

# **Carmichael Coal Mine and Rail Project Supplementary Environmental Impact Statement**

Submission  
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Rod Campbell

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## Introduction

The Carmichael Coal Mine and Rail Project is a proposal to mine up to 60 million tonnes per year of thermal coal from the Galilee Basin for export via associated rail and port infrastructure. As the project will have a major impact on the local and potentially global environment, an environmental impact statement was prepared which included an economic impact statement (EIS). Submissions on the EIS were taken and response to submissions (RTS) and a supplementary environmental impact statement (SEIS) have now been released for public comment.

The Australia Institute welcomes the opportunity to make a submission on the supplementary environmental impact statement for the proposed. Parts of this submission refer to a submission on the original environmental impact statement by public interest economics group, Economists at Large. The Economists at Large submission was co-written by this submission's author, Rod Campbell.

This submission addresses:

- Response to submissions
- Revised economic assessment in the SEIS

The SEIS economic assessment employs largely the same methodology as the EIS and thus shares many of its faults.

In summary, both the EIS and SEIS fail to present a strong economic case for the project. They fail to conduct cost benefit analysis of the project, which is necessary to understand if the project is viable and in the public interest. Instead, they focus on the results of an input output model, which is not a preferred method of economic evaluation of the Queensland Department of Infrastructure and Planning, nor of most Australian government departments and treasuries and economists more widely.

Had proper cost benefit analysis been conducted, it would certainly find that the project faces difficult financial hurdles. Any financial benefits of the project will accrue to the project's foreign owners, while environmental and social impacts will be borne by Queenslanders. In the absence of the necessary information to determine the impact of the project's approval on the economic welfare of the state, it is prudent for decision-makers to err on the side of caution (until such time as such information is available). As it stands, the project is not demonstrably in the public interest of Queensland or Australia and on this basis we recommend against approval.

## Response to submissions (RTS)

The submission to the EIS by Economists at Large<sup>1</sup> highlighted serious shortcomings in the economic assessment of the project as conducted by consultants GHD<sup>2</sup>. In particular:

- Lack of cost benefit analysis
- Assessment based on input-output modelling (IO modelling).

The assessment emphasised that cost benefit analysis assesses whether a project is in the best interests of the Queensland public, whereas IO modelling measures changes in levels of economic activity. The distinction is profound. Classically, the difference is illustrated with the example of a broken window. If a shopkeeper is saving for a suit, but has his window broken by a vandal, replacing the window may stimulate economic activity, as to do so requires an investment in labour and materials. The repairer, therefore, benefits from the vandalism. Nevertheless, society's economic welfare is not improved, as the cost of repair would have otherwise been spent on a suit, and the sudden requirement to replace the window (the repairer's gain) is completely offset by the loss of income for the tailor. Activity appears to have increased, but welfare has not. Indeed, if anything, welfare has decreased, as the shopkeeper has a window and no suit instead of both. An IO model would suggest to a decision maker that the vandalism is beneficial, but a cost benefit analysis would reveal the more complete story.

It is not sufficient to demonstrate that a new project will stimulate activity, which the proponent accepts is the sole purpose of its use of IO modelling. Economic welfare is not necessarily improved by economic activity, which is why it is imperative that the proponent of any major project must offer a cost benefit analysis to interpret the implications of any change in economic activity their project may generate. This is the position of the Queensland Department of Infrastructure and Planning:

*The primary method of economic evaluation of public sector policies and projects is cost-benefit analysis. Input-output methodology (or the use of multipliers) is not a preferred methodology for economic evaluations.*<sup>3</sup>

This position is shared by economists across the political spectrum<sup>4</sup>. Indeed, GHD in the RTS largely agrees, in their only substantial response to the many concerns raised with their assessment:

*In summary, the input-output method is an economic impact assessment method, whereas cost-benefit analysis is an economic evaluation method. The objective of the economic assessment required by the Project ToR is to identify the potential economic impacts of the project, including the direct and indirect impacts.*<sup>5</sup>

The argument that input-output methodology is exclusively concerned with economic impact and cost benefit analysis is exclusively concerned with economic evaluation is a misunderstanding of both the requirements of the Project ToR and the utility of the two methodologies. The difference between "economic assessment" and "economic evaluation" is purely semantic. The fact is that projects which affect public welfare should be assessed

<sup>1</sup> (Economists at Large, 2013)

<sup>2</sup> (GHD, 2012)

<sup>3</sup> (Qld DIP 2011, p18)

<sup>4</sup> see for example (Boardman, Greenberg, Vining, & Weimer, 2006; Dobes & Bennett, 2009; Eggert, 2001; Ergas, 2009)

<sup>5</sup> (GHD, 2013) p38

with cost benefit analysis. The ToR for the project in no way preclude this assessment required by the DIP guidelines. GHD continue:

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

Decision makers should also note that IO analysis has serious shortcomings which make it unsuitable for project assessment, particularly:<sup>6</sup>

- No resource constraints
- Fixed prices
- Not representative of small economies (such as the project area).

Because of these shortcomings, IO modelling has been labelled as “biased”, “abused” and “deficient” for purposes such as coal mine assessment.<sup>7</sup> GHD’s RTS continues:

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

The Australia Institute agrees entirely. Any assessment of a major project’s value must include an evaluation of its net worth. The identification of its economic impacts serves an important function in the assessment process, though it is certainly not sufficient. Economic impacts must be identified according to to whom they accrue, and non-economic impacts must be treated similarly. Positive or negative impacts accruing to foreign stakeholders, for example, are beyond the scope of a major project evaluation, and positive or negative impacts accruing to local stakeholders are significant. The major project assessment process is designed to “*determine whether a project should go ahead or not go ahead*”. For that reason, a project’s net worth is more valuable to decision makers than a project’s economic impacts. GHD continue:

*Cost benefit analysis is data intensive, requires forecast of revenues and benefits, and is generally done internally before the proponents of a project decide to proceed or not proceed.*

GHD’s justification for not attempting a cost benefit analysis is unconvincing. Cost benefit analysis is no more data intensive than other assessment methods. It is routinely carried out on coal projects in NSW<sup>8</sup>, where it is paid close attention. The data required to complete a cost benefit analysis, furthermore, is in the public interest. Forecasting revenues and benefits is necessary, for instance, to make the economic case that the Carmichael mine will improve the welfare of Queensland generally and the Project area more specifically. The Project’s ToR make clear that the onus is on the proponent to provide a justification for the project. In

<sup>6</sup> see (ABS, 2011)

<sup>7</sup> (ABS, 2011; Gretton, 2013; Preston, 2013)

<sup>8</sup> See for example (ECS, 2013; Gillespie Economics, 2009, 2010)

recognition of this responsibility, and of the value that cost benefit analysis offers in meeting it, the NSW Treasury and Department of Planning recently released guidelines specifically aimed at improving the cost benefit analysis of coal and gas projects.<sup>9</sup> While proponents obviously conduct financial analysis of their projects before making applications, these analyses are different to cost benefit analysis of the public interest, which would include consideration of:

- Benefits accruing to overseas interests
- Royalties and tax revenues
- Costs to environmental assets such as
  - water,
  - vegetation,
  - human health,
  - the Great Barrier Reef.

The suggestion that a cost benefit analysis has been internally completed in the process of deciding whether or not the proponent wishes to proceed is in this way irrelevant. The proponent's recognition of costs and benefits fundamentally differs from those interests of the state.

In conclusion, GHD's response to the criticism of Economists at Large is inadequate. The proponent has adopted a restrictively narrow interpretation of its responsibilities, which is contrary to standard economic practice and the requirements of the Queensland Department of Infrastructure and Planning.

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<sup>9</sup> (NSW Treasury, 2012)

## Revised economic assessment in SEIS

### Lack of cost benefit analysis

Without cost benefit analysis, it is not possible to understand if the project results in an improvement of Queensland's economic welfare. This assessment must be conducted before the project is given further consideration.

The lack of public analysis into the likely costs and benefits associated with approving the development of the Carmichael mine project offers little reason for confidence in the financial viability of the project. Many independent assessments into major Galilee Basin projects have revealed substantial financial pressure, with many analysts sceptical that they can provide an adequate return on capital, particularly in the face of an uncertain outlook for thermal coal. For instance:

*Development of the Galilee Basin looks increasingly remote, Macquarie Group Ltd., Australia's biggest investment bank, said in a May 1 research note. Prospects for project paybacks look extremely poor, the bank said. Further delays are likely unless 'deep pocket' backers are able to ignore conventional economics.<sup>10</sup>*

*The number of Australian coal projects that look to have a realistic chance of being approved in this market would fit on one hand. In separate briefings on Wednesday, BHP Billiton and Wesfarmers Resources confirmed that, based on current market conditions, there were no plans to expand their coal businesses. With coal prices low and Australian mining costs high, it would take a very brave board to approve a greenfields project.<sup>11</sup>*

*It is conventional wisdom that due to lack of infrastructure and other factors the Galilee Basin is uneconomic<sup>12</sup>*

The global outlook for thermal coal is heavily influenced by changes in demand from China, which accounts for half of the world's coal consumption and whose domestic coal market is three times the size of the international coal trade<sup>13</sup>. As such, analysts pay close attention to China's domestic energy policy, as it holds significant bearing on global coal demand. Though total energy demand is projected to continue to increase in China in the short to medium term, coal's percentage as a share of total energy generation in China's energy market is projected to decline<sup>14</sup>. 2013 was the first year that China's renewable additions to its energy generation mix exceeded additions from fossils and nuclear sources (by output)<sup>15</sup>. Coal's declining percentage share in China's energy mix, coupled with increasing domestic and international pressure to develop alternative energy sources, places long-term demand for coal in doubt. By extension, the long-term viability of the Project is similarly unclear.

The proponent's suggestion that the project will operate for a 60 year lifetime necessarily exposes it to risks beyond those that can reasonably be predicted and offset. In recognition of this limitation, the proponent suggests in the SEIS social impact assessment that "the manner in which the Project is undertaken will...change over time", due in part to "demand for coal". The proponent acknowledges that such changes "will potentially alter the social

<sup>10</sup> (Buckley & Sanzillo, 2013)

<sup>11</sup> (Freed, 2013)

<sup>12</sup> (SSEE, 2013)

<sup>13</sup> (SSEE, 2013)

<sup>14</sup> (Bloomberg, 2013)

<sup>15</sup> (Bloomberg, 2013)

impacts of the Project”, offering the examples of “demand for workforce, and skills requirements”.

This inclusion illustrates the vulnerability of the project to the volatility of the world coal market. Considering the large export potential of the Project, recent suggestions by energy analysts that the cumulative impact of the Galilee Basin developments may increase world coal supply by as much as 30 per cent, which may depress export prices for thermal coal and threaten not only the viability of the proponent’s Project, but also those of more marginal projects in Queensland<sup>16</sup>. Recent ABS data estimates that nearly 60 per cent of mining companies currently in operation are failing to make a profit, resulting in widespread cuts in employment and expenditure<sup>17</sup>. In light of present market conditions, a proper evaluation of the Project requires a cumulative economic assessment of the outcomes likely to be experienced in the rest of the state by a sudden and ongoing increase in global coal supply.

Because any change to “the social impacts of the Project” will be borne by the region and the state, and not by the proponent, it is not sufficient to expect the state to endorse its suggestion that a private cost and benefit analysis has been performed. An evaluation of the impacts of the development and operations of the Project ought to include an assessment of a range of potential Project scenarios the proponent can reasonably anticipate. That no cost benefit analysis has been offered for the proponent’s ‘best case scenario’ is unsatisfactory – that no cost benefit analysis has been offered for any less optimal scenarios is neglectful.

There is clearly a risk that the government approves a project which becomes financially unviable. Damage to environmental assets without return in terms of long-term economic benefit would result in a loss to the Queensland public. The onus is on the proponent to show that this outcome is unlikely and that the Project is going to improve the economic welfare of Queensland.

### Assessment through input output model

As discussed, IO models are not an appropriate tool to consider the economic interests of the state. The results of these models are certain to overstate the impacts of the project as they ignore the impacts of the project on other industries.

For example, the IO model assumes that labour and land can be provided for the project without taking these away from other industries. In effect, the IO model assumes there is a “ghost workforce” waiting to work on the project. This is clearly not the case. A project of this size will take away resources from other industries, reducing their output. The subsequent indirect employment benefits from jobs lost in other sectors, by extension, are a cost to the Project that must be incorporated into any public evaluation of its merits (though not a necessary component of private evaluations, further demonstrating their incompatibility).

The limitations of the IO model are widely accepted in the economics community. Indeed, Jerome Fahrner, Director of ACIL Allen Consulting and expert witness supporting the proponent in the recent hearing over the proposed extension of the Ashton coal mine, suggested in the court transcript that:

*...input/output modelling is fine for some purposes but it's not the best technique ... for this kind of purpose [evaluating a coal mine]. The reason is that input/output modelling takes no account of the fact that there are limited productive resources [in the economy] principally people to be employed. So it always makes the amount of*

<sup>16</sup> (Buckley & Sanzillo, 2013)

<sup>17</sup> (ABS, 2013)



*output, income, jobs, bigger than would likely be the case, unless you're in the Great Depression, or a very deep recession.*

The inappropriateness of IO modelling for these purposes renders their results dubious. By overstating the economic impacts of a project, and failing to render accurate projections of changes in employment conditions, its usefulness as a decision-making tool is limited. This is acknowledged in the assessment of another major Galilee Basin coal project, the China First mine<sup>18</sup>. The consultants for that project used a more sophisticated form of economic modelling, computable general equilibrium modelling (CGE), to account for that project's impacts on industries such as manufacturing and agriculture. They found that:

- 2215 jobs in manufacturing would be destroyed by the project
- 192 jobs in agriculture would be destroyed by the project.

As the Carmichael project is of broadly similar size, similar negative effects can be expected in these and other industries that face skills shortages and problems with the high Australian dollar. Nevertheless, the proponent makes no mention of negative job impacts throughout the broader economy. These impacts are ignored by IO modelling, ensuring that the proponent's projections of the indirect impacts of the project overstate its influence on output and employment. A more complete representation of the local and state economies is necessary yet absent. As it stands, the project is not demonstrably in the public interest of Queensland or Australia and on this basis we recommend against approval.

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<sup>18</sup> (AEC group, 2010)

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