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Research that matters.

Watermark PAC
June 26 2014

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Chairman, commissioners Payne and Gilligan

My name is Mark Ogge. I am a researcher and the Community Liaison Officer for the Australia Institute.

The Australia Institute is an independent, not for profit research organization based in Canberra. We employ a number of economists and research a range of social and economic issues, including the economic impacts of mining.

TAI appreciates the opportunity present our report on the Watermark Coal Project, and I would like to thank the commissioners for the opportunity of appearing before the Planning Assessment Commission today.

Key documents

- Director General's Environmental Assessment Requirements (DGRs) for the Watermark Project.
- Environmental Impact Statement (EIS) Appendix AF – Economic Impact Assessment, prepared by Gillespie Economics, dated October 2012.
- EIS Appendix Z – Agricultural Impact Statement, prepared by Scott Barnett and Associates, dated February 2013.
- Submission by CCAG to the EIS, particularly the submission's economic section, prepared by Economists at Large, dated April 2013.
- Response to Submissions (RTS) on the EIS, prepared by Hansen Bailey, dated November 2013.
- The Environmental Assessment Report (EAR), prepared by the NSW Department of Planning and Infrastructure (the Department), dated May 2014.

Our Submission responds primarily to the Department of planning and Environment's Environmental Assessment Report, but refers also to the original EIS, in particular Appendix AF, the Economic Impact Assessment, and Appendix Z, the Agricultural Impact Statement as well as the Director General's Requirements.

We refer also to submission by CCAG prepared by Economists at large from April 2013, and the proponents Response To Submissions.

Key findings

- Shenhua's EIS ignores agricultural impacts
- Input Output modeling used inappropriately for project evaluation
- Cost Benefit Analysis is not credible
- Department's EAR overstates economic importance of coal industry
- **The project will not provide a net benefit to the community of NSW**

Our review has led us to four key outcomes;

- Agricultural Impacts are ignored in the proponent's EIS
- Input Output modeling has been used inappropriately for project evaluation.
- The Cost Benefit Analysis in the EIS is not credible.
- The Strategic Context section of the EIS is misleading in its representation of the coal industry.

As a result we conclude that the proponents have failed to show a net benefit to the community of NSW.

This is in contrast to the long established agricultural industry that has a proven ongoing net benefit to the region and the state of NSW.

Shenhua's EIS ignores agricultural impacts





As the commissioners are aware, this region is an **extremely important irrigation area for NSW**

Water reforms since 2006 have reduced ground water allocations by an **astonishing 67%**, and this has driven a **massive investment of around \$1b** [based on TAI data collection and case studies in region, Gunnedah and Liverpool Plains LGAs] in water efficiency including;

- laser leveling of fields,
- Irrigation and harvesting equipment,
- Water storage and channels and drainage

This is the most important agricultural reform for the region, or even in in NSW for decades.

Outdated 2006 agricultural data used

Table 1: Gross value of agricultural production 2006 and 2011

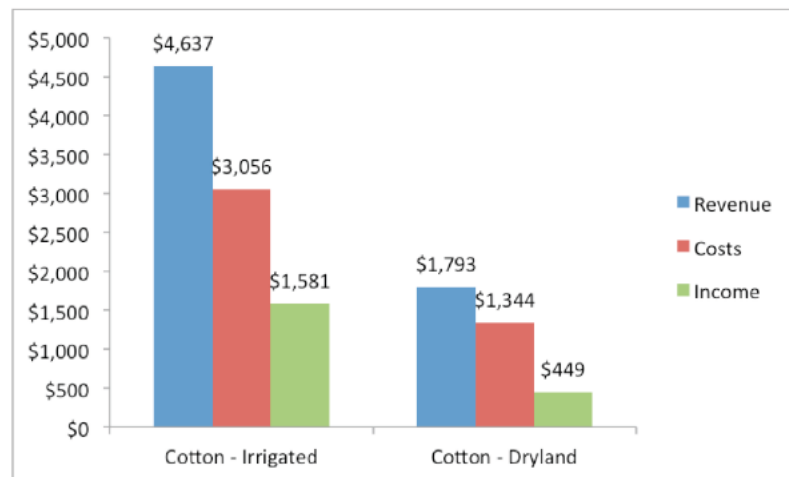
Enterprise	Gunnedah LGA (\$m)	Liverpool Plains LGA (\$m)	Liverpool Plains and Gunnedah region (\$m)
Gross value of agricultural production 2006	125.5	156.6	282.1
Gross value of agricultural production 2011	206.8	155.0	361.8

Source: ABS Catalogue 7503.0 Agricultural Census 2011, EIS appendix Z, Agricultural Impact Statement, p44

However, none of this is considered by the proponents in their EIS because they have relied on outdated data from 2006 census that predated these reforms.

Since then agricultural production in the region has increased by more than 20%

Potential loss of groundwater risks farm assets and income.



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So what does this mean in economic terms?

Irrigated agriculture has far higher inputs and returns than dry land cropping. This graph shows cotton, but the proportions are similar for other crops. And further more it is irrigation that supports the density of livestock production.

- Lower income to farmers
- Lower expenditure
- Stranded irrigation assets.

The water reforms have left the irrigation industry finely tuned, and any risk to water availability and quality could risk making irrigation enterprises unviable.

Any shift from irrigation to dry land agriculture is likely to have very serious impact on the local community.

Watermark EIS ignores Director General's requirements.

“Particular attention to the impacts of the project on strategic agricultural land...including the impacts on existing agricultural land use in the areas surrounding the project.”

Of course, mining projects don't just effect the land within the project area, they can have serious impacts on land in the surrounding region

That is why the Director General's Requirements require “particular attention be paid to the impact of the project *on strategic agricultural land...including the impacts on existing agricultural land use in the areas surrounding the project.*”

Watermark EIS assumes no impacts outside project area.

“The present value of foregone agricultural production is reflected in land prices. The value of foregone agricultural production, as a result of the Project, has therefore been incorporated in the BCA through inclusion of the full land value (opportunity cost) of affected properties.
(Gillespie Economics, 2013) p14

However this has not been incorporated into the EIS, because the proponents assume that there are no impacts to agricultural production outside of the project area.

It includes a zero value for costs to agriculture other than the costs of acquiring the project land,

Watermark EIS dismisses Director General's Requirements.

- *"The Project will not have any impact on the alluvial soils or agricultural productivity of land outside the Project Area and the Biodiversity Offset Areas.*
- *Other potential impacts on agricultural resources and enterprises within the locality, including air quality, noise, soils, traffic and transport, visual, labour supply, have been assessed as having a minimal effect."* (Barnett, 2013) page iv

Rather than "paying particular attention" to these impacts, It dismisses all impacts on agricultural productivity outside the project area completely, and dismisses all other impacts on local businesses as "having been assessed as having minimal effect".

We believe the the impacts on agriculture have been inadequately assessed throughout the EIS and that the PAC cannot have confidence in the EIS due to

- **theEIS is based on outdated 2006 data that predates the water reforms and the resultant \$1b investment in water efficiency infrastructure.**
- **The clearly unrealistic assumptions of zero impact on areas surrounding the project area**
- **Disregard for the Director Generals Requirements to consider the impacts on surrounding areas.**

Input Output Modeling (IO) used
inappropriately for project
evaluation

Department's EAR repeats Input Output modeling claims uncritically.

"[The] project is predicted to generate very significant benefits to the regional economy, including over 1,000 jobs and almost \$1 billion in annual business turnover."

As the commissioners would be aware IO modeling has been discredited as a tool for project evaluation, because it invariably overstates the the benefits of projects, and ignores the costs.

And yet in its Environmental Assessment Report, the Department places disproportionate emphasis on these IO modelling results, uncritically reproducing the the proponents' IO model results, and seemingly accepting the proponents employment economic benefits claims.

Use of IO modeling for project evaluation discredited

- Described as “biased” by the Australian Bureau of Statistics
- Described as being “often abused” by the Productivity Commission
- Described as “inadequate” by the Land and Environment Court.
- NSW Supreme Court, upheld land and environment court decision.

Use of IO modeling for project evaluation rejected by PACs

The adequacy of these [IO] methodologies for providing a properly balanced view of the potential costs and benefits of the project has come under serious and sustained criticism from economists, the judiciary, public authorities and a major economic consultancy firm. Stratford PAC 2014

The recent Stratford and Wallarah Planning Assessment Commissions have had similar concerns.

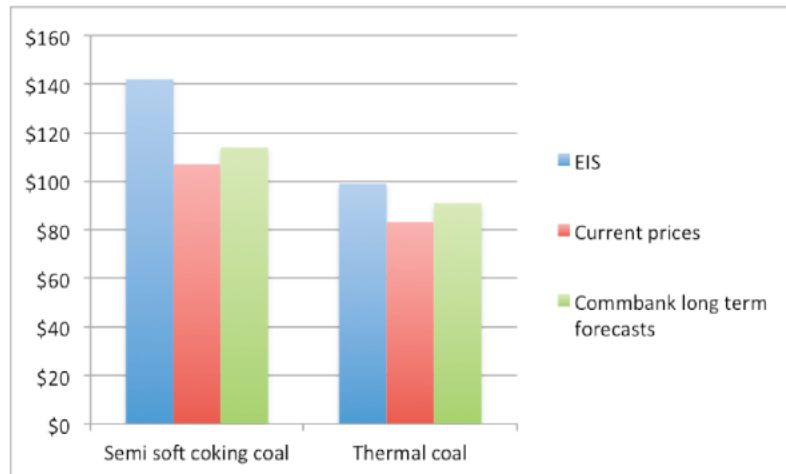
Benefit Cost Analysis not credible.

the proponent's claims of the projects Net Present Value NPV are based on a series of unrealistic assumptions including;

- Unrealistically high coal price
- Low operational costs
- No allowance for capital cost overruns.

These are discussed in more detail on the following slides.

Coal price overstated



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Coal price assumptions have a large impact on the NPV of the project.

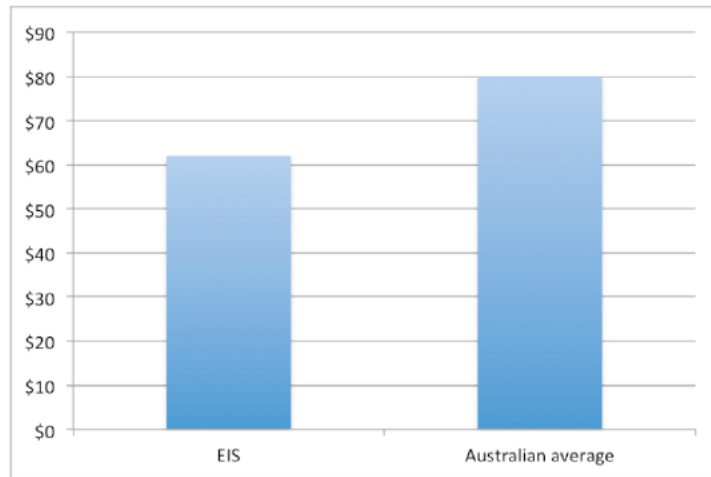
The coal price assumptions used by the proponents for both coking and thermal coal (in blue) are significantly above current prices at the time the EIS (in red), and significantly above long term forecasts by Commonwealth Bank analysts (in green), which are in turn far more optimistic than many other analysts, including those of the World Bank

Proponents assume semi-soft coking coal at \$143 per tonne. Based on unreleased GHD study commissioned by proponents.

Current price \$107

Commbank long term estimates \$114

Operating costs underestimated AUD per tonne



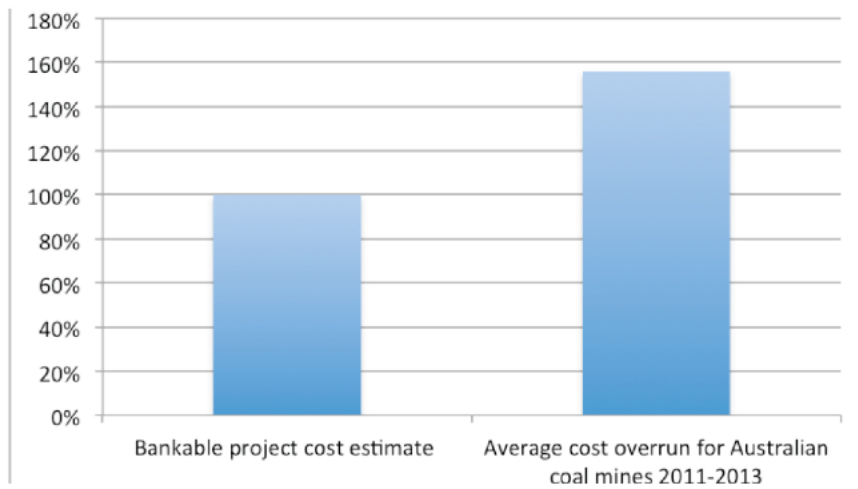
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The EIS assumes an operating cost of \$62 tonne

The average operating cost per tonne for Australian coal mines is \$80tonne.

We could not find any justification for this optimistic cost assumption in the EIS

Capital cost overruns ignored



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Capital costs have overrun estimates in bankable feasibility studies in Australian coal mines on average by 53% in recent years.

The likely event of significant cost overruns possibility is not taken into account in the EIS

Sensitivity analysis of NPV shows with realistic assumptions shows project cannot pay royalties or federal taxes.

Sensitivity testing of financial net present value

	EIS	Central	Low
Revenue	\$8,147	\$6,236	\$5,888
Capital costs	\$1,480	\$1,850	\$2,220
Operating costs	\$3,620	\$4,120	\$4,642
Net Present Value	\$3,047	\$266	-\$974

Assumes 7 per cent discount rate over life of project and production schedule from EIS

Using these highly optimistic assumptions, the proponents EIS has claimed the project will have a NPV of around \$3 billion dollars.

We have undertaken our own sensitivity analysis using realistic coal price assumptions, operating costs and capital cost overruns, and have found a range of NPV's from slightly positive, to a negative value of almost \$1b

Its important to remember that this NPV is before taking into account the negative impacts on agriculture that have been ignored in the proponent's economic analysis.

Assumptions for various estimates;

The EIS estimate

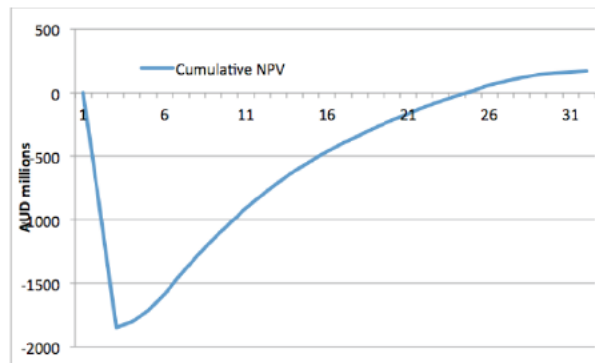
- semi-soft coking coal at \$143 per tonne,
- no capital cost overrun and
- operating costs of \$62 per tonne.

Central estimate

- current coal prices - semi-soft coking coal at \$107 per tonne,
- a capital cost overrun of 25 per cent - half the national

24 years before NPV positive (Central estimate)

Figure 5: Cumulative NPV - central case



Source: TAI calculations. Note this assumes all capital expenditure occurs in the first two years of the project, which may overstate the present values relative to the EIS.

Under our **most optimistic case**, the project would not have a positive NPV until 24 years into its 30 year life

Implications include;

- The project will take a long time to pay off- 24 years into its 30 year life.
- There is a lot of uncertainty around in coal markets at the moment. In a project that could incur some serious rehabilitation costs, and potentially have to pay a lot of compensation to people for damage to water resources, we are concerned that it may not be able to do that.
- The project could not pay royalties or federal taxes.

Royalties and taxes

Table 6: Royalty calculations and assumptions

	EIS	Central estimate
	(\$AUDm)	(\$AUDm)
Semi-soft/PCI price	\$142	\$107 ⁴⁴
Thermal price	\$99	\$83 ⁴⁵
Exchange rate	0.80	0.94 ⁴⁶
Sale value of production (PV@7%)	\$8,147	\$6,236
Applied royalty rate	6.9%	6.9% ⁴⁷
Net present value of production costs and benefits	\$565	\$424

And since Royalties are deducted before federal taxes are calculated and as a result, no federal taxes would be paid.

This is very important, because Shenhua is 100% foreign owned so most benefits expatriated, so main benefit to the NSW community are taxes and royalties.

Strategic context section of EAR misleading

Approximately 90,000 people were employed in agriculture, fisheries and forestry in NSW in June 2011, representing approximately 2.5% of the NSW workforce. As outlined in Section 3.1, mining employs about 21,000 people directly, and around 70,000 indirectly. EAR P25

The Strategic context section has many misleading representations of the coal industry in NSW with regard to employment, export value and the importance of royalties.

The quote above combines direct and alleged indirect jobs (from IO model) from mining in NSW with direct agricultural jobs only, to give the misleading impression that mining employs as many people as agriculture. In fact agriculture employs more than 4 times as many people as mining in NSW.

Employment in coal mining in NSW is less than 2% of the workforce – Liverpool plains is similar, around 2%.

The EAR misleadingly includes indirect job estimates based on input output multipliers. Yet it considers only the “direct” employment in agriculture giving the misleading impression that mining is of similar importance for employment in the region.

While coal exports are NSW largest merchandise export, the foreign ownership of most coal companies means that profits are expatriated too. Very little of the benefits of these exports remains in NSW.



In summary, our report finds:

- EIS ignores agricultural impacts
- Inappropriate use of IO modeling for project evaluation
- BCA based on completely unrealistic assumptions and is not credible
- Our calculations of NPV using realistic coal prices, operating cost and capital costs overruns show a at best an NPV so low low that the project would not pay royalties or Fed tax
- And this is even before we consider the risks and impacts on agricultural that the proponent has ignored in their EIS
- The Department of Planning and Environment's strategic context exaggerates the importance of the coal industry in NSW, at time of increasing uncertainty over the industries future

For these reasons, we do not believe this project can provide a net benefit to the NSW community.