Laying the Foundations of a Future".
- (j) URS Australia (2010) "Alpha Coal Project (Mine) Social Impact Assessment".
- (k) US Federal Reserve (2013) "Credit and Liquidity Programs and the Balance Sheet", http://www.federalreserve.gov/monetarypolicy/bst_openmarketops.htm.
- (l) Salva Report (2013) "Thermal Coal Supply and Demand Study", prepared for GVK Hancock Coal Pty Ltd.

In addition, I have relied on the following assumptions:

- (m) The project development schedule as outlined in the Alpha Coal Project (Coal Mine) Economic Impacts Study; and
- (n) Advice from Hancock Coal Pty Ltd that leaseback agreements have been negotiated with graziers for parts of the proposed mining lease area that are not impacted by the proposed mine operation.

4. Opinion and Findings

4.1 What type of economic assessment was undertaken for the proposed Alpha Coal Mine for the purpose for the environmental impact statement (EIS)? Why was that type of assessment undertaken?

2. The scope of the economic assessment prepared for the Alpha Coal Project was determined by the Environmental Impact Statement Terms of Reference for the Alpha Coal Project (June 2009). The economic assessment comprises two major components:
- (a) Description of local and regional economies to be affected (also known as an economic baseline study), which is covered by sections 2, 3 and 4 of the Alpha Coal Project (Coal Mine) Economic Impact Study (September 2010), which was Annexure 5N of the Alpha Project EIS; and
 - (b) Economic impact assessment, which is covered in section 5 of the Alpha Coal Project (Coal Mine) Economic Impact Study (September 2010).

Baseline Study

3. The purpose of the economic baseline study is to provide an understanding of the economic base, activity and capacity of the region(s) assessed. This is important to the extent that it provides a basis for understanding the scale of potential impacts and the need (or otherwise) for mitigation measures and/or development strategies¹. The economic baseline study provides analysis of the economic base, activity and capacity at a:
- (a) Local level: the Barcaldine Regional Council area (decomposed into sub-areas, namely Jericho statistical local area (SLA), Aramac SLA and Barcaldine SLA);
 - (b) Regional level: the Central West Statistical Division (SD); and
 - (c) State level: Queensland.

Impact Assessment

4. With regards to the assessment of economic impact the EIS Terms of Reference stated that:

“The potential impacts should consider regional, state and national perspectives as appropriate to the scale of the project.

The analysis should include the direct economic impacts on industry and the community including:

- property values
- industry output
- employment
- factor incomes.

¹ Relevant mitigation measures are outlined in Appendix F (List of Proponent Commitments) of the Alpha Coal Project Environmental Impact Statement. Those relevant to economic related impacts are summarised in section F.1.20 (Social) and F.1.22 (Economic).

The analysis should also:

- assess any forgone industry output from the project
- assess any forgone opportunities and impacts to households (e.g. recreation, increased travel times)
- assess the indirect impacts likely to flow to other industries and economies from the development of the project. This should also consider the implications of the project for future development” Coordinator General (2009, pages 76-77)”

5. The requirement for an assessment of both direct and indirect economic impacts associated with a requirement to demonstrate changes in ‘output’ (or consumption), ‘employment’ and ‘factor incomes’ in the EIS Terms of Reference clearly points to an impact assessment methodology. On the other hand, the outputs of a cost benefit analysis are typically limited to net present value, internal rate of return and benefit cost ratio. A cost benefit analysis framework does not generate outputs that would allow the analyst to respond to the Terms of Reference requirements identified above. Accordingly, the proposed Alpha Mine economic impact assessment adopted a regional input-output modeling approach whereby stimulus generated by project expenditures during the construction and operating phases was estimated.
6. Foreign currency denominated purchases (imports) are excluded from the assessment of economic impacts because they do not generate a stimulus to the domestic economy. Australian dollar denominated expenditures are allocated at a regional, state or national level against the industry from which those purchases are made. The extent to which this allocation can be achieved is largely determined by the availability of project procurement information. While costings are typically sufficiently resolved to identify the industry from which of purchases are made, it is not unusual for regional level project procurement decisions to be resolved only after an approval is granted.
7. At the time of the proposed Alpha Coal Mine's assessment, Hancock Coal Pty Ltd had not resolved a procurement strategy for Australian dollar denominated purchases. Based on a review of the findings of the baseline assessment, it was determined that the appropriate level of economic assessment would be at the state level. This is because the Queensland economy had the capacity to supply the entirety of Australian dollar denominated purchases, and the depth of the local and regional economies at the time of assessment was not sufficient to contribute materially to the supply chain needs of the project without the adoption of a supply chain development strategy. It should be noted however, that a key aspect of mitigation and development strategies submitted in association with the EIS is the set of measures proposed to develop regional capacity and facilitate the region's ability to supply a meaningful share of project purchases.
8. The economic impact analysis reports a series of indicative direct and indirect economic impacts in terms of output, employment, incomes and value added. The economic impact assessment also quantifies the value of industry output forgone by the project, which in the case of the Alpha Coal Project is largely cattle grazing.

Findings of Economic Impact Assessment

9. The results of the economic impact assessment allow consideration of the scale of the project and the need for mitigation measures and regional development strategies. The results of the economic impact assessment were considered in the proposed Alpha Mine's social impact assessment, and informed the formulation of the Social Impact Management Plan, as well as the suite of proponent commitments aimed at mitigating the potential negative impacts that were identified and facilitating development opportunities. Hence, the economic impact assessment informs the social impact assessment and in this regard these two assessments are inter-related.
10. The economic impact assessment estimates the output value of lost cattle grazing opportunity at approximately \$14.8 million per annum², assuming a stocking rate of 1.5-1.6 head of cattle per hectare over approximately 21,143 hectares of cleared grassland, with a slaughter value of approximately \$1,100/head. The analysis also assumes cattle are slaughtered as yearlings. The agricultural value of the area would be lower if the beasts were slaughtered other than as yearlings (i.e. slaughtered at three years old). Also, based on information provided to me by Hancock Coal Pty Ltd, it is highly likely that parts of the proposed mine lease area will (subject to operational, safety and health considerations) ultimately be used for the agistment of cattle, thus further reducing the estimated value of the cattle grazing opportunity forgone.
11. Additionally, this estimate of production forgone pertains to the value of 'industry output' forgone. This was a requirement of the EIS Terms of Reference, however it should be noted that the net loss to the economy would be represented by the gross surplus forgone, which would be a fraction of the value reported.
12. In terms of forgone opportunities to households as a result of the proposed mine, it is unlikely that given the sparseness of population coverage in the proposed mine lease area and its surrounds there would be any material negative impact on the existing opportunities of households as a result of the proposed mine.
13. Once fully operational, the proposed Alpha Coal Mine is anticipated to produce coal at a rate of approximately 30 Mtpa, generating export revenues of approximately \$2.9 billion per annum (based on a price of approximately \$97/tonne). At these production levels, the mine would generate approximately \$204 million per annum in Queensland Government royalties. Table 1 below provides a summary of the anticipated production profile of the Alpha Coal mine and corresponding export revenue and royalty income values.

² This represents an output value. The gross margin of cattle production is approximately 15%, hence the net economic value of this production is \$2.2 million per annum.

Table 1: Alpha Coal Mine Indicative estimates of mine export value and royalty income

LOM Year	Product Coal (Mt)	Export Revenue (\$M)	Royalty income (\$M)
1	3.8	\$368.6	\$25.80
2	12.0	\$1,164.0	\$81.48
3	18.1	\$1,755.7	\$122.90
4	25.0	\$2,425.0	\$169.75
5	30.0	\$2,910.0	\$203.70
6	30.0	\$2,910.0	\$203.70
7	30.1	\$2,919.7	\$204.38
8	30.1	\$2,919.7	\$204.38
9	30.0	\$2,910.0	\$203.70
10	30.0	\$2,910.0	\$203.70
11	30.0	\$2,910.0	\$203.70
12	30.0	\$2,910.0	\$203.70
13	30.0	\$2,910.0	\$203.70
14	30.0	\$2,910.0	\$203.70
15	30.0	\$2,910.0	\$203.70
16	29.9	\$2,900.3	\$203.02
17	30.0	\$2,910.0	\$203.70
18	30.0	\$2,910.0	\$203.70
19	30.0	\$2,910.0	\$203.70
20	30.1	\$2,919.7	\$204.38
21	30.1	\$2,919.7	\$204.38
22	30.0	\$2,910.0	\$203.70
23	30.0	\$2,910.0	\$203.70
24	30.0	\$2,910.0	\$203.70
25	30.0	\$2,910.0	\$203.70
26	30.1	\$2,919.7	\$204.38
27	30.1	\$2,919.7	\$204.38
28	30.1	\$2,919.7	\$204.38
29	30.1	\$2,919.7	\$204.38
30	30.0	\$2,910.0	\$203.70

Source: Derived from Alpha Coal Project Environmental Impact Statement, Table 2.2.

Key assumptions: average export price of \$97/tonne and long term Queensland Government royalty rate of 7%.

4.2 Did the economic model used in the EIS take into account the economic costs of the proposed Alpha Coal Mine's environmental impacts? If not, why?

14. No, the economic model did not take into account the economic costs of the proposed Alpha Coal Mine's environmental impacts.
15. The purpose of the economic impact assessment as described in the EIS Terms of Reference is to identify the implications of the investment stimulus for the market economy and hence allow for the development of appropriate mitigation strategies. Accordingly, the economic assessment of the proposed mine adopted an impact assessment approach, which estimated the extent to which the proposed mine would generate economic impacts (as opposed to environmental impacts). This enable these matters to be taken into account by decision makers together with other considerations.

16. The Terms of Reference for the EIS did not require a valuation of the environmental impacts of the proposed mine, rather the assessment of environmental impacts was undertaken as part of the environmental studies supporting the EIS.
17. The valuation of environmental impacts is simply an alternative means of describing those impacts by estimating a hypothetical monetary value of the environmental attributes impacted by the project. The nature and extent of the environmental impacts of the proposed mine are assessed in detail in other parts of the EIS.

4.3 Was a cost benefit analysis required to be undertaken by the terms of reference for the EIS for the proposed Alpha Coal Mine?

18. The EIS Terms of Reference for the proposed Alpha Coal Mine did not require the conduct of a cost benefit analysis. A cost benefit analysis would not have addressed the EIS Terms of Reference for the proposed Alpha Coal Mine, because a cost benefit analysis does not measure impacts. Instead, cost benefit analysis compares monetised values of costs and benefits, which for privately funded projects comprise largely private benefits and costs. The outputs of a cost benefit analysis generally comprise:
 - (a) Net present value of the project at a given discount rate (the range of discount rates utilised as part of sensitivity testing would generally be between 4% and 10% real). A positive net present value indicates that the project is economically positive;
 - (b) Benefit cost ratio, that is the ratio of the present value of project benefits compared with the present value of project costs at a given discount rate. A benefit cost ratio greater than one indicates the project is economically positive; and
 - (c) Internal rate of return, representing the discount rate at which the project has a net present value of zero.
19. Cost benefit analyses are best described as being evaluative in that they weigh up the benefits and dis-benefits of a subject proposal in its entirety to determine whether (in economic terms) the project should be proceed. They represent normative assessments in that there are generally accepted rules for what constitutes a favourable benefit cost ratio, net present value and internal rate of return, and investments in alternative projects are sometimes 'ranked' according to how they perform relative to these rules. Impact assessment approaches are typically positivistic in that the estimated values of impacts are considered in their own terms without any implied value judgement.

4.4 Is it common for a cost benefit analysis to be undertaken for a coal mine approval in Queensland?

20. Cost benefit analyses are not commonplace in coal mine EIS processes. As stated above, this is largely because cost benefit analyses do not provide the outputs stipulated in EIS Terms of Reference in Queensland, and therefore do not provide the information sought by the decision maker to independently weigh up the positive and negative impacts of the proposed mine.
21. The objective of the economic impact assessment as required by the EIS Terms of Reference is to identify the potential economic impacts of the proposed mine, 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. The input-output method, therefore, is consistent with the outputs sought from the EIS Terms of Reference.

22. The Queensland Government has adopted a supportive position towards the development of the coal industry. To some extent this is demonstrated by the previous Labor Government's development of CoalPlan 2030 (2010). The purpose of CoalPlan was to provide a guide to the expansion of the Queensland coal industry. Similarly, the LNP Government identifies the resources sector as one of the 'four pillars' of the Queensland economy. Hence, Queensland Governments of both political persuasions have adopted policy positions that mineral and energy resources are appropriate to be exploited subject to acceptable mitigation of impacts and payment of Queensland Government mining royalties. This may be the reason for the specification in the Terms of Reference of an impact assessment, rather than evaluation framework. Because of the economic impact assessment focus of the Terms of Reference, environmental effects are not 'monetised' in the economic assessment. Instead, the assessments of environmental effects are based on technical and scientific assessments in other sections of the EIS. In this regard, the role of weighing up the positive and negative impacts of the proposed mine remains with the ultimate decision-maker.
23. In contrast, cost-benefit analysis essentially measures the net worth of a project, not its economic impacts. The approach is to attempt to place a monetary value on all impacts of the proposed mine (including economic impacts and environmental impacts) in order to determine the ultimate question of whether the proposed mine as a whole has (in economic terms) a positive or negative worth. All costs and benefits (monetised and non-monetised) of a project are estimated using discounted cash flow analysis. The outputs from a cost-benefit analysis are the project's 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 proceed in economic terms (e.g. if NPV is less than zero the project is considered economically unviable at that given discount rate) and to prioritise investment options.

4.5 Coast and Country Association of Queensland Inc (C&C) contends that a cost benefit analysis of the proposed Alpha Coal Mine should have been undertaken. Is this economic model appropriate in the circumstances? What are the limitations and challenges of this economic model?

24. The EIS process is essentially a planning assessment process. This process identifies a range of issues which the assessment agency requires to be addressed. In preparing the economic impact assessment, the analyst is required to supply the information requested by the assessment agency, in this case what is required is set out in the EIS Terms of Reference.
25. In the context of the Terms of Reference for the Alpha Coal Mine EIS, a cost benefit analysis would be unlikely to sufficiently assess the economic impacts identified in the EIS

Terms of Reference because the focus of cost benefit analysis is net benefit rather than impact. For example, a cost benefit analysis would not be able to estimate:

- (a) Changes in employment: levels of employment are not an issue in the theoretical underpinning of cost benefit analysis;
 - (b) Changes in industry output: cost benefit analysis is incapable of estimating the impact on output on a sector by sector basis; and
 - (c) Indirect and flow-on impacts.
26. As stated previously, the focus of the EIS Terms of Reference is on identifying impacts to facilitate decision making, including the development of measures to mitigate those impacts. With that information about the nature and extent of impacts the ultimate decision-maker is then able to independently weigh up the positive and negative impacts of a project and thereby determine whether the project should proceed and, if so, upon what conditions. A cost benefit analysis on the other hand would only indicate whether the project was economically viable at a given discount rate. Hence, given the focus of the EIS Terms of Reference on understanding the impacts of the project on an inter-industry basis or a labour market basis, a cost benefit analysis with its focus on the economic worth of the project is not the correct tool for assessing the project in the context of EIS Terms of Reference.
27. In many regards a fully specified cost benefit analysis would represent an alternative project assessment approach to the current Environmental Impact Statement approach. The EIS approach essentially represents a large multi-criteria analysis whereby a range of social, environmental and economic impacts are collated for consideration by the assessment agency. A cost benefit analysis on the other hand would take much of the same information and distil it into a series of cashflows, which would in turn be discounted to generate a net present value of the proposed mine project.
28. The EIS documents represents a comprehensive assessment of the proposed mine and should be read in full, with various aspects of the assessment either overlapping or inter-relating. For example, the social impact assessment expands on a number of issues raised in undertaking the economic impact assessment.
29. A key issue in cost benefit analysis is identifying the appropriate perspective from which the analysis is undertaken. For example, when assessing whether the project is economically viable issues such as foreign investment and incidence of benefits / disbenefits on given groups is not relevant. However, consideration of the distribution of benefits / disbenefits might require the analysis to be framed differently. For example, I am aware that there is a suggestion that the carbon emissions of end users of the exported coal should be considered disbenefits of the proposed mine. If this were the case then following the principle that the scope of the benefits should be consistent with the scope of the costs, the corresponding benefits associated with the burning of the coal by the end users should be included in the analysis. The extent to which this can be done on a project by project basis when projects are interlinked (e.g. mine project dependant on a rail project dependant on a port expansion) can be challenging. For example, to prepare the cost benefit analysis the analyst would need to understand the entire downstream production change associated with any given mine when much of this information may not be

available in the approval phase of the proposed mine project or would require the foreshadowing of approvals of other related projects.

30. Another key challenge in adopting a cost benefit analysis approach would be the valuation of non-market goods (e.g. environmental impacts). There is a large literature pertaining to the valuation of environmental assets, however the robustness of these values is often questioned. The connection between changes in environmental factors and monetary impacts varies considerably between the factors under consideration. For example, there are well established parameter values for health cost impacts of certain types of pollution and commuter travel time, but there is wide variability in values of other factors, such as the value of biodiversity.
31. A common foundation of the valuation of environmental assets is the willingness of individual consumers to pay to experience a benefit or avoid a cost, however there is a potentially great divergence between the values of consumers (based on a summation of the preferences of individual consumers) and those of technical experts. The lack of consistency between the scientific and technical expert investigations and the benefit estimation methodology might not prove helpful to the decision maker.
32. Under the EIS process currently adopted the assessment manager considers the technical information prepared by experts in their respective fields and considers that information based on their understanding of community expectations and values.
33. To the extent that the EIS process in Queensland is about identifying and measuring impacts; mitigating impacts; and, where mitigation is not possible, imposing limits on those impacts, it is questionable whether there is a role for cost benefit analysis.
- 4.6 **We refer you to paragraphs 1(d)(ii)(A), 2(d)(ii)(A) and 60 of the Objection of C&C as well as paragraphs 23 to 27 of the Response to the Request for Particulars provided by C&C. Those paragraphs of the objections and particulars make certain statements in relation to the impacts on employment of the proposed Alpha Coal Mine. In that context, please provide your opinion on the following:**
 - (a) **What are the likely positive employment impacts of the proposed Alpha Coal Mine, both direct and indirect?**
 - (b) **What are the possible negative employment impacts of the proposed Alpha Coal Mine, such as impacts on agricultural and manufacturing employment?**
 - (c) **The contention by C&C that the proposed Alpha Coal Mine may result in a "net loss of employment in Queensland"?**
 - (d) **The contention by C&C that the positive economic effects of the proposed Alpha Coal Mine are overstated by "including indirect employment which would likely occur in the absence of the project".**

What are the likely positive employment impacts of the proposed Alpha Coal Mine, both direct and indirect?

34. The economic impact assessment does not seek to assign a normative connotation to the employment impacts of the proposed mine, but rather it seeks to identify the potential scale

of impacts to facilitate the management of those impacts in such a way to contribute to positive economic outcomes.

35. In general terms, the extent to which employment impacts are likely to be positive will be determined by the latent capacity of the labour market at a regional, state and national level and/or the extent to which labour is mobile.
36. The actual incidence of employment impacts at a regional or state level will ultimately be determined by resolution of Hancock Coal Pty Ltd's recruitment and procurement strategies.
37. As noted in the Alpha EIS, the regional economy represented by the Central West SD is unlikely to be of a scale sufficient to supply the labour required for the proposed Alpha Coal mine. However, the mining sector as a whole is characterized by a highly mobile labour force³. This is evidenced by the prevalence of a large non-resident workforce in coal mines throughout Queensland. Hence the proposed Alpha Coal Mine would rely substantially on non-resident workers (fly-in, fly-out (FIFO) or drive-in, drive-out (DIDO)). Given the travel costs associated with a non-resident workforce it is likely that the bulk of employment would be drawn from Queensland. (However, it is possible that workers possessing high level skills may be able to negotiate alternative arrangements.)
38. Additionally, the Queensland labour market is of a scale to meet the additional employment demand stimulated by the proposed mine. Recent softening of the Australian and Queensland labour markets tends to suggest that there is growing capacity to meet future employment demand. The economic impact assessment recognized that the significant majority of domestic purchases would be made outside the Central West SD, and hence would have stimulatory effects on the broader Queensland labour market.
39. The economic impact analysis indicates that employment impacts are anticipated to peak during the proposed mine's construction phase. During that phase, the proposed mine is anticipated to make major purchases of capital equipment in the form of mining machinery, draglines and processing equipment. Because the economic impact assessment excludes foreign currency denominated purchases (as stated in paragraph 4), the impacts reported are those estimated to be derived from domestic purchases.
40. In Year 4 of the proposed mine's Life (which, based on the original development schedule provided to me by Hancock Coal Pty Ltd was 2015) employment impacts are assessed at 7,230 full time equivalent positions, comprising 4,370 full time equivalents resulting from direct stimulus and 2,860 full time equivalents resulting from indirect or flow-on stimulus.
41. At this peak in the construction phase, the two sectors anticipated to sustain the greatest stimulus are the manufacturing and construction sectors (refer to page 38 of Alpha Coal Project (Coal Mine) Economic Impacts Study). Based on the proposed mine development schedule provided by Hancock Coal Pty Ltd to assist in preparing our economic assessment, the year four (originally 2015) and to a lesser extent Year 3 (originally 2014) represent sharp peaks in the construction phase.

³ For example, OESR (2012) estimated the size of the 2012 non-resident mining workforce in the Bowen Basin at approximately 25,000 workers.

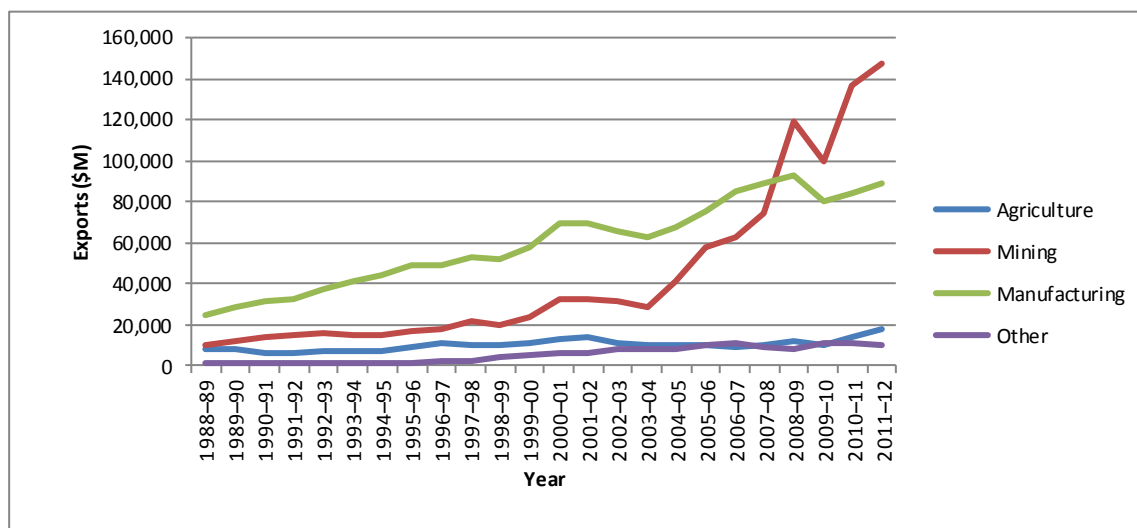
42. Sharp peaks in demand within the construction and manufacturing sector are not unusual. The construction industry is largely project based, with construction companies and their work crews continuously moving from one project to the next, or upsizing or downsizing their workforces based on project flows. Hence, the sharp demand peaks are not a major challenge to the construction sector. With regard to manufacturing there has been a long term trend towards Australian manufacturers seeking to compete in bespoke or project specific assembly. This is because domestic manufacturing's capability to compete with international competitors in largely assembly line based manufacturing processes has long been deteriorating due to relatively high Australian wages.
43. During the operating phase, the proposed mine is anticipated to make ongoing purchases of machinery & equipment parts, maintenance services, chemicals (e.g. explosives) and fuel. Once again the assessment excludes foreign currency denominated purchases.
44. By year 15 (originally 2026), operating expenditure associated with the Alpha Coal Project (Mine) is estimated to support 5,487 full time equivalent positions, including 3,597 direct full time equivalent positions and 1,890 indirect full time equivalent positions. In the final year of operation (originally 2045), operating expenditure associated with the Alpha Coal Project (Mine) is estimated to support 8,338 full time equivalent positions, including 5,479 direct full time equivalent positions and 2,859 indirect full time equivalent positions. Employment demand resulting from the operating stimulus of the proposed mine is anticipated to be highest in mining, manufacturing, wholesale trade, administrative & support services and transport, postal & warehousing.

What are the possible negative employment impacts of the proposed Alpha Coal Mine, such as impacts on agricultural and manufacturing employment?

45. The proposed Alpha Coal Mine is unlikely to have a negative impact on the demand for labour by other sectors.
46. The question of the possible extent of adverse employment impacts of the proposed Alpha Coal Mine largely depends on the basis for comparison. For example, the economic baseline study establishes the economic base of the local, regional and state economies to be impacted by the proposed mine and against which the proposed mine impacts are compared. In respect of current employment levels within the agricultural and manufacturing sectors at a local, regional or state level, it is my opinion that the proposed Alpha Coal Project is unlikely to have any material impact beyond the direct loss of cattle grazing opportunities within the proposed mine lease area (which is likely to be small due to Hancock's decision to allow cattle agistment inside the mining lease).
47. ABS (2013a) reports the value of Australian Exports for a range of years. Figure 3 below illustrates the value of Australian exports by industry between 1998-99 and 2011-12. Figure 3 demonstrates that mining exports from Australia accelerated rapidly after 2003-04. Until that time, the value of manufacturing and mining exports exhibited similar trends. However, after 2003-04 mining exports surged as a result of increased global demand for commodities. Despite this surge in mining exports, manufacturing exports continued along their historical trend path. The only decline in the value of Australian manufacturing exports was experienced in 2009-10, which coincided with a more significant decline in

mining exports. This demonstrates that manufacturing exports have grown despite growth in mining exports.

Figure 3: Value of Australian Exports by Industry (FOB value), 1998-99 to 2011-12

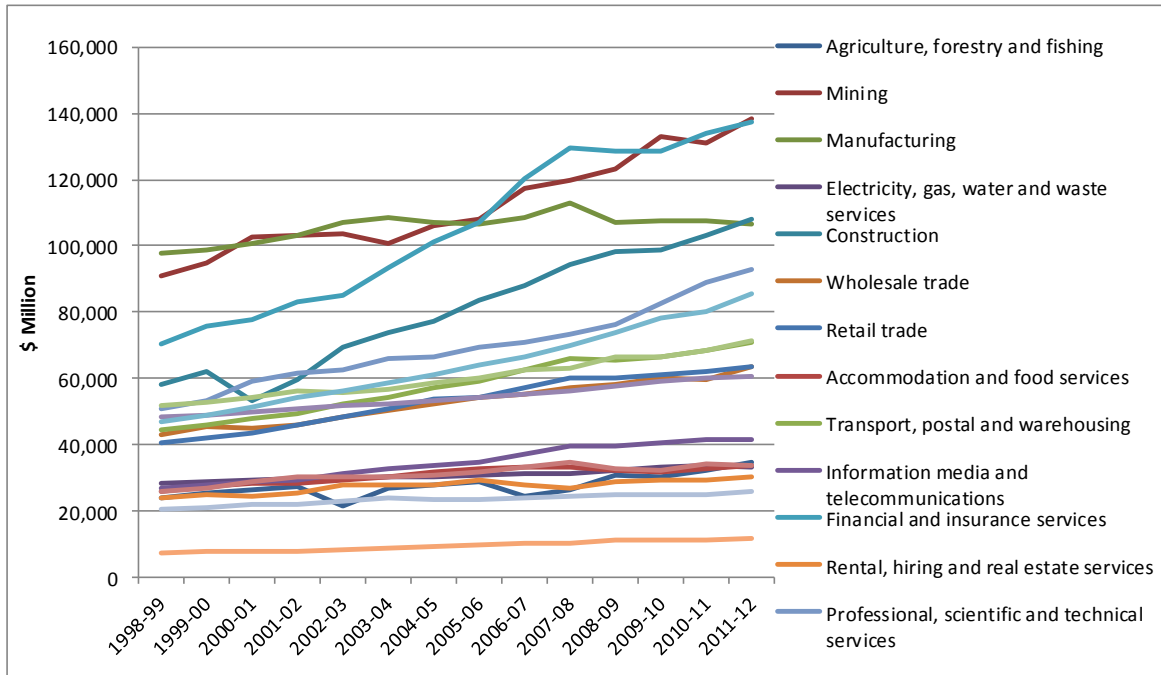


Source: ABS (2013a) "International Trade in Goods & Services", Catalogue No. 5368.0

48. While there has been a deterioration in manufacturing's performance in terms of industry gross value added over time as shown in Figure 4 below, a decomposition of the manufacturing sector's performance by sub-sector (as shown in Figure 5 below), indicates that decline in manufacturing's performance over time can predominantly be attributed to the significant scaling back of production in the 'textile, clothing and other manufacturing' sub-sector. The decline of this sub-sector of the manufacturing industry was well underway prior to the 2003-04 surge in the mining industry. Considering Figure 3, Figure 4 and Figure 5, it can be observed that the weakening of the manufacturing industry's performance is largely driven by the decline of those sub-sectors of the manufacturing industry that compete against imports. The decline of these sectors is mostly attributable to a lack of competitiveness and the removal of trade and tariff protections⁴. Hence, while the ascendancy of the Australian mining industry may place competitive pressure on other sectors in terms of competition for resources and some exchange rate effects, the decline of some parts of the manufacturing industry is probably more attributable to a lack of competitiveness in those sub-sectors and removal of import barriers.

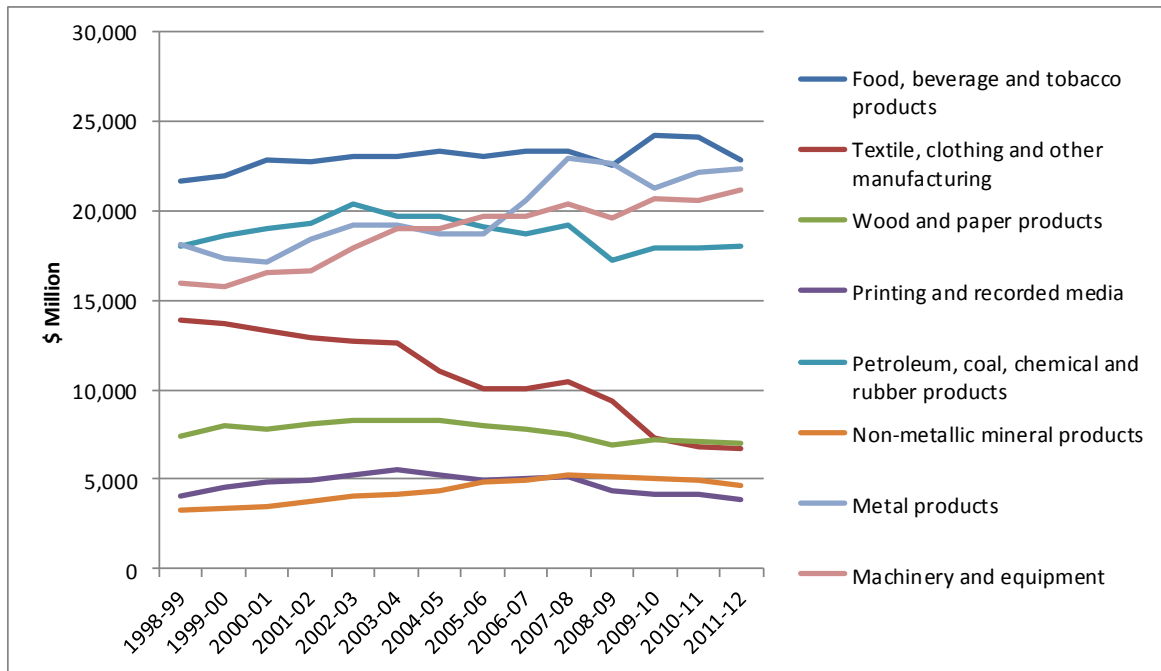
⁴ For example, according to the Productivity Commission (various years) the effective rate of combined assistance to the 'textile, clothing and other manufacturing' sector reduced from approximately 24% in 1998-99 to less than 11% in 2010-11.

Figure 4: Australian Industry Gross Value Added, 1998-99 to 2011-12 (Chain Volume Measures)



Source: ABS (2013b) "Australian National Accounts: National Income, Expenditure and Product, Dec 2012" Catalogue No. 5206.0

Figure 5: Manufacturing Industry Gross Value Added by Sub-sector (Chain Volume Measures) 1998-99 to 2011-12



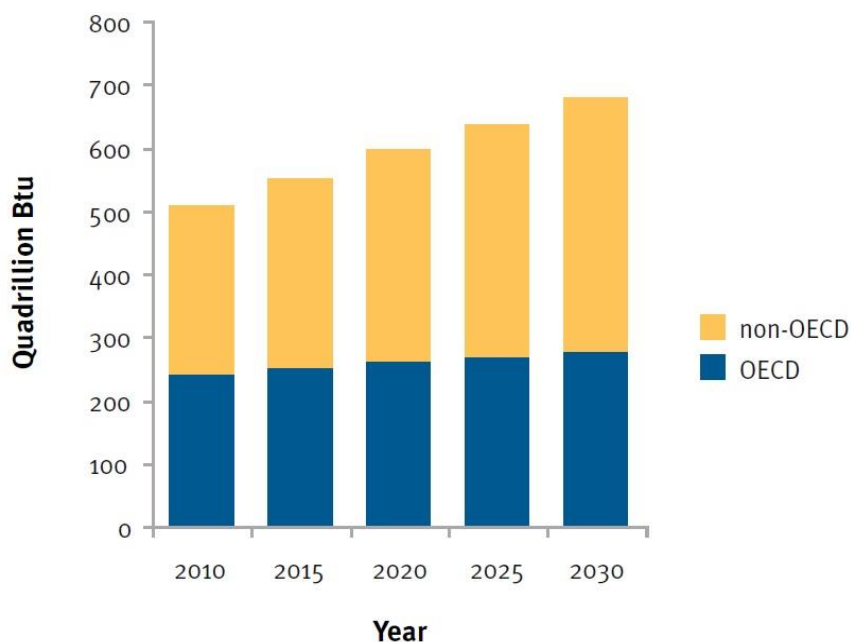
Source: ABS (2013b) "Australian National Accounts: National Income, Expenditure and Product, Dec 2012" Catalogue No. 5206.0

49. The second question is whether the proposed mine is likely to have an adverse impact on future employment that might occur within the agricultural and manufacturing sectors in the

absence of the proposed Alpha Coal Mine. The extent to which this might occur would largely depend on whether the capital associated with the proposed Alpha Coal Mine would be invested in other sectors were the proposed mine not to proceed. The potential for negative impacts relative to a future scenario in which the proposed mine does not exist would be influenced by the potential for investment in the proposed Alpha Coal Mine to ‘crowd out’ investment and/or available resources in other sectors and potentially effect the foreign exchange rate (which I address later).

50. Global demand for thermal coal (the type of coal to be produced by the proposed Alpha Coal Mine) is driven by global energy demand. I have not been asked to undertake a detail analysis of coal demand, but in general terms, Figure 6 below indicates that global demand for energy is expected to increase from approximately 522 quadrillion British Thermal Units (Btu) in 2010 to 678 quadrillion Btu by 2030. As shown in Figure 6, the majority of this growth is to be driven by energy demand within non-OECD countries (generally developing countries). Queensland Government (2010) reports that more than 75% of this growth in global energy demand is expected to be for thermal coal. China and India are expected to lead the growth in global energy demand.

Figure 6: Projected world marketed energy consumption, 2010-2030



Source: Woods Mackenzie cited in Queensland Government (2010, page 7)

51. I have reviewed the document prepared by Salva and annexed to the expert report of Andrew Offen in these proceedings. Based upon that material, I am of the view that, in the absence of the proposed mine, the demand for thermal coal would remain. With Queensland and Australia being large coal producing resource based economies⁵, the

⁵ Queensland Government's CoalPlan (2010) states that Australia is the world's largest exporter of seaborne traded black coal and the fourth largest producer behind China, the US and India. Approximately 97% of Australian black coal is

failure of the proposed mine to meet demand would in all likelihood be taken up by other new or expansion projects at existing or approved mines.

52. The input most at risk of being crowded out in other sectors is labour. The proposed Alpha Coal Mine is likely to generate significant additional demand for labour. The extent to which that labour can be supplied depends on the severity of the labour resource constraint. Labour can be imported at a regional level, and this has been envisaged as part of the proposed Alpha Coal Mine in the form of utilizing non-resident workers (i.e. FIFO and DIDO). This labour can be drawn from across Queensland and Australia. There is also capacity to source labour internationally through the 457 visa program. In the longer term labour supply can be increased through international immigration programs.
53. Based on the development schedule provided to me by Hancock Coal Pty Ltd to assist in preparing the economic impact assessment, the proposed Alpha Coal Mine was to commence construction in 2013 with construction expenditure to peak in 2015. The time take to address the requirements of the approvals process have postponed the commencement of the proposed Alpha Coal Mine to a period beyond the peak of the current major resource sector investment cycle. As a result, the proposed Alpha Coal Mine will commence construction in a period when demand for mining construction related labour has slackened. A number of Queensland coal mine projects recently or currently under construction will have moved to their operational phase by the time that construction of the proposed Alpha Coal Mine is to commence. Hence, it is my view that there will be a considerable supply of available labour within Queensland, which could reasonably assist in meeting the labour requirements of the proposed Alpha Coal Mine.
54. Additionally, the extent to which crowding out might occur is largely dependent on the extent to which the proposed mine would engender a structural change in the economy. The Queensland and Australian economies have long been characterized as resource driven economies. The introduction of a new coal mine in the Queensland context is unlikely to materially change the characterization and structural dependence of the Queensland economy. Hence, the proposed Alpha Coal Mine would have only a marginal impact on the economic structure of the Queensland or Australian economies, in simply reinforcing Queensland's and Australia's existing competitive advantage in resources production.
55. Any potential for negative employment impacts is almost entirely a labour supply issue and these issues were considered as part of the Social Impact Assessment prepared by URS Australia Pty Ltd. Accordingly, the EIS proposes mitigation measures to augment the labour supply will reduce negative impacts, such as FIFO/DIDO arrangements to augment labour supply and development of procurement and industry engagement plans.

produced in Queensland and New South Wales. As at 2009, annual thermal coal exports from Queensland were approximately 59 Mt, representing approximately 40% of Australia's thermal coal exports. In the same year, Queensland exported approximately 119 Mt of metallurgical coal, representing approximately 80% of Australia's 112 Mt of exported metallurgical coal. Hence, in a global sense, Queensland is one of the world's largest producers of coal.

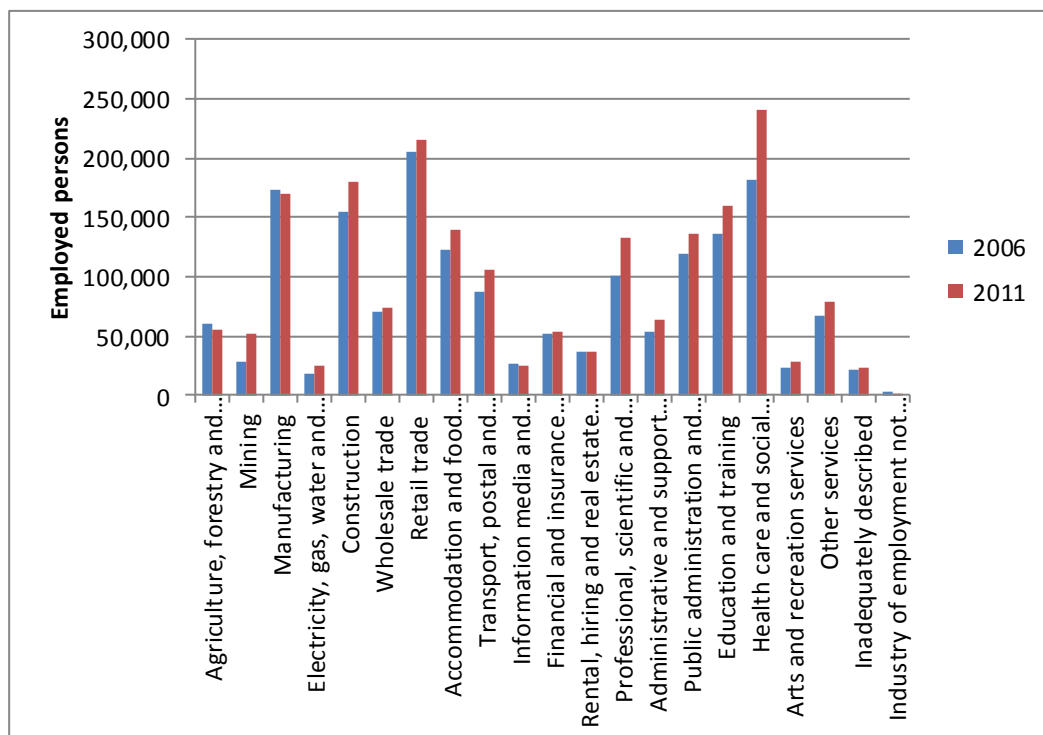
The contention by C&C that the proposed Alpha Coal Mine may result in a "net loss of employment in Queensland".

56. For the reasons given below, I do not consider the proposition that the proposed mine may result in a net loss of employment in Queensland to be sustainable.
57. For there to be a net loss of employment, the investment in the proposed Alpha Coal Mine would need to crowd out significant employment across the entire economy, despite that fact the proposed mine would stimulate a range of sectors, and the employment to be crowded out would need to be of such low productivity (that is, have such a high labour input per dollar of output) as to outweigh the employment demand of the proposed mine. Hence, were the proposed mine to actually result in a structural change in the employment base of Queensland, such that employment levels declined, it would be as a direct result of the proposed mine crowding out of less productive sectors. Taking into account the employment demand generated by the proposed mine, a net loss of employment could only arise if the productivity differential between the sectors stimulated and those crowded out was very significant.
58. Historically, mining investment has had a very significant net positive impact on labour demand within the Queensland economy. Figure 8 below reports the number employed persons by industry for Queensland as at the 2006 and 2011 Census of Population and Housing. While there was a reduction in employment within Agriculture and Manufacturing between 2006 and 2011 in Queensland, that reduction has been significantly offset by employment growth in Mining. Notably, apart from agriculture and manufacturing the only other sectors to experience a reduction in employment over this period were information, media and telecommunications; and rental, hiring and real estate services.
59. Employment within Queensland increased by almost 15% (or by over 250,000 workers) over the 2006 to 2011 period, while employment in agriculture and manufacturing fell by 8.3% (4,944 workers) and 2.2 % (3,747 workers) respectively. Industries which experienced employment growth above the state average (i.e. >15%), included (in descending order):
- (i) Mining;
 - (ii) Electricity, gas and water supply;
 - (iii) Health care & social assistance;
 - (iv) Professional, scientific & technical services,
 - (v) Administrative & support services;
 - (vi) Transport, postal and warehousing;
 - (vii) Arts & recreation services;
 - (viii) Education & training;
 - (ix) Other services;
 - (x) Construction; and
 - (xi) Accommodation & food services.

60. The 2006 and 2011 period is useful for comparison insofar as it represents the substantive period of the so called resources boom. The employment data indicates that over this period that coincides with major mining investment the demand for labour increased significantly, and while there were reductions in employment in agriculture and manufacturing, employment growth in other sectors far outweighed any decline in these two sectors. To provide some context, the absolute increase in employment in a number of individual industries far exceeded the combined reductions in employment in agriculture and manufacturing (a decline of 4,944 workers and 3,747 workers respectively over the five year period), for example:

- (i) Health care & social assistance: increase of 58,986 workers;
- (ii) Professional, scientific & technical services: increase of 31,095 workers;
- (iii) Education & training: increase of 24,189 workers;
- (iv) Construction: increase of 25,049 workers;
- (v) Mining: increase of 22,646 workers; and
- (vi) Accommodation & food services: increase of 18,150 workers.

Figure 8: Employment by industry, Queensland, 2006 and 2011



Source: ABS (2007, 2013) "Census of Population & Housing-Working Population Profile"

The contention by C&C that the positive economic effects of the proposed Alpha Coal Mine are overstated by "including indirect employment which would likely occur in the absence of the project".

61. In my opinion, the economic impact assessment does not overstate the economic effects of the proposed mine by including indirect employment impacts.

62. The employment impact of the proposed mine is measured in full time equivalents, which represents a demand for labour. This demand can be met through a mix of full time or casual workers or simply through an increase in the number of hours worked by those currently employed.
63. The estimation of indirect impacts as a result of the proposed mine is undertaken to ascertain potential downstream supply chain effects of the subject project. This information can be used to inform the Social Impact Management Plan and Local Industry Participation Plans.
64. The impact estimated by input-output analysis typically comprise:
- (a) Direct or initial effect: being the stimulus for the economic impact, typically described as the change in sales or contribution to final demand by the stimulus or activity.
 - (b) Flow on effects, comprising production-induced effects and consumption-induced effects, these being:
 - (i) First-round production effects: being those purchases of inputs required from other industry sectors in the economy to produce the additional output generated by the stimulus or activity;
 - (ii) Industrial support production effects: being those second, third and subsequent-round industrial flow on effects stimulated by the purchases made in the first round; and
 - (iii) Consumption induced effects: being those purchases made by households upon receiving additional income from labour payments stemming from the production of additional output generated by the stimulus or activity under assessment.
65. The indirect effects are represented by those described in the paragraph above (that is, first round production effects, industrial support production effects and consumption induced effects). These effects are reported for output, household income, employment and value added in the economic impact study.
66. The economic impact assessment reported within the Alpha Coal Project (Coal Mine) Economic Impacts Study does not include consumption induced effects. This is because the inclusion of expenditure impacts of households as a result of increased incomes can overstate the scale of industry or supply chain effects attributable to the proposed mine. Hence, these impacts were not reported.
67. The inclusion of first round production effects and industrial support production effects attempts to capture the potential supply chain effects of the proposed mine, which in turn informs the supply chain development strategies. These impacts are attributable to the proposed mine, because in the absence of the expenditure associated with proposed mine those supply chain sectors would not experience the stimulus.

4.7 We refer you to paragraph 1(d)(ii)(A) of the Objection of C&C as well as the Response to Request for Particulars provided by C&C, specifically at paragraphs 23(a)(ii)(A), 23(e)(ii) and 23(f). There are contentions in these parts of C&C's objection and particulars that the proposed Alpha Coal Mine might have an adverse impact by causing "upward pressure on the currency exchange rate". In this context, please provide your opinion on the following:

- (a) Will the proposed Alpha Coal Mine exert upward pressure on the Australian currency exchange rate? If so, what is the likely extent, or contribution, of the proposed Alpha Coal Mine and to that upward pressure?**
- (b) Are there other factors which influence the Australian dollar's currency exchange rate? If so, please describe these or provide examples?**
- (c) In your experience, is the possible impact on currency exchange rates a normal consideration that is assessed when considering the approval of projects such as the proposed Alpha Coal Mine?**

Will the proposed Alpha Coal Mine exert upward pressure on the Australian currency exchange rate? If so, what is the likely extent, or contribution, of the proposed Alpha Coal Mine and to that upward pressure?

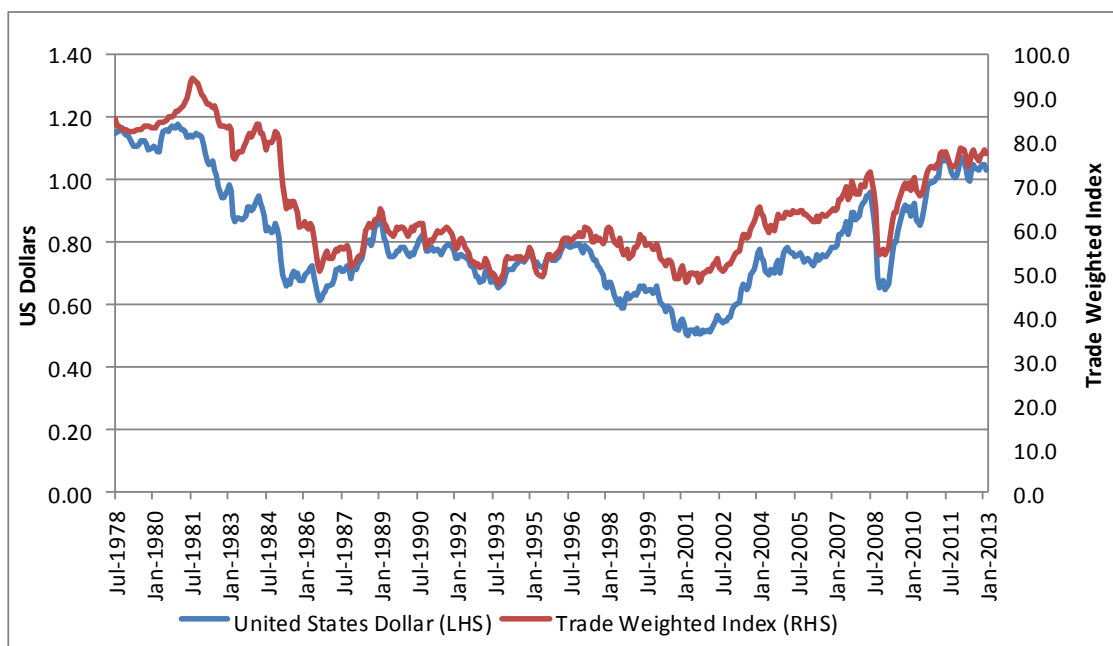
68. It is my opinion that the proposed Alpha Coal Project will place some small upward pressure on the value of the Australian dollar. By definition, exports place upward pressure on the value of domestic currencies, whereas imports have the opposite effect. Hence, exports from any sector, not just mining, will have an appreciative effect on the Australian dollar.
69. The Alpha Coal Project (Coal Mine) Economic Impacts Study estimates that once fully operational (around year five and onwards according to Table 1), the proposed Alpha Coal Mine will generate exports in the order of \$2.9 billion dollars per annum, based on approximately 30 Mtpa production at an average price of \$97/tonne. The ABS (2013) estimated the value of Australian exports in 2011-12 at approximately \$264 billion. Hence, all things remaining equal the proposed Alpha Coal Mine would result in a 1.1% increase in the value of Australian exports.
70. The Australian dollar is a floating currency. As such, the value of the Australian dollar responds to the supply-demand balance of the Australian dollar on international markets. This means that, holding all other factors constant, the most significant effect the proposed mine can have on the value of the Australian dollar is a proportionate increase of 1.1%. This assumes a fixed supply of Australian currency⁶.
71. The proposed Alpha Coal Project is anticipated to make a number of capital purchases throughout the life of the proposed mine, a significant proportion of which is represented by foreign currency denominated purchases. Additionally, Australian currency denominated

⁶ An upward sloping supply curve would result in the exchange rate impact as a result of increases in exports being less than proportionate.

capital and operating purchases would also partially comprise imports. This demand for imports would partially offset the export generated demand for Australian dollars. Hence, all else being equal, the net increase on the Australian dollar as a result of the proposed mine would be less than 1.1%.

72. Figure 9 below illustrates the average exchange rate for the Australian dollar denominated in US dollars and the Trade Weighted Index. Figure 9 indicates that the value of the Australian dollar is currently sitting at levels not experienced since prior to the floating of the Australian dollar (i.e. December 1983).

Figure 9: Australian exchange Rate-US dollars and Trade Weighted Index



Source: ABS (2013) "International trade in Goods & Services in Australia", Catalogue No. 5368.0

Are there other factors which influence the Australian dollar's currency exchange rate? If so, please describe these or provide examples?

73. While trade is considered one of the most significant determinants of the value of the Australian dollar there are a number of other factors, principally related to the operation of financial markets which can, and currently are, having a significant impact on the Australian dollar. Monetary policy and exchange rate policy, which are exclusively in the domain of the Australian Government and the Reserve Bank of Australia, may be exercised from time to time to manage those impacts.

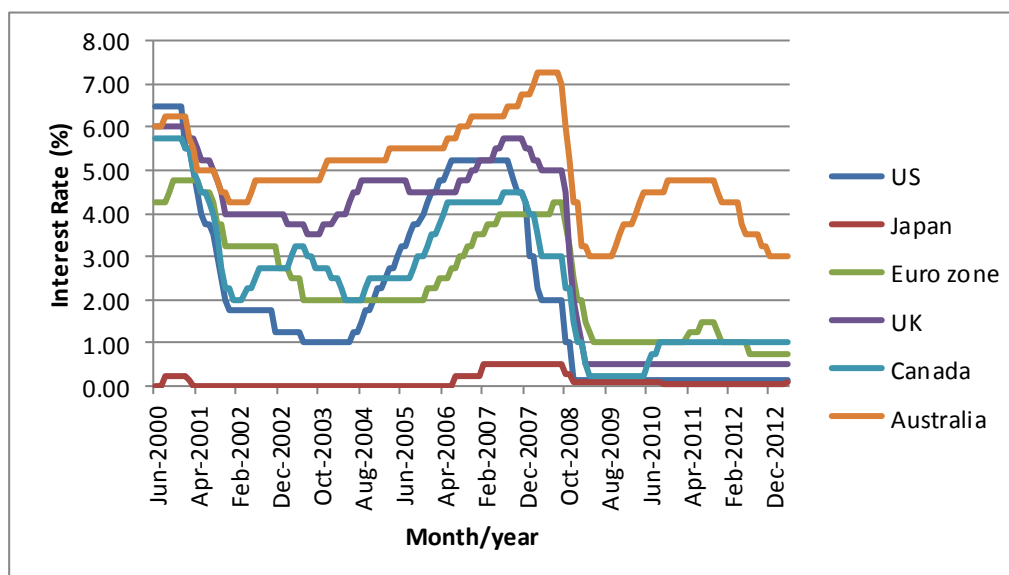
Interest Rate Differentials

74. Interest rate differentials between national economies can be a major cause of capital flight from economies with low interest rates to those with higher interest rates. Interest rate policy is set by central banks, including the Reserve Bank of Australia. All other things being equal, foreign investors will be attracted to economies with relatively high interest rates. Australia is currently a high interest rate economy. Purchase by foreigners of (high

yielding) Australian dollar denominated financial instruments places upward pressure on the value of the Australian dollar. An increase in Australian interest rates relative to those in other nations attracts capital to Australia and increases the value of the Australian dollar. By the same mechanism, relative reductions in Australian interest rates place downward pressure on the Australian dollar.

75. Figure 10 below illustrates the significant difference in the respective target cash rates between Australia and other major economies. A major divergence between the Australian cash rate and those of other major economies commenced in 2007. The persistence of this spread between Australian and other target cash rates contributes to a stronger Australian dollar, with higher returns on Australian dollar denominated investment instruments relative to those denominated in other currencies attracting an inflow of capital thus bidding up the price of the Australian dollar.

Figure 10: Comparison of Australian target cash rate with other major economies



Source: Reserve Bank of Australia (2013) Statistical Tables, Table F13: International Official Interest rates (<http://www.rba.gov.au/statistics/tables/>)

Credit Rating and Yield Spread

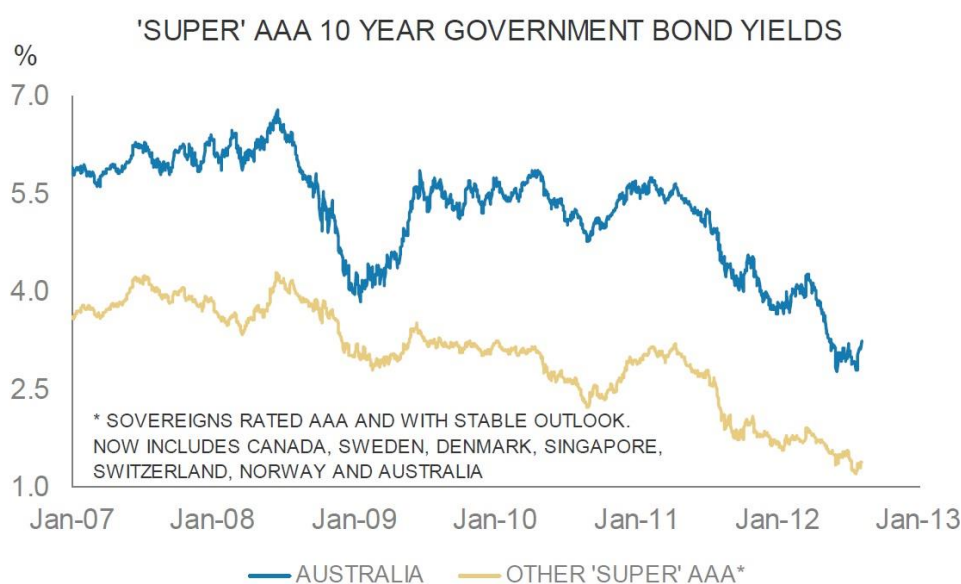
76. Another contributing factor to the currently high Australian dollar is the Australian Government's robust AAA credit rating, which in concert with comparatively high interest rates (or returns) on Australian dollar denominated investment instruments attracts investment in those assets, further bidding up the price of the Australian dollar. The Australian economy is one of only seven economies whose sovereign debt (government bonds) are rated AAA by all three major credit rating agencies⁷ (sometimes described as super AAA rated).
77. This means that the Australian dollar or, more accurately, Australian dollar denominated bonds, are considered to be 'safe haven' investments with a relatively high yield. Morgan

⁷ These agencies being Fitch, Moody's and Standard & Poor's.

Stanley's FX Pulse (2012) reported the comparative yield of Australian Government bonds to other government bonds for which sovereign debt is AAA rated by all three major ratings agencies. Australian ten year government bond yields have generally been twice the yield of other currently 'super' AAA rated 10 year government bonds, as shown in Figure 11 below.

78. Morgan Stanley (2012) estimate that this safe haven effect could be inflating the value of the Australian dollar by between 10% and 15%.

Figure 11: Comparison of 'Super' AAA rated 10 year government bond yields



Note: Chart shows yield on current basket of 'super AAA' rated 10 year bonds. These are Canada, Sweden, Denmark, Singapore, Switzerland and Norway.

Quantitative Easing Measures

79. Additionally, quantitative easing measures by some of the world's largest economies (most notably the United States⁸ and Japan⁹) have significantly increased global liquidity. The measures taken by these two central banks alone account for over US\$3 trillion in quantitative easing. To provide some context Australia's GDP in 2011-12 was valued at approximately US\$1.4 trillion.
80. Quantitative easing describes a process in which central banks institute 'buybacks' of national government securities or other domestic currency denominated securities, thereby

⁸ The United States Federal Reserve has engaged in a number of rounds of quantitative easing: for example between March 2009 and October 2009, the Federal Reserve purchased \$300 billion of Treasury securities. Subsequently between November 2010 and June 2011, the Federal Reserve followed this with purchasing an additional \$600 billion in Treasury securities. This was then followed again by the purchase of Mortgage Backed Securities (MBSs) at a rate of \$40 billion per month commencing September 2012, and again more recently added to by the commencement of purchasing further Treasury securities at a rate of \$45 billion per month commencing January 2013. (http://www.federalreserve.gov/monetarypolicy/bst_openmarketops.htm)

⁹ For example, the Bank of Japan announced a two year quantitative easing program commencing April 2013 of a value of approximately 130 trillion yen (approximately \$US1.43 trillion) (Governor Kurodo, Bank of Japan, 12 Apr 2013). (http://www.boj.or.jp/en/announcements/press/koen_2013/ko130412a.htm/)

increasing the national money supply. The result of quantitative easing by the United States and Japanese central banks has been a massive increase in global liquidity. The policy objective of quantitative easing is to reduce the cost of money and thereby encourage domestic investment. However, financial markets are highly globalized and hence as a result investment opportunities are global. The relative attractiveness of Australian dollar denominated investment instruments - for example, Australian Government bonds which offer comparatively high returns and are AAA rated - has resulted in significant capital inflows to Australia, thus bidding up the price of the Australian dollar. The scale of these inflows has been increased by quantitative easing measures of other central banks. This was recognized by IMF (2012), which stated:

“Australia’s terms of trade peaked in 2011, pushing up the real effective exchange rate further and narrowing the current account deficit to 2¼ percent of GDP. By the second quarter of 2012, the terms of trade had fallen by around 10 percent, driven by declines in spot prices for iron ore and coking coal of 25 and 30 percent respectively. In recent months, however, the Australian dollar has remained high despite lower export commodity prices and the weaker global outlook, in part related to portfolio reallocations of large reserve holders toward Australian government debt.” (IMF (2012, page 5))

Accumulation of Australian Dollars by Foreign Central Banks

81. Finally, there has been increasing evidence that foreign central banks have been increasing their reserves of Australian dollars. Central banks hold reserves of foreign currency to fund foreign exchange market operations that arise from their broader monetary policy function. The Australian dollar has traditionally not been considered one of the ‘reserve currencies’¹⁰. However, in September 2012 the International Monetary Fund commenced a review of the status of the Australian and Canadian dollars and resolved to record these currencies as reserve currencies. A number of central banks have been actively buying Australian dollar denominated bonds.
82. The movement towards the Australian dollar being considered a ‘reserve currency’ can have implications for its attractiveness as a currency held by central banks. This in turn increases the demand for Australian dollars held in foreign reserves, with a consequent appreciative effect on the value of the Australian dollar.
83. IMF (2012) estimates that as at November 2012, the value of the Australian dollar was 10% to 20% above predicted levels based on Australia-specific factors on a medium term basis. While there is uncertainty surrounding any modeled outcome, this finding does suggest that the value of the Australian dollar can be influenced significantly by broader global financial market conditions (such as foreign reserve accumulation decisions of central banks and the perceived ‘safe haven’ status of Australian dollar denominated securities).

Summary

¹⁰ Reserve currencies being the US Dollar, the Euro, the Swiss Franc, the Japanese Yen and the English Pound. The Australian dollar is generally recorded as an ‘other currency’.

84. Global factors beyond Australia's trade balance are likely to significantly influence the value of the Australian dollar. Improvements in the economic outlook or the United States and the Euro zone would result in a redirection of capital from the Australian economy to those major economic zones. The effect of an improved economic environment in the United States or Euro zone economies would manifest in increasing target cash rates (interest rates), or improvements in credit ratings or simply growth in business investment. Any associated movement in capital away from Australia would place downward pressure on the Australian dollar.
85. Certainly, foreign exchange market factors determined apart from changes in Australia's trade balance are reported to being having an appreciative effect on the value of the Australian dollar of between 10% and 20% (IMF, 2012 and Morgan Stanley, 2012). These effects are significantly greater than the maximum potential exchange rate effect of the proposed Alpha Coal mine of 1.1%.

In your experience, is the possible impact on currency exchange rates a normal consideration that is assessed when considering the approval of projects such as the proposed Alpha Coal Mine?

86. As indicated above (paragraph 53), exchange rate and monetary policy fall within the policy purview of the Australian Government and the Reserve Bank of Australia. In effect in its decision processes, the Queensland Government takes the exchange rate environment as given.
87. While I accept that a strong Australian dollar may be considered by some to represent a policy challenge, placing a limit on export growth by refusing a resource development approval or other means is not an appropriate policy response insofar as exchange rate management is a monetary policy problem and should be managed in that context. Attempts to curtail the value of the Australian dollar by manipulating exports would have adverse impacts on the performance of the Australian and Queensland economies, particularly in the context that Australia is a trading nation. If a policy maker were to consider efforts to manage the value of the Australian dollar, the appropriate policy responses to managing the exchange rate lie within monetary policy (as opposed to industry or environmental policy). Monetary policy levers that could be accessed include reductions in the target cash rate by the Reserve Bank of Australia or Open Market Operations to reduce the value of the Australian currency.
88. In discussing exchange rates I note that at the time of preparing this statement of evidence, the Australian dollar was experiencing devaluation. Whether this is a long term trends remains to be seen. Indications at the time of preparing this statement were that this devaluation was attributable to a perception that mining investment in Australia had peaked and that the outlook for the United States economy had improved.

4.8 We refer to paragraph 59 of the Objection of C&C Objection as well to paragraph 23(a)(iii)(A)&(C) of C&C's Response to Request for Particulars. Those paragraphs contain contentions that the economic benefits of the proposed Alpha Coal Mine are overstated by the Applicant. In this context, please provide your opinion on the following:

- (a) Is the foreign ownership status of the Applicant relevant to an assessment of the economic impacts of the proposed Alpha Coal Mine? If so, was this taken into account?**
- (b) Are the positive economic impacts of the proposed Alpha Coal Mine overstated by:**
 - (i) including the profits of the proposed Alpha Coal Mine from export income, which do not accrue to Queensland?**
 - (ii) expressing export income as a benefit in addition to capital expenditure and taxes whereas capital expenditure and taxes would be paid from export income, effectively double counting those benefits?**

Is the foreign ownership status of the Applicant relevant to an assessment of the economic impacts of the proposed Alpha Coal Mine? If so, was this taken into account?

89. The assessment of economic impacts pertains to the stimulus generated by the investment within the subject region, state or country. Any investment made by the proponent outside of Australia (in terms of components or materials to be imported) is excluded from the analysis. Hence, the focus of the economic impact assessment is the stimulus of where the investment is made. Who makes the investment or where the capital to make the investment comes from is not relevant, because the stimulus occurs because of the injection of investment itself.

90. Because the focus of the economic impact assessment is on the supply chain stimulus created by investment, rather than the return on the investment (as would be the case in a cost benefit analysis), the issue of foreign ownership is moot¹¹. For example, a purchase of one million dollars' worth of Australian motor vehicles generates a range of supply chain stimuli. That stimulus occurs regardless of whether those motor vehicles were purchased by an Australian or by a foreigner.

Are the positive economic impacts of the proposed Alpha Coal Mine overstated by:

- (a) including the profits of the proposed Alpha Coal Mine from export income, which do not accrue to Queensland?**
- (b) expressing export income as a benefit in addition to capital expenditure and taxes whereas capital expenditure and taxes would be paid from export income, effectively double counting those benefits?**

¹¹ The issues of the implications of foreign ownership in a cost benefit analysis is a matter of debate, and can hinge on whether the cost benefit analysis is primarily focussed on the net worth the project itself, or whether the cost benefit analysis is being used as a means of identifying how the net benefits of the project are distributed.

91. In response to paragraph (a) of the above question, the export income of the proposed mine is reported in the economic impact assessment so as to allow some understanding of the scale of potential royalty income that may accrue to Queensland. This piece of information is considered of some relevance by the Queensland Government's Office of State Revenue.
92. In response to paragraph (b) of the above question, impacts can be expressed in a number of ways. The audience of the EIS is diverse with a range of stakeholders interested in various pieces of information. For example, the assessment of the impact of capital investment and operating expenditure impacts is potentially of interest to suppliers and agencies such as the Queensland Government's Office of Advanced Manufacturing. This information provides an indication of the supply chain capability that would be required to support the project, which in turn allows for an assessment of whether measures should be adopted to enhance this capability. Other stakeholders are interested in understanding other aspects of the project. For example, as stated above the Queensland Government's Office of State Revenue is interested in understanding the income generated by the sale of coal from the project to estimate potential impacts on royalty revenues.
93. The point raised by C&C that the supply chain impacts and the export income of the proposed mine should not be considered cumulatively is correct, however the economic information is required to be stated in a number of different ways so that the various stakeholders in the process have an understanding of how the proposed mine impacts them. I do not believe that the report prepared by me, nor the EIS more generally, seeks to articulate these two pieces of information as being cumulative.

5. Summary of Conclusions

94. The approach to the economic assessment adopted for the proposed Alpha Coal Mine was an impact assessment based approach, which responded to the requirements of the EIS Terms of Reference.
95. A cost benefit analysis was not required as part of the EIS Terms of Reference, and as far as I am aware a cost benefit analysis is not a common requirement in the Terms of Reference for other Coal Mine EISs in Queensland.
96. In many regards, a cost benefit analysis would represent an alternative project assessment approach to the current EIS approach. Effectively, the EIS approach represents a multi-criteria analysis which attempts to furnish the assessment agency with information on impacts to consider and weigh up independently, rather than to provide a recommendation as to whether the project should proceed (as might be the case in a cost benefit analysis).
97. The economic impact analysis prepared as part of the Alpha Coal Project EIS process indicated that the proposed mine would have a significant effect on employment demand across a broad range of sectors, with the sectors most likely to be stimulated by the proposed mine including manufacturing, construction, wholesale trade and transport.
98. The extent to which this employment demand can be accommodated at a local or regional level is limited. As such, labour will be predominantly sourced through FIFO and DIDO

arrangements, although the SIMP identifies a range of measures to enhance local and regional industry capability and hence local and regional employment.

99. It is my opinion that adverse impact in terms of employment in agriculture and manufacturing as a result of the proposed mine will be limited and in the case of manufacturing would be significantly offset by the stimulatory effect of the proposed mine on manufacturing.
100. It is my opinion that the proposed mine will not cause a net loss of employment in the Queensland economy and I note that historically mining investment in Queensland has had a significantly net positive impact on the demand for labour within Queensland.
101. The proposed mine will result in a net increase in exports from Australia, which holding all other factors equal would by definition place upward pressure on the Australian dollar. However, this impact would be less than 1.1%.
102. There are a range of factors that have placed far greater upward pressure on the Australian dollar than recent changes to Australia's trading performance.
103. I disagree with the contention that economic impacts are overstated. Rather impacts are reported from a number of perspectives so as to allow stakeholders to consider the impacts in terms relevant to them.

6. Additional Information Required

I do not consider that access to any readily ascertainable additional facts would assist me to reach a more reliable conclusion.

7. Expert's Statement

I confirm the following:

- (a) the factual matters stated in this report are, as far as I know, true;
- (b) I have made all enquiries that I consider appropriate;
- (c) the opinions stated in this report are genuinely held by me;
- (d) the report contains reference to all matters I consider significant; and
- (e) I understand my duty to the court and have complied with the duty.



Marcus Brown

30 May 2013

MARCUS BROWN CURRICULUM VITAE

Summary of Experience

Marcus has fifteen years professional experience in the areas of regional and industrial land use economics and economic planning, economic impact analysis and economic evaluation of private and public sector projects. Marcus has been responsible for developing a number of Economic Associates' proprietary economic models. He is also recognized as one of Queensland's leading applied economists and frequently undertakes peer reviews of other consultant's assessments on behalf of Queensland Government agencies and councils across Queensland. Marcus has led a number of economic assessments of major resource sector projects throughout Queensland. This has given him an extensive understanding of the supply chain logistics of many of these major projects and their ongoing input requirements. Marcus was recently appointed to the Queensland Government Board for Urban Places and sits on the Board's Regional Queensland Sub-Committee and acts as a specialist economic advisor to the Board. Marcus brings a diverse experience base covering both major resource projects and regional industry planning.

Qualifications

Bachelor of Economics (Hons), University of Queensland 1998

Master of Business Administration, University of Queensland 2006

Memberships

Member, Economic Society of Australia (Queensland)

Member, Urban Development Institute of Australia

Member, Board for Urban Places, Queensland Government

EnviroDevelopment Professional (certified)

Professional Experience

Associate, Economic Associates Pty Ltd. A summary of current and recent experience includes the following studies.

EIS Related experience

North Queensland Gas Pipeline Project Economic Impact Assessment (Enertrade)
The study was an analysis of the economic impacts of the proposed pipeline on industrial development in Belyando, Townsville and adjacent regions and considered economic development opportunities which could be catalysed by the pipeline project in adjacent areas and coastal regions. The impact analysis consisted of an input-output analysis of the impacts of the additional capital and operations and maintenance expenditures on the Queensland economy.

Central Queensland Gas Pipeline Economic Impact Assessment (HLA Envirosciences)
The purpose of this study was to estimate the direct and indirect economic impacts of the proposed Central Queensland Gas Pipeline. The study included an analysis of the regional economic environment and major development opportunities

within the region. The impact analysis consisted of an input output analysis of the proposed investment project and the operations and maintenance phase of the project. The study also researched the potential projects which could be catalysed by the pipeline project.

Alpha Coal Project Economic Impact Assessment (Hancock Prospecting) This study involved the assessment of a 30Mtpa coal mine located near Alpha and a 60mtpa capacity coal railway connecting Alpha and Abbott Point. The assessment included an analysis of the host regional economy and the economic environment along the proposed rail corridor. The assessment included an economic impact assessment of the full life cycle of the mine and the construction and operation of the coal railway. The assessment included an analysis of the opportunity cost of the project in terms of potential sterilization of other productive activities by the project, plus an analysis of cumulative impacts.

Kevin's Corner Project Economic Impact Assessment (Hancock Prospecting) This study involved the assessment of a second 30Mtpa coal mine adjacent to the proposed Alpha coal mine. The assessment included an analysis of the host regional economy and an economic impact assessment of the full life cycle of the mine. The study also analysed the opportunity cost of the project in terms of potential sterilization of other productive activities by the project. The assessment also included an analysis of cumulative impacts.

Abbot Point T0 Terminal Expansion EIS: Economic Assessment (Adani) This study involved the assessment of a major terminal expansion at the port of Abbott Point in the Mackay Isaac Whitsunday (MIW) region. The study comprised two parts, firstly a detailed economic baseline study of the MIW region and secondly an economic impact assessment of the proposed terminal expansion on the host region economy. The study included an recommendations pertaining to a range of mitigation measures.

Port of Gladstone Western Basin Expansion Project: Economic Assessment (Gladstone Port Corporation) This study entailed an economic evaluation comprising a cost-benefit analysis and economic impact assessment of the proposed Port of Gladstone Western Basin expansion. The evaluation included detailed analysis of major regional developments and the implications of major CSG to LNG projects accommodated by the port expansion on the Gladstone regional economy.

Walloons Expansion Project: Socio-Economic Impact Assessment (Origin Energy) This study was a Socio-Economic Impact Assessment (SEIA) of Australia Pacific LNG Limited's (APLNGs) proposed coal seam gas (GSG) to liquefied natural gas (LNG) project. The SEIA was one of a number of studies undertaken to satisfy the requirements of the Environmental Impact Statement (EIS). The objective of the SEIA was to evaluate the social and economic impacts of the Project on the community and impacts on the local and regional economy and to propose an impact management strategy.

Port of Gladstone Fisherman's Landing Expansion Project: Economic Assessment (Gladstone Port Corporation) This study included an economic analysis of the Gladstone and Fitzroy regions and the economic significance of the Port of Gladstone as a key piece of regional freight infrastructure. An economic evaluation (cost benefit analysis) and economic impact analysis of the expansion of the Fishermen's Landing port facilities by reclaiming 153 hectares of land in the western basin of the Port of Gladstone were undertaken. The evaluation included analysis of a range of benefit streams associated with the reclamation project.

Balaclava Island Coal Export Terminal Economic Assessment (Xstrata) This study involved the assessment of a 30Mtpa new coal export terminal proposed on Balaclava Island at Port Alma (Central Queensland) by Xstrata. With the project being located almost halfway between Rockhampton and Gladstone, the assessment included an

analysis of both the Gladstone and Rockhampton local economies and the Fitzroy regional economy. The assessment included a detailed economic impact analysis of the project which estimated a range of inter-industry effects and impacts on key economic indicators.

Bow Energy Gas Pipelines and Gas Fields Economic Impact Assessment (Bow Energy) The study comprised a detailed economic baseline study of the local and regional economies to be impacted by the gas fields and pipeline corridor that comprise the project. The study included an economic impact assessment of the project's construction and operation.

Drake Coal Project Economic Assessment (QCoal) This study involved the assessment of a 6Mtpa coal mine south of Collinsville. The study included an analysis of the Whitsunday regional economy and an economic impact assessment of various stages of mine development, including construction, operation and decommissioning. The assessment also included an analysis of cumulative impacts.

SCONI Project EIS: Economic Assessment (Metallic Minerals) (in progress) The purpose of this study is to assess the economic impacts of the proposed nickel and scandium project located at Greenvale. The study comprises a detailed baseline economic analysis of the North Queensland regional economy and development pipeline of major projects. The economic impact assessment of the project is due to commence shortly.

New Lenton Coal Project: Economic Impact Assessment (New Hope Coal) (in progress) The purpose of this study is to assess the economic impacts of the proposed New Lenton coal project. The study comprises a detailed baseline economic analysis of the Isaac regional Council area and the broader Mackay Isaac Whitsunday region and development pipeline for major projects within that region. The economic impact assessment of the project is due to commence shortly.

Australian Seamless Tube Steel Project EIS: Economic Impact Assessment (Boulder Steel) The Australian Seamless Tube Steel project was a steel mill project proposed to be located at Swanbank, Ipswich. The study comprised an economic baseline study of the Ipswich and SEQ regional economies and an analysis of the Australian steel industry. The study also included an economic impact assessment of the project.

Red Hill Project EIS: Economic Baseline Study (Vale) Preparation of economic baseline studies in relation to the Red Hill Coal project.

Degulla Project EIS: Economic Baseline Study (Vale) Preparation of economic baseline studies in relation to the Degulla Coal project.

Bundi Coal Project Economic Baseline Study (MetroCoal) Preparation of economic baseline studies in relation to the Bundi Coal project.

Resources Related Roads Projects

Walkerston Bypass Peak Downs Highway Economic Evaluation (Mackay/Whitsunday Region, Department of Transport and Main Roads) Assessed the broader regional economic impacts of the proposed project in the context the Mackay Isaac Whitsunday regional economy and the significance of the Peak Downs Highway as a major link between the Bowen Basin coalfields and Mackay, the major regional service centre. Prepared a cost benefit analysis of realignment options.

Mackay Ring Road: Broader Economic Assessment (Department of Transport & Main Roads) Prepared an economic model to estimate the future economic activity in terms of employment and gross regional product by industry across the MIW region to 2031. The model was used to inform road route and staging options for the proposed Mackay Ring Road.

Cumulative Impact Assessment of Surat Basin LNG Projects on the State Controlled Road Network (Department of Infrastructure & Planning) This study prepared estimates of the impacts on road infrastructure resulting from increased freight volumes should all proposed LNG projects receive approval, by confirming, validating or extending information in current EIS material. The study estimated the cumulative impacts on road infrastructure of all proposed LNG and declared significant projects, especially from Gladstone south west to Roma. The study made recommendations regarding desirable road upgrades and proponent contributions to those upgrades.

Strategic Context, Future Changes, Current Condition, Gap Analysis & Road Route Strategy: Leichhardt Highway Corridor (Department of Transport & Main Roads): The purpose of this report was to analyse and project the likely development activity within the Surat Basin and its implications for the Leichhardt Highway corridor and assess the extent to which such development activity may impact corridor access and amenity, the role and function of the corridor, and objectives for the long term development of the corridor. The outcome of the report was a road route strategy that prioritised necessary works based on a range of criteria, including avoided maintenance costs, safety and economic development imperatives;

Strategic Context, Future Changes, Current Condition, Gap Analysis & Road Route Strategy: Carnarvon Highway Corridor (Department of Transport & Main Roads): The purpose of this report was to analyse and project the likely development activity within the Surat Basin and its implications for the Carnarvon Highway corridor and assess the extent to which such development activity may impact corridor access and amenity, the role and function of the corridor, and objectives for the long term development of the corridor. The report also identified major constraints that may impact future development within the corridor. The outcome of the report was a road route strategy that prioritised necessary works based on a range of criteria, including avoided maintenance costs, safety and economic development imperatives;

Strategic Context, Future Changes, Current Condition, Gap Analysis & Road Route Strategy: Warwick to Dululu Corridor (Department of Main Roads) The purpose of this report was to analyse and project the likely development activity within the Lower Bowen Basin, Burnett and Darling Downs regions and their implications for the Warwick to Dululu corridor (comprises part of Cunningham, D'Aguiar, Bunya & Burnett Highways) and assess the extent to which such development activity may impact corridor access and amenity, the role and function of the corridor, and objectives for the long term development of the corridor. The report also identified major constraints that may impact future development within the corridor. The outcome of the report was a road route strategy that prioritised necessary works based on a range of criteria, including avoided maintenance costs, safety and economic development imperatives.

Contestability between Modes in the Mount Isa to Townsville Corridor (Department of Transport & Main Roads) The purpose of this study was to identify the existing and potential demand for freight along the Mount Isa to Townsville corridor across a range of major commodities, and the implications of these freight flows on inter-modal contestability. The study entailed extensive engagement with major commodity producers, freight haulers and asset owners. The study also included an analysis of the relative competitiveness across road and rail modes by each commodity, to identify the drivers for inter-modal competition and any impediments to that competition. The study

included an analysis of intermodal freight demand elasticities and their applicability to the Mount Isa to Townsville corridor.

Other Economic Impact Assessments

Port of Townsville Economic Impact Study (Port of Townsville Limited) The purpose of this study was to assess the economic contribution of the Port of Townsville on the Townsville and North Queensland economy. The study included a detailed analysis of regional economic drivers influencing port demand and historical and projected port trade.

Socio-economic Impact Assessment of the Abel Point Marina (Meridian Marinas) The purpose of this study was to estimate the socio-economic impacts of the proposed Abel Point Marina on the Whitsunday regional economy. The study comprised an economic baseline study of the Whitsunday regional economy and an economic impact assessment.

Economic Impact Assessment of the Gracemere Industrial Area (Rockhampton Regional Council) The purpose of this study was to identify the contribution of industrial activity to the Rockhampton regional economy were the resolution of access constraints to the Gracemere Industrial Area to be resolved.

Preliminary Economic Impact Assessment of Proposed CHALCO Refinery (Townsville Enterprise Limited) The purpose of this study was to provide a preliminary estimate of potential economic impact of establishing the CHALCO alumina refinery in Townsville, in terms of its contribution to output, employment, household income and value added to the North Queensland regional economy.

Economic Impact Studies of the Australia TradeCoast (Department of State Development, Trade & Innovation) The purpose of this project was to estimate the economic direct and indirect economic contribution of the Australia TradeCoast, which comprised the Brisbane Airport, the Port of Brisbane and enterprise lands throughout the Australia TradeCoast.

Economic Impact Assessment of Proposed Townsville V8 Supercar Event (Events Queensland) Preparation of an economic impact assessment of a proposed V8 Supercar Event for Townsville and review of previous evaluations prepared for the event.

Relevant Regional and Industry Studies

Galilee Basin Economic and Social Impact Study (Department of Employment, Economic Development & Innovation) The purpose of this study was to provide a baseline of data indicators for the region to assist service providers prepare for and manage the impacts of mining projects in the area. Key tasks included identification of areas of potential impact resulting from the development of coal mining activities within the Galilee Basin; prepare a demand and needs analysis for local and regional business growth; and map the anticipated hard and soft infrastructure requirements to support the resource projects and indicate appropriate timeframes for development of infrastructure.

Townsville State Development Area Economic Opportunities Study (Coordinator General) The purpose of this study was to prepare an economic analysis to identify industry development opportunities within the Townsville State Development Area (TSDA); identify the highest and best use of TSDA land; and to identify specific industry land and infrastructure requirements. The study entailed a detailed analysis of the North Queensland and North Western Queensland economy having particular regard to the

potential development opportunities associated with expansion of base metals and other resource sector opportunities within the region.

Gladstone State Development Area Economic Opportunities Study (Coordinator General) The purpose of this study was to undertake economic analysis to inform any possible future amendments to the Gladstone State Development Area (GSDA) development scheme. The study comprised an analysis of the existing and historical drivers of the regional economy, with particular reference to the economic contribution by industry and the upstream (supply chain) and downstream (customer) linkages between major industry within the GSDA and other major industry drivers (principally resource and mining sector development) influencing, but not necessarily located within Gladstone. The study also identified infrastructure and locational requirements of identified future opportunities.

Special Industry Estates Study: Industry Needs Assessment (Department of Infrastructure & Planning) This study involved the definition and analysis of 'high impact and difficult to locate industry' within southern Queensland, including downstream resource sector related industrial opportunities. The project required a detailed analysis of inter-industry relationships, industry supply chains and in-depth consultation with major industrial enterprises. Key outcomes of the project were the identification of locational implications of inter-industry relationships, infrastructure requirements, land demand and the economic contribution of 'high impact and difficult to locate industry' to the Queensland economy.

Cost Benefit Analysis and Economic Impact Assessment of the Fitzroy Industry and Infrastructure Study (Queensland Department of Infrastructure) This study involved an evaluation and impact assessment of two development corridors (i.e. an agricultural development corridor and an industrial development corridor) proposals in the Lower Fitzroy region in Central Queensland. The agricultural development corridor included intensive beef cattle production (feedlotting) and horticulture. The industrial corridor proposal included intensification of industrial activity along the Capricorn Highway between Gracemere and Stanwell. The project involved consultation with major agricultural, industrial and mining enterprises in the region. The output of the study was a cost benefit analysis of the agricultural corridor proposal and an economic impact assessment of both development corridors.

Toowoomba Region Industry Study: Industry Needs Assessment (Toowoomba Regional Council) The purpose of this study was to identify the future locational and land requirements of industrial activity within the Toowoomba region. A number of demand analysis approaches were adopted. A key aspect of the project was the estimation of likely catalytic industrial development activity as a result of resource sector expansion in the Surat Basin that could be accommodated within the Toowoomba region.