



Discussion of Maules Creek Coal Project Response to Submissions and
Professor Jeff Bennett's review of Maules Creek Coal Project Economic
Assessment

Prepared by

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Introduction

Economists at Large welcome Hansen and Bailey's response to our submission on the Maules Creek Coal Project environmental assessment and Professor Jeff Bennett's review of the economic impact assessment of the Maules Creek Coal Project proposal. We are pleased that Professor Bennett reinforces some of our main points, particularly relating to:

- Net production benefits
- Social value of employment

These issues have resulted in the overstatement of the value of the project by at least \$3.2 billion, as conceded by Hansen and Bailey. However, there are still major shortcomings of the economic assessment relating to:

- Input-output modelling
- Scope of the analysis
- Consideration of alternatives
- Timing
- Transparency

These shortcomings mean that the economic assessment, despite having been revised, is still unsuitable for decision making purposes. We urge the NSW government to fully review the economics of this project to make a decision in line with the interests of local, state and national public interest. This report will discuss each of the points above and the outstanding issues we see with the economic assessment for the Maules Creek Coal Project.

Net production benefits

Professor Bennett agrees with our observation that the net benefits of the project were overstated due to the profits that will be expatriated by foreign interests, finding that:

Where the shareholders are not citizens, their mine benefits are expatriated and should not be included in the BCA. Careful attention should therefore be given to the register of shareholders and adjustments made to the producer surplus benefit calculation. (Bennett 2011) p3

We are also pleased that as a result of Professor Bennett's review, Hansen and Bailey concede that Gillespie Economics' error has overvalued the project by \$3.2 billion (from \$8.7 billion to \$5.5 billion) or nearly 40%. We urge them to disclose their "careful consideration" on how they established this figure, given that our brief analysis of media and Bloomberg sources suggested foreign ownership of over 50%.

This point is also important for the neighbouring Boggabri Coal Project proposal, which is 100% owned by a foreign investor. We made the same point in submissions relating to that project and look forward to a similar correction.

Social Value of employment

We agree with Professor Bennett’s review which found:

[The] inclusion of the employment benefit as a component of the EIA is not recommended. Their inclusion would overstate the extent of proposal benefits.

It is disappointing that despite Professor Bennett’s recommendation, Hansen and Bailey continue to refer to figures that do include this inappropriate value in their response to submissions. We urge them to desist entirely from using this misleading value.

Professor Bennett noted that the nature of the jobs created and the existing high demand for mine labour in Australia meant that *“it is doubtful that people employed in the new mine would be drawn from the ranks of the unemployed.”* This point is reinforced by economic analysis of the China First Coal Project in Queensland, carried out for the proponents of that mine. (AEC group 2010) found that not only would that mine not carry social value of employment, but that proceeding with that project in the current labour market was likely to result in the loss of significant numbers of jobs in the agriculture and manufacturing industries:

Industry	Forecast decline in employment 2012-13	Forecast decline in employment to 2018	Forecast decline in employment to 2037
Agriculture (jobs)	-126	-192	-120
Manufacturing (jobs)	-188	-2,215	-1,666

Source: AEC Group 2010, page xvi

The output of these industries is also expected to decline due to factors including reduced availability of skilled labour and higher exchange rates caused by the coal project:

Industry	Forecast decline in annual output to 2012-13	Forecast decline in annual output to 2018	Forecast decline in annual output to 2037
Agriculture (\$M)	-42.0	-38.0	-15.2
Manufacturing (\$M)	-209.3	-1,249.4	-1,050.8

Source: AEC Group 2010, page xiii

Compare these results to those presented by Gillespie Economics:

Industry	Average direct effects	Production induced	Consumption induced	Total
Agriculture/forestry/fishing (jobs)	0	0	3	3
Manufacturing (jobs)	0	6	5	11

Source: (Appendix Q, page 23)

While the China First Project is larger than the Maules Creek proposal – looking to produce up to 28Mtpa compared to 9Mtpa – it seems odd that the China First Project will destroy thousands of jobs in agriculture and manufacturing, while the Maules Creek project will have a positive, albeit minor, effect. The reason negative impacts on other industries were not identified in Gillespie Economics’ analysis is due to their choice of methodology. Gillespie Economics used input-output

tables for their economic impact assessment rather than computable general equilibrium modelling. For an example of computable general equilibrium modelling, see AEC (2010).

Input-output modelling

Input-output modelling has fallen from favour with economists for many reasons, the main ones being explained by the Australian Bureau of Statistics (ABS 2011):

Lack of supply-side constraints: *The most significant limitation of [input-output modelling] is the implicit assumption that the economy has no supply-side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or near capacity.*

Fixed prices: *Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.*

Or as (Abelson 2011) put it:

I-O models lack resource constraints and fail to capture significant welfare (consumer and environmental) impacts. They always produce a positive gain to the economy, however disastrous the event.

We urge Hansen and Bailey to revise their assessment of the Maules Creek Coal Project to eliminate all reference to social value of employment and to allow for proper consideration of the project's impacts on other industries.

Scope of the Analysis

We agree with Professor Bennett that conducting cost benefit analysis at the national level is appropriate and practical given the interconnected nature of the Australian economy. We note that in the original analysis Gillespie Economics suggested the scope was to be at the state level:

The NSW Department of Planning (DoP) Director-Generals [sic] Environmental Assessment Requirements (EARs) for the Project indicate that an economic assessment is needed as part of the EA. The EARs specifically require:

A detailed assessment of the costs and benefits of the Project as a whole, and whether it would result in a net benefit for the NSW community. (page 4)

Conducting project analysis at a national level is convenient, but Professor Bennett's assumption that others will do the same is problematic. Specifically, he suggests that:

The GHG emitted during the burning of the coal are not included in the EIA. Because any costs caused by these GHG are borne outside the jurisdiction of the BCA (Australia), this is the appropriate approach. They should be included in a BCA of say the power station proposed to burn the coal.

The assumption that the end user of the coal - most likely a power station in China or India - will conduct transparent cost benefit analysis at all seems optimistic. The real problem arises, however, with the logical conclusion that the Chinese and Indian economists will take the same approach and fail to consider any GHG cost “borne outside the jurisdiction of the BCA” – China or India. Let’s consider the cost benefit analysis of such a power station in more detail, loosely following the points made in Hansen and Bailey’s response to submissions page 98:

			Included in national level CBA?
Benefits	Financial	The revenue paid to the power station from users of its electricity	Yes
	Externalities	“There may also be external benefits of electricity for economic development, education and medical care.” Note that these would accrue to any type of electricity generation, not only coal.	Yes
Costs	Financial	Capital and operating costs	Yes
	Externalities	Reduced air quality, health impacts, acid rain, etc	Yes
		Climate change impacts	No – at least not those that accrue to other countries

The omission of this externality from both the cost benefit analysis of the mine and the power station results in an external cost borne by the rest of the world. The size of this externality is significant and demonstrated with even basic calculations:

Item	unit	value	Source
Coal production	tonnes/year	13,000,000	Appendix Q
Mine life	years	21	Appendix Q
Total output over mine life	tonnes	273,000,000	Ecolarge calculation
Coal to CO2 production ratio	ratio	3.0	Submission by Dr Ian Lowe to Boggabri Coal EIS ¹
CO2 produced	tonnes	819,000,000	Ecolarge calculation
CO2 price	dollars	30	Appendix Q
Total damage	dollars	24,570,000,000	Ecolarge calculation
Present value (21 years, 7%)	dollars	12,677,566,979	Ecolarge calculation

The existence of a \$12.7 billion dollar (present value) externality that is not internalised by either the coal producing or consuming country means that the world bears this loss; neither the mine nor the power plant is likely to be economically efficient in light of this cost. Keeping this cost external is the

¹ Available at http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=3562

unfortunate truth on which the profitability of coal mining and coal-fired power generation industries are largely based. To paraphrase Hanson and Bailey (page 99):

Rent seeking is where stakeholders attempt to derive economic rent ...by manipulating the social or political environment...

Indeed. Rent seeking is what the coal industry does when it campaigns against carbon pricing, seeks compensation, or insists on externalities not being internalised in economic analysis of their activities.

Alternative projects

Both Professor Bennett and the proponents outline why cost benefit analysis can be appropriate with only project and base case scenarios, as the current situation:

involves the NSW Department of Planning using the BCA as an input to deciding if the mine proposal should go ahead. (page 94)

However, governments should be examine several options to maximise the benefit to its constituents rather than approving the only option put to them on the basis that it has a positive net present value. The logic here is that any project with a positive net present value should be approved, which is not the same as finding the project that has the highest value. It is unlikely that the proposal put forward by a proponent will be that which maximises value to society as they are rationally attempting to maximise their own returns, as we see from the response to submissions:

(response to submissions page 93)

Aston has conducted an extensive feasibility study into how the coal resource within its mining authorities could be mined. Following this, Aston has put forward a Project proposal that it considers is feasible for determination by the NSW Government.

In other words, Aston have sensibly put forward a proposal that maximises the benefits to their shareholders in a way that makes it feasible for the NSW Government to approve their project. The government assesses if the project should be approved, but at no stage does the government make an assessment of whether this is the best way of exploiting its resource.

Transparency of calculations

The public's faith in the economic assessment should be of the highest importance to governments, proponents and their consultants. However, the economic assessment includes calculated values that cannot be replicated using the data contained in it. Our attempt to replicate these calculations showed differences with the stated values of hundreds of millions of dollars. Our calculations, far from being "stylised", follow standard methodology and were reviewed by several practicing economists, none of whom could reconcile the difference between the figures.

Although we are pleased that Hansen and Bailey have outlined some of the assumptions behind Gillespie Economics' calculations on page 104 of the response to submissions, it is disappointing that Professor Bennett made no comment on this issue in his review. While the revealed assumptions

help explain the difference in estimates, unfortunately they repeat the same lack of transparency in calculating present values of royalty figures on page 97. Attempting to recreate these calculations without further information on the assumptions behind them also results in significantly different values.

The background to these calculations are not commercially sensitive and they could be included at no extra cost to consultants. Not explaining them serves only to weaken public confidence in their analysis.

Conclusion

In this short discussion we have seen that Gillespie Economics' assessment of the Maules Creek Project:

- Overstated production benefits by at least \$3 billion
- Included conceptually flawed social benefits of over \$200 million
- Understates the impact of the project on other industries
- Employed inappropriate modelling techniques
- Sets its scope to preclude discussion of climate change damage worth perhaps \$12 billion

For these reasons we do not share Professor Bennett's conclusion that the assessment was "basically sound but falls short" (page 5). Professor Bennett has himself called for an end to the attitude that such "basically sound" analysis was "good enough for government work" (Dobes and Bennett 2009) and we see no reason why this should not be extended to analysis of this project. We call on governments to encourage development of mineral resources in ways which maximise the public benefit and to thoroughly review commissioned analysis. We call on project proponents and consultants to provide transparent analysis which allows the public to make an assessment, not analysis that is "feasible" for the "approvals process".

References

- ABS. 2011. Australian National Accounts: Input-Output Tables - Electronic Publication, Final release 2006-07 tables. Australian Bureau of Statistics.
[http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/5209.0.55.001MainFeatures4Final release 2006-07 tables?opendocument&tabname=Summary&prodno=5209.0.55.001&issue=Final release 2006-07 tables&num=&view=.](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/5209.0.55.001MainFeatures4Final%20release%202006-07tables?opendocument&tabname=Summary&prodno=5209.0.55.001&issue=Final%20release%202006-07tables&num=&view=)
- AEC group. 2010. Economic Impact Assessment for the China First Project EIS. *Assessment*.
<http://www.deedi.qld.gov.au/cg/galilee-coal-project-northern-export-facility.html>.
- Abelson, Peter. 2011. "Evaluating Major Events and Avoiding the Mercantilist Fallacy." *Economic Papers: Journal of the Economic Society of Australia* 30 (1) (March 5): 48-59.
doi:10.1111/j.1759-3441.2011.00096.x. <http://doi.wiley.com/10.1111/j.1759-3441.2011.00096.x>.
- Bennett, Jeff. 2011. Maules Creek Coal Project Economic Impact Assessment: A review. *Research Evaluation*. A review commissioned by Aston Resources, proponents of the Maules Creek Coal Project Proposal.
[https://majorprojects.affinitylive.com/public/d70ab9717ed8449eafa6b1e7d8e4cea5/Appendix G Bennet Peer Review_lowres.pdf](https://majorprojects.affinitylive.com/public/d70ab9717ed8449eafa6b1e7d8e4cea5/Appendix%20G%20Bennet%20Peer%20Review_lowres.pdf) .
- Dobes, Leo, and Jeff Bennett. 2009. "Multi-Criteria Analysis: 'Good Enough' for Government Work?" *Agenda* 16 (3).
- Knudsen, Odin, and Pasquale Scandizzo. 2002. Real Options and Project Evaluation: a Primer. Working Paper number 62487 of the World Bank. http://www-wds.worldbank.org/servlet/main?menuPK=64187510&pagePK=64193027&piPK=64187937&theSitePK=523679&entityID=000356161_20110614054106.