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Bylong Coal Project

Submission on Environmental Impact Statement, Appendix AE Economic Assessment

Submission

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Summary

The economic assessment of the Bylong Coal Project is not suitable for decision making purposes. It lacks transparency, is based on flawed methodologies and contains serious errors.

The economic assessment is based on a coal price of approximately $AUD100 per tonne. This is much higher than the current coal price and the Federal Treasury's long term forecast, both of which are around $AUD80 per tonne.

The assessment does not disclose this coal price assumption, but it can be calculated from data in the assessment. No justification is presented for this lack of transparency.

The sensitivity analysis estimates considerable net benefit for the project even at lower coal prices. This is incorrect. The value of the project's coal is lower than its costs at current coal prices. This is evident from basic consideration of the revenue estimate in the economic assessment and confirmed by more detailed analysis.

Estimates of environmental and social impacts assume that all mitigation and offset measures work to entirely offset the project's impacts. This is an unrealistic assumption and serves to overstate the value of the project.

The economic impact assessment is based on methodology described as "biased" by the Australian Bureau of Statistics, "abused" by the Productivity Commission and "deficient" by the NSW Land and Environment Court. These results heavily overstate the impacts of the project on employment and other measures of economic activity.

If approved, in our opinion, the project is unlikely to be developed and risks becoming a stranded asset. This has the potential to impose significant uncertainty and costs on the local community. Exactly this situation has occurred with the Cobbora Coal Project. To avoid this same result the Bylong project should be rejected.

Project viability

The key flaw in the economic assessment of the Bylong Coal Project is that it is based on a coal price of over $AUD100 per tonne. This is far higher than the current $AUD coal price of $81 per tonne.[1] Commonwealth Treasury is using a long term coal price forecast of $AUD80.[2]

The economic assessment does not disclose what coal price it uses. No explanation is presented as to why this most important assumption is not included in the assessment. The coal price used in the assessment can be derived, however, from the production schedule in Table 2.1 (p12) and the present value of coal in Table 4.3 (p42).[3]

This is discussed in the BDA Economics peer review:

> *Gillespie Economics has used a US/AUD exchange rate higher than is currently the case. In addition, the thermal coal prices are stated to be higher than those currently prevailing, although the exact prices assumed are not stated. Given inevitable uncertainty over future exchange rates and prices, this begs the question of what impact would continuation of the current exchange rate and coal price have on the estimated net project benefits.*
>
> *This question is not specifically explored.... (p3)*

This is the most fundamental question currently being asked by the global coal industry. In the last month major banks have published assessment showing that new coal mines are not likely to be viable. Goldman Sachs concludes:

> *The [coal] industry does not require new investment given the ability of existing assets to satisfy flat demand, so prices will remain under pressure as the deflationary cycle continues.*[4]

Another global investment bank, UBS, has stated:

> *No new coal mines [are] needed on 5+ year view.*[5]

[1] Based on September 2015 average price of USD$58 and exchange rate of 0.71, sourced from xe.com and indexmundi.com 5 November 2015

[2] (Bullen, Kouparitsas, & Krolikowski, 2014)

[3] See Table 1, full working available on request. Our final price estimate from this derivation is $102.60/t. As some product coal is reported as being high ash, which is presumably modelled at a lower price, the low-ash assumed price is over $102.6/t.

[4] Quoted in http://www.businessspectator.com.au/article/2015/9/24/resources/one-goldman-sachs-chart-shows-india-wont-save-coal-industry

These latest reports follow two years of similar warnings from market analysts such as Bloomberg and Morningstar.[6] This analysis is not predicated on optimistic assumptions about climate action, but on the energy market outlook.

Sensitivity analysis is reported in the economic assessment, including an estimate of the net present value of the project at a 20 percent lower coal price. This value is estimated at $304 million to Australia, or $240 million to NSW at a 7 percent discount rate in Tables 4.5 and 4.6. The economic assessment and the peer review use these estimates to claim that the project is viable even at lower coal prices. Tellingly, the peer review made:

> *No attempt…to check the data used, or to review the computational accuracy of the spreadsheet based model. (p2)*

The Australia Institute has conducted this review. The results of the sensitivity analysis in the economic analysis are incorrect. Present value revenue estimates at coal prices of $AUD80 and $AUD102.6, the price assumed in the economic assessment, are presented in Table 1 below:

[5] http://ieefa.org/wp-content/uploads/2015/09/UBS-report-Japan-et-al.pdf

[6] See for example (Bloomberg Energy Finance, 2014; MorningStar, 2014)

Table 1: Revenue sensitivity analysis – present values at 7% discount rate

Year	Product coal	PV Revenue at price…	PV Revenue at price…
		$102.60	$80
0		$ -	$ -
1		$ -	$ -
2		$ -	$ -
3	2.200	$ 184	$ 144
4	3.250	$ 254	$ 198
5	**4.300**	$ 315	$ 245
6	4.400	$ 301	$ 235
7	4.500	$ 288	$ 224
8	4.300	$ 257	$ 200
9	4.100	$ 229	$ 178
10	4.233	$ 221	$ 172
11	4.367	$ 213	$ 166
12	4.500	$ 205	$ 160
13	4.600	$ 196	$ 153
14	4.700	$ 187	$ 146
15	4.800	$ 178	$ 139
16	4.900	$ 170	$ 133
17	4.250	$ 138	$ 108
18	3.600	$ 109	$ 85
19	3.467	$ 98	$ 77
20	3.333	$ 88	$ 69
21	3.200	$ 79	$ 62
22	3.425	$ 79	$ 62
23	3.650	$ 79	$ 62
24	3.875	$ 78	$ 61
25	4.100	$ 78	$ 60
Total	**92.05**	**$ 4,025**	**$ 3,138**

The production schedule in Table 1 has been derived from the economic assessment *Table 2.1 - Indicative Production Schedule*. It assumes straight line changes between the years reported in the economic assessment, which are shaded in Table 1 above. This may cause some minor deviation from the full production schedule, however, the total product coal estimate of 92 million is close to the 90 million figure claimed on p33 of the economic assessment. At a coal price of $AUD102.6 this production results in

the present value of revenue reported in the economic assessment Table 4.3 of $4,025 million.

As we have been able to closely recreate the production schedule in the economic assessment, we can calculate the present value estimates of revenue at higher and lower coal prices as claimed in the sensitivity analysis of the economic assessment. At $AUD80 per tonne, the present value of the revenue from this production schedule is $3,138 million.

Comparing these results to present value cost estimates in the economic assessment, we find that the estimates in the sensitivity analysis are incorrect. In Table 2 below, we compare the revenue estimates above to the costs presented in the economic assessment. All are present values at 7 percent discount rate:

Table 2 – Revenue sensitivity analysis and costs

Coal price (AUD/t)	$102.60	$80
Present value revenue	$4,025	$ 3,138
Present value costs	$3,226	$3,226
Producer surplus	$799	-$88
Royalties	$290	$220
Producer surplus less royalties	$509	-$ 307

Table 2 shows that at current coal prices, around $AUD80/t, the value of the coal is less than the costs of the project. The net present value of just these financial costs and benefits is negative $88 million. Royalties would still be owed to the NSW Government, however. Based on these estimates, the project is unviable and would represent a $307 million dollar present value loss to the proponent.[7]

It is not clear how the sensitivity analysis calculations were conducted. Putting aside the detailed present value calculations in Table 1, reducing Value of Coal in the economic assessment Table 4.3 by 20 percent takes it from $4,025 million to $3,220 million, less than the $3,226 of costs before royalties. Clearly, the estimate of $304 million present value benefit is not credible.

The economic assessment claims:

[7] Royalties in our $80/t sensitivity column are calculated at 7%. This understates royalties from the open cut part of the project which are calculated at 8.2%. It is unclear from the economic assessment how much product coal would be levied at each rate.

> *[The] financial viability of projects is a risk assumed by the mine owners. Nevertheless, it should be noted that KEPCO is willing to invest $1.3BM in the Project. It is highly unlikely that a $1.3B investment would take place and then operations would cease…(p47)*

The author misrepresents the situation. KEPCO will only be "willing" to invest large amounts of money in the project if it is profitable. At this point the company is simply seeking approval, not spending the money. If approval is granted the company may decide to invest in the project, or it may not. It may try to sell the project, or keep it in case coal prices increase, or the project may become a worthless stranded asset.

Arguments that KEPCO will develop the mine regardless of its viability as it could sell the coal to itself do not make sense from an economic or financial perspective. A firm will buy from the market rather than use their own supply when it is cheaper to do so. No rational firm would pursue a more expensive supply option unless there was a compelling argument around security of supply. Given the abundant supply available in world markets, there is no reason why KEPCO would do this.

If the project did proceed and KEPCO was selling Bylong Coal to its other entities in South Korea, company tax payments could be heavily influenced by marketing arrangements. The use of marketing hubs and related party sales to reduce tax payments has been highlighted in recent Senate hearings on tax avoidance. There is no discussion around the uncertainty of tax receipts in the economic assessment, as noted by the peer review.

If the project is approved but does not proceed, it can still impose costs on the community. Uncertainty about the future of the mine can impact the local economy and reduce landholders' willingness to invest in their land.

An example of this is the nearby Cobbora Coal Project. This project was assessed as having a $2 billion net economic benefit by the same consultant, Gillespie Economics. Despite NSW Treasury finding the project was not financially viable, it was approved by the Planning Assessment Commission. As forecast by Treasury, the project has never proceeded as it is not financially viable. It has imposed considerable costs on the community of Dunedoo and NSW taxpayers through the Cobbora Transition Fund.[8]

The Bylong Coal Project should be rejected as it is not viable and has the potential to impose significant costs on the local community.

[8] http://www.abc.net.au/local/stories/2013/09/03/3839873.htm, http://www.infrastructure.nsw.gov.au/restart-nsw/cobbora-transition-fund.aspx

External costs

The economic assessment assumes that all mitigation and offset measures work perfectly to reduce the external costs of the project to zero. This is highly unlikely. In the case of biodiversity offsets, most ecologists doubt the efficacy of such offsets.[9]

Parts of the assessment include a value for non-market values of employment. The studies this estimate is based on have been rejected by the NSW Land and Environment Court and the NSW Court of Appeal. They are based on flawed methodology which results in overstatement of any possible non-market value of employment, the existence of which the peer review charitably describes as "contestable".

[9] See for example, (Bekessy et al., 2010)

Impact analysis

The impact analysis is based on multiplier methodology described as “biased” by the Australian Bureau of Statistics (ABS), “abused” by the Productivity Commission and “deficient” by the NSW Land and Environment Court.[10] These multipliers are mathematically certain to overstate the employment impacts of the project. As the ABS puts it:

> *While I–O multipliers may be useful as summary statistics to assist in understanding the degree to which an industry is integrated into the economy, their inherent shortcomings make them inappropriate for economic impact analysis. These shortcomings mean that I–O multipliers are likely to significantly over–state the impacts of projects or events.*

All results from the impact analysis part of the economic assessment should be read with the knowledge that they are heavily overstated. The use of this methodology should be discouraged from future assessments due to this inaccuracy.

[10] (ABS, 2011; Gretton, 2013; Preston CJ, 2013)

Conclusion

The Bylong Coal Project should be rejected. At a time when the world is grappling with the problems of how to reduce carbon emissions as well as facing low coal prices, new coal projects like this one are undesirable and financially unviable. The project also has the potential to impose significant costs on the local community, as has occurred with the nearby Cobbora Coal Project.

The economic assessment presented in the environmental impact statement is flawed and unreliable. Its estimates of the project's net present value are skewed by optimistic coal prices and incorrect sensitivity analysis. The use of discredited multiplier analysis to estimate economic impacts is inappropriate and serves to further overstate the case for the project.

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