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Warkworth and Mount Thorley Continuation Projects – Submission to Planning Assessment Commission Public Hearing

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Rod Campbell

Richard Denniss

TAI

Submission

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Level 5, City Walk Centre
131 City Walk
Canberra City, ACT 2601
Tel +61 2 6130 0530
Email: mail@tai.org.au
Website: www.tai.org.au

Summary

Several economists and two courts have found that the economic benefits of the Warkworth and Mount Thorley proposals do not compensate for their social and environmental impacts.

The Department of Planning and Environment (the Department), however, has accepted Rio Tinto Coal Australia's (Rio Tinto) claims that the project would bring considerable net benefit to the state of NSW. The Department wrote in its Secretary's Environmental Assessment Report (Secretary's report) that it had "tested the sensitivity" of Rio Tinto's modelling. Contrary to this claim however, the Department has confirmed to us that it has not done any independent analysis. This is despite the fact that the assumptions used in the economic analysis are essential to understanding whether the project will provide any economic benefit to NSW.

A peer review of the economic assessment, conducted by Deloitte Access Economics (Deloittes), makes no comment on the overall net benefits of the project. This review looks only at the "approach and assumptions" of the economic assessment, and does not comment on the overall net benefit calculations. Notwithstanding this, Deloittes were critical, saying the assessment has "significant weakness":

> *[Deloittes] do not believe that the report provides a sufficient level of information on the key impacts of the proposal.*

In particular, Deloittes were critical that the economic assessment does not provide "analysis of the merit of the project overall". Instead, the economic assessment provides sensitivity testing only around royalties and other benefits at a state level.

Project level finances

What this means is that decision makers have no information about whether the project is profitable or financially viable. The economic assessment provides no detail on project level finances and how they change with coal prices and other variables. Providing this detail has been common practice in NSW coal projects for many years.

In effect the economic assessment assumes that there is no risk and no uncertainty around the project, as the testing around state benefits assumes that the project will run according to schedule even if it is losing money. In fact, if the project is financially marginal it is likely to be delayed, reconfigured and downsized all of which would reduce benefits to the state.

Employment assumptions

The economic assessment in the EIS adopts an unorthodox approach to cost benefit analysis – it includes wages as a benefit to the state. This is clearly against NSW Treasury recommendations and standard economic practice. It serves to overstate the value of the project in the EIS by $612 million.

Other parts of the Response to Submissions make misleading statements about unemployment in the Hunter and the impact of the mining sector. Despite quoting Australian Bureau of Statistics data, this same data shows that major changes in Hunter unemployment are driven by changes outside the mining sector. This is confirmed by the Hunter Research Foundation, former consultants to Rio Tinto, who say the decline in employment is most marked in the health care, retail and manufacturing sectors.

External costs

Deloittes argue that the EIS overstates the value of mitigation measures to the community and that the $31 million in benefits arising from external costs “should be removed” from the assessment. We support this recommendation as our previous submission argued that significant external costs will be imposed on the community and local environment, which are not appropriately treated in the EIS.

Conclusion

In our view, the economic evaluation of the Warkworth and Mount Thorley proposals remain inadequate. The analyses continue to overstate the benefits of the projects and understate their costs. The projects should be rejected on this basis.

Introduction – economics and the Secretary's report

From an economic perspective, decision makers must ask whether the costs of a project outweigh its benefits. In the case of the Warkworth Continuation Project,[1] decision makers in NSW need to ask if the costs of the project to NSW are greater than its benefits. Having heard evidence from six different economists, Chief Judge Preston of the NSW Land and Environment Court found:

> *I am not satisfied that the economic analyses provided on behalf of Warkworth support the conclusion urged by both Warkworth and the Minister, namely that the economic benefits of the Project outweigh the environmental, social and other costs.*[2]

The costs of the project are the impacts on the local community through noise, dust and other impacts, while the benefits consist mainly of royalties to the State and jobs in the mine. Preston CJ explained his reasoning over 18 pages with eight key points on benefit cost analysis. A point of Rio Tinto's appeal to the Court of Appeal was that their economic evidence had been unfairly rejected. That court found:

> *However, his Honour did not reject that evidence, but rather considered that their evidence was of limited value. In coming to that conclusion, his Honour reviewed the economic evidence in some detail.*[3]

The Court of Appeal also goes into several pages of detail reviewing economic evidence of the Warkworth project.

In contrast, the Department of Planning and Environment Secretary's Environmental Assessment Report (the Secretary's report) has only a one page section on economics, largely repeating the proponent's claims and says:

> *The Department has weighed the residual impacts of the project against its social and economic benefits.*
>
> *This assessment has found that the project would result in significant social and economic benefits for both the local area as well as the State as a whole.*[4]

The Secretary's report repeats the results of the proponent's economic assessment and states:

> *The Department has tested the sensitivity of these estimates to changes in key variables, such as the price of coal, and concluded that even if these variables change significantly over time, the benefits of the project would remain positive.*[5]

Contrary to this claim however, the Department has not done any independent sensitivity testing or analysis of the proponent's claims, as confirmed by the Department's Manager of Mining Projects when asked about the above quote:

> *The extract [of the Secretary's report] you quote in your email refers to the sensitivity analysis presented in the EIS.*[6]

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[1] In this submission we refer to both the Warkworth and Mt Thorley Continuation proposals as the Warkworth project.
[2] (Preston 2013) p155
[3] (NSW Court of Appeal 2014)p32
[4] (NSW DPE 2014)p4
[5] (NSW DPE 2014) p4

Our consideration of project sensitivity was discussed in The Australia Institute's submission to the Environmental Impact Statement. Key findings of our submission were:

- The project is not financially viable as proposed at current coal prices and exchange rates.
- The EIS sensitivity analysis ignores this lack of viability in its calculation of state benefits at lower price and exchange rate assumptions.
- If lower prices persist, benefits to the state – royalties and employment – could be reduced significantly.

In preparing this report, the authors have read the Expert Witness Code of Conduct under the Uniform Civil Procedure Rules 2005 of the Land and Environment Court and agree to be bound by it.

Deloittes review

The Department commissioned Deloitte Access Economics to conduct a peer review of the Warkworth economic analysis. The Secretary's report interprets Deloittes' review as approving of the BAEconomics assessment, saying that it provides:

> *broadly robust coverage of the economic costs and benefits of the project to the region and NSW, and meets the majority of the requirements set out in [NSW Guidelines].*[7]

The Secretary's report makes no mention of Deloittes' findings that the economic assessment:

- has "significant weakness", (page i)
- does not provide "analysis of the merit of the project overall", (page 3)
- "we do not believe that the report provides a sufficient level of information on the key impacts of the proposal", (page 6)
- is not "aligned… with best practice", (page i)
- does not contain sufficient information on coal price assumptions, (page ii)
- overstates benefits associated with mitigation measures, benefits which "should be removed" from the assessment, (page ii)
- "no discussion in the report on whether the extension may require additional infrastructure or whether a Voluntary Planning Agreement will be entered into with the local government", (page iii)
- "gives the impression that the proposal is, in some sense, costless".[8] (page 4)

After some strong criticism from Deloittes, it is surprising that the Secretary's report says:

> *The Department believes it is important to note the matters raised by Deloittes would not materially change the broad conclusion that the project would result in a significant positive net economic benefit for NSW.*[9]

This claim is not based on any analysis. The Department has not conducted any analysis and neither has Deloittes. Deloittes were not asked to comment on or assess the validity of

[6] Email from Manager of Mining Projects, Mike Young, to Rod Campbell dated 3 December 2014.
[7] (NSW DPE 2014) p18
[8] (Deloitte Access Economics 2014)
[9] (NSW DPE 2014) p19.

the EIS calculations of net benefit to NSW. The Department has confirmed to us that Deloites were asked to:

1. *Conduct a rapid review and assessment of the BAEconomics report with some initial considerations of the strengths and weaknesses of the analysis and extra data that may be required, incorporating:*
    - *Checking the analysis against guidelines available at the time of its submission*
    - *Checking the analysis against best practice in similar submissions*
    - *Identifying any critical assumptions made in the analysis*
    - *Describing the strengths and weaknesses of the analysis*
    - *Identifying a list of extra data and information that would need to be provided to ensure that a sound economic assessment of the project can be made*
2. *Conduct an ongoing review and assessment of any updates to BAEconomics' report*[10]

While Deloittes were not asked for opinion or analysis on the net benefits of the project, they make it clear that:

> *The profitability and output of the mine determine the amount of royalties and taxation paid. This is particularly sensitive to the coal price …*[11]

Because of this sensitivity Deloittes recommended that the Department should request further information from Rio Tinto, little of which has been forthcoming.[12] This data includes items such as operating costs and yearly production estimates, items potentially worth hundreds of millions of dollars to the net value of the project. It is difficult to understand how the Department concludes that such information would not have a material effect on the project.

In fact, these items do have a significant impact on the economics of the Warkworth project, as The Australia Institute's submission to the EIS demonstrated. Our submission provided estimates and analysis of many of the issues identified by Deloittes:

- Project level analysis, including discussion of:
    - coal prices,
    - volume and timing of production,
    - operating costs
    - capital costs
- Employment and unemployment in the economic assessment
- External costs

Project level analysis

The Deloittes review states:

> *[A] significant weakness of the analysis is the exclusion of a CBA from the project perspective, with the report only providing a State and regional analysis. Although the ownership of Rio Tinto may be primarily outside of Australia, presumably the reason many of the costs and benefits borne by Rio Tinto have not been included, a project-level CBA would:*

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[10] Email from Manager of Mining Projects, Mike Young, to Rod Campbell dated 16 December 2014

[11] (Deloitte Access Economics 2014) p3

[12] (Rio Tinto 2014)

- *provide clarity on key economic components of the project such as the revenue generated each year, the capital investment required and the annual costs associated with operating the mine;*
- *align the CBA with best practice;*
- *help the CBA to adhere to the guidelines;*
- *frame the analysis more simply for the reader; and*
- *help in understanding the overall project's impact and how these relate to state and regional benefits.*[13]

Deloittes' last point is arguably the most important. State and regional benefits – royalties and jobs – will only be secured if the overall project is financially strong. If the project is marginal, and needs to be modified, delayed or downsized, the benefits received by the state will be much lower. The economic assessment has no sensitivity testing of its project value in relation to coal price, exchange rate and other assumptions. This information and analysis has not been provided subsequently by Rio Tinto.

The economic assessment does provide sensitivity testing is around estimates of state benefits, but not the project as a whole, as reproduced in the table below:

Table 3-5. Sensitivity to variations in coal prices and US$/A$ exchange rates – Incremental royalty payments, payroll taxes and land taxes/shire rate benefits of the proposals to NSW (NPV A$ m 2014)

		Thermal coal price (USD)		
		$75	$85	$95
Exchange rate (USD/AUD)	0.75	$682	$767	$852
	0.85	$608	$682	$757
	0.95	$549	$616	$682

Source: (BAEconomics 2014) p33

While these sensitivity estimates give the impression that the project's benefits to the state are robust to changes in coal price and exchange rate, these figures assume the project will operate regardless of its profitability. The overall profitability of the project has not been subjected to any sensitivity testing.

This approach assumes that there is no risk associated with the project and its benefits to NSW. This is not the case for any investment, and certainly not a large coal mine at a time of low coal prices and uncertain climate policy.

This is important because if the project is not financially strong it may apply for modifications, relaxation of environmental conditions, suffer delays and seek public subsidy, all of which would reduce the benefits to the state. Under current market conditions, this is likely to be the case, as was made clear in The Australia Institute's submission to the EIS.

Our submission provided exactly this level of analysis which has been requested by Deloittes and the Department. Our modelling is based on information in the EIS and publicly available sources. Updated to current conditions we estimated the project has a negative net present value:

[13] (Deloitte Access Economics 2014) page i

Table 1: Project net production benefits BAEconomics assumptions and current prices

		BAEconomics 2014	TAI
Coal Price	USD/t	$85	$63
Exchange rate	USD:AUD	0.85	0.80
AUD coal price	AUD/t	$100	$78.75
Additional production	Million tonnes	156	156
Discount rate	%	7%	7%
Present value of additional production	AUD (m)	$7,527	$6,232
Present value operating costs	AUD (m)	$5,306	$5,306
Present value capital costs	AUD (m)	$714	$714
Net value of production	AUD (m)	$1,507	-$93

Source: Modelling for (TAI 2014) page 9. Model available on request.

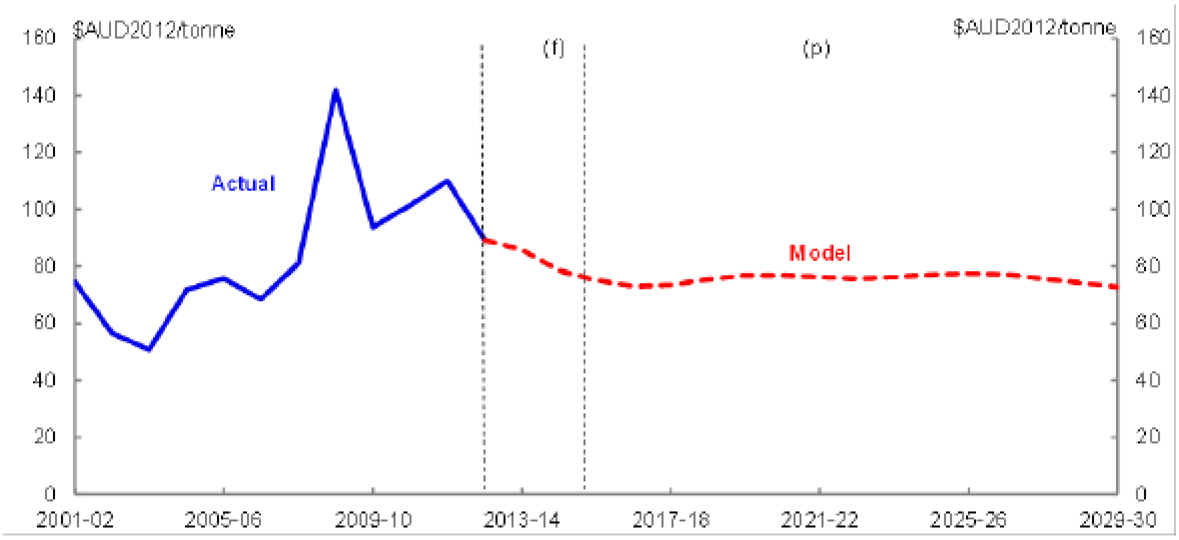
As shown in the Table above, under these assumptions, the Warkworth Project would lose money. This means it would be unlikely to continue production according to the EIS schedule and would not provide state level benefits in line with the estimates in the economic assessment. Some discussion around each of these assumptions is provided below:

Coal price and exchange rate

The coal price is clearly an important consideration in any assessment of a coal mine. The USD coal price used above is based on the latest Commonwealth Treasury forecast to 2016.[14] The exchange rate used is lower than the current 0.82, although above the long term average of around 0.75. This brings the Treasury USD forecast in line with Treasury's long term real AUD forecast of around $78 (real 2012 AUD), as shown in the chart below:

[14] (Treasury 2014), chart 2.3 Metalurgical and Thermal coal prices

Figure 1 Federal Treasury, Australian thermal coal real unit export price forecast



Source: (Bullen et al. 2014) Chart 20, page 21

All working, reasoning and sources behind Treasury's long term forecast are clearly stated. The EIS assumes $AUD100 per tonne over the life of the project. According to the RTS this is based on the forecasts of several analysts, none of which are provided.

Operating costs

Our operating cost estimate used above is the same as the EIS – which is AUD$70.50 per tonne. Although the EIS does not provide this figure, it can be worked out from the present value listed in the EIS and was mentioned in our submission. Despite this, Rio Tinto claims this figure is "commercial in confidence" and has not provided it in response to Deloittes' request. We also note that a similar figure was used publicly in the earlier Warkworth assessment by Gillespie Economics.[15]

This figure is substantially lower than Australian averages, $80-85 per tonne, and those reported by the neighbouring Bulga mine, $78 per tonne before royalties.[16] Our submission used a figure of $84 per tonne, which resulted in a net present value figure for the mine of negative $805 million.

The RTS criticised this choice, claiming the Bulga mine figure is a typographical error in that assessment.[17] Although this is not clear from re-reading that submission, in our modelling we have reverted to the EIS's operating cost figures. This still results in a negative value for the project at Treasury's long-term forecast price.

To summarise, our modelling suggests that if current prices continue and if Treasury forecasts are accurate, the Warkworth project will not proceed as proposed, which will mean royalty and other payments will be lower and received later than forecast.

[15] (Gillespie Economics 2009)

[16] (DAE 2013; Morgan Stanley 2013)

[17] (DAE 2013)

Royalty payments in context

It is also useful to put these figures in the context of the state budget. BAEconomics' central estimate of royalties is $617 million in net present value terms. This represents an annual payment of around $57 million. NSW Government revenue this financial year is estimated to be $65.7 billion.[18] Royalties from the Warkworth project represent less than one tenth of one per cent of the NSW state budget, 0.087 per cent. Total coal royalties represent just two per cent of the state government budget.[19]

Response to submissions on project viability

Rather than presenting alternative analysis, the proponent's Response to Submissions (RTS) dismisses our modelling estimate by saying:

> *TAI's findings are somewhat surprising. Presumably Rio Tinto would not go to the trouble of applying for development consents and engaging in the associated stakeholder consultation processes if it did not believe that the proposals would generate a positive return.*

Contrary to the RTS's claims there are several reasons why a mine owner would pursue regulatory approval of an extension project which is not profitable under current market conditions. Three reasons stand out:

- The proponent may be willing to gamble on an increase in coal prices to make the project profitable. Gaining approval does not force the proponent to undertake the project, so once the approval is secured the proponent can wait for better conditions without having to undertake costly investment.
- The approval provides an option to undertake the project. Having the option of extension makes the Warkworth mine more valuable and means it could be sold to another company for a higher amount.
- Having approval for a long term extension means rehabilitation expenses and closure costs can be deferred far into the future. As rehabilitation expenses can be hundreds of millions of dollars, the ability to defer them is valuable both to current owners and potential buyers.

All three of these factors are at play in the Warkworth Continuation project. Firstly, Rio Tinto do expect coal prices to improve from current levels, as discussed in our submission and the RTS - Rio's long term view of the thermal coal price is US$72.58 per tonne.[20] The second and third points are also important for a potential sale of the Warkworth complex, which has long been discussed in the Hunter.[21] Warkworth represents one of Rio Tinto's last thermal coal assets. In recent years it has sold its other thermal coal mines, often losing money in the process:

[18] NSW Treasury (2014) Budget paper number 2, Chapter 6, Revenue
[19] See (Campbell 2014) for more information on royalties and the state budget.
[20] (Rio Tinto 2013) p9
[21] http://www.theaustralian.com.au/business/mining-energy/mine-ruling-a-test-of-political-mettle-says-rio/story-e6frg9df-1226759355400 and
http://www.theherald.com.au/story/2134182/rio-glencore-talks-may-see-super-pit/

- 2011 sold the company's final thermal coal mine in the USA.[22]
- 2013 sold Blair Athol thermal coal mine in Queensland for a token $1.[23]
- 2013-14 sold Clermont thermal coal mine in Queensland.
- 2014 sold Mozambique thermal coal projects for a "humiliating" $3 billion loss.[24]

The RTS is silent on whether improving the potential sale price of the Warkworth project might be a motivation for pursuing approval.

Furthermore, the RTS does not seem to dispute that the Warkworth Project would lose money in the current coal market. Rather it puts its faith in a coal market recovery and in Rio Tinto not wanting to pursue a marginal project. The RTS also does not dispute that sensitivity testing has been applied only to royalty and tax calculations, without questioning how coal prices and other factors impact on the project overall.

See further discussion in our detailed response to the RTS in Appendix One.

Employment and unemployment

The cost benefit analysis in the EIS includes a benefit of $612 million relating to wages, almost half of the estimated net economic benefits of the project. It is unorthodox for cost benefit analysis to include a benefit relating to wages as standard assessment assumes that labour is priced at its "opportunity cost". As workers have other opportunities, there is no particular benefit from that project over the other opportunities. This is the position of the *NSW Government Guidelines for Economic Appraisal*:

> *It can be argued that in times of unemployment the opportunity cost of labour employed on a project is less than the wage costs, and project costs and benefits should be adjusted accordingly. However, in practice such adjustments are not generally made and are not recommended.*[25]

Deloittes do not comment on this in their review. However, Deloittes' approach in their own assessments of major projects does not include a wages as an additional benefit, for example their assessment of the Bulga Optimisation Project.[26]

This does not mean that decision makers should not consider employment in assessment of projects, but that "extra" wages should not be included in cost benefit analysis as it is highly uncertain that the "extra" wages would not have been paid from other projects and employment opportunities. The figure is also exaggerated as the economic assessment assumes an annual wage for Warkworth workers of $170,000, nearly 25 per cent above industry averages. This seems to be acknowledged in the RTS.[27]

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22 http://www.riotinto.com/media/media-releases-237_1078.aspx
23 http://www.dailymercury.com.au/news/linc-energy-will-revive-old-mine-blair-athol/2041087/
24 http://www.smh.com.au/business/rio-tintos-mozambique-foray-a-big-blow-for-company-20140730-zynwa.html?rand=1406760762785
25 (NSW Treasury 2007) p48
26 (DAE 2013)
27 See page 18, where the RTS says that wage figures were "verified with Rio Tinto, and do not rely on BAEconomics assumptions". Presumably this means BAEconomics were told what wage level to use in their assessments by Rio Tinto.

See Appendix One for more discussion on treatment of employment in cost benefit analysis and the RTS.

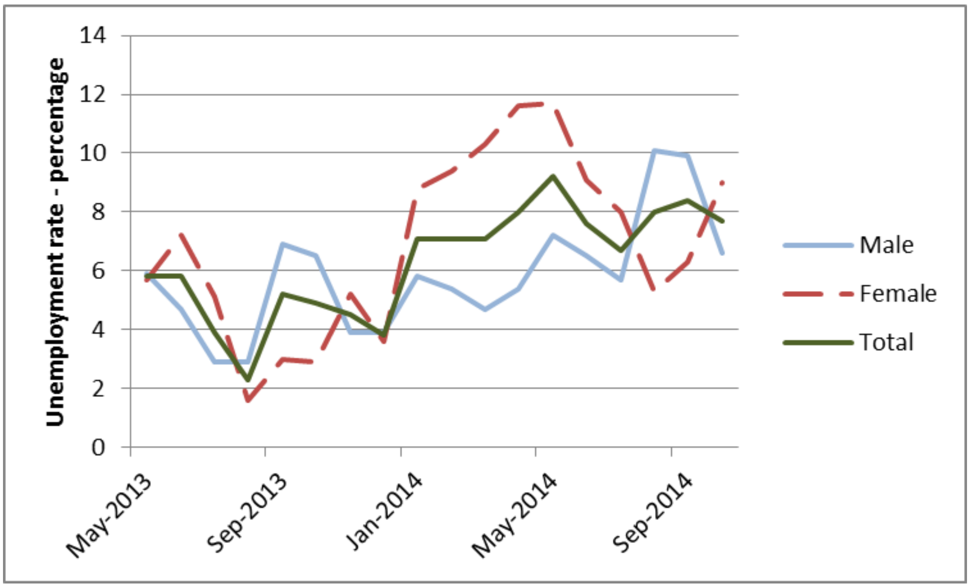
The RTS discusses the unemployment rate in the Hunter in several sections – p134, p276, p198 and over several pages in Appendix H. Several times the RTS authors mention that Hunter unemployment has increased to 9.2 per cent:

> *Australian Bureau of Statistics figures for May show the unemployment rate for the Hunter Valley is 9.2 per cent, up from 5.8 per cent in May the previous year. This equates to a loss of approximately 4,000 jobs. These figures are considered highly conservative given only those 'seeking employment' are included in the statistics.*

This is misleading and the implication that the Warkworth Project will have an impact on unemployment in the Hunter is misguided (this is stated more directly on p276).

The ABS Labour Force data shows that, like all small regions, Hunter unemployment is volatile. In the graph below, the dark green line shows that overall unemployment rate. It did peak at 9.2 per cent in May this year and has since eased to 7.7 per cent. The RTS authors omit to mention Hunter unemployment went as low as 2.3 per cent in August last year:

Hunter Valley (without Newcastle) unemployment



Source: 6291.0.55.001 Labour Force, Australia, Detailed - Electronic Delivery, Table 16. Labour force status by Region (SA4) and Sex

The chart above shows that the main factor in driving recent high unemployment in the Hunter has been a spike in female unemployment. As 90 per cent of coal workers are men,[28] it is clear that it is other industries driving trends in Hunter unemployment. This is made clear by the Hunter Research Foundation (HRF), consultants to the Warkworth mine and regularly quoted in the RTS. The HRF's latest Hunter Region Economic Indicators publication says:

[28] ABS 2014 Catalogue 6291.0.55.003 - Labour Force, Australia, Detailed, Quarterly, Table 06. Employed persons by Industry Subdivision and Sex

Hunter employment has declined over the past year, in contrast to employment across NSW which was broadly unchanged. The Hunter decline occurred in both services and goods sectors, with the largest falls observed in Health Care, Manufacturing and Retail Trade. [29]

Clearly it is changes in health care, manufacturing and retail which are pushing these trends. This will come as no surprise to anyone familiar with the Hunter economy, as these are the top three employing industries, accounting for around 90,000 jobs or 35 per cent of the workforce. Mining by contrast employs only five per cent of the Hunter workforce.[30]

To summarise, decision makers should consider employment in Warkworth as an important issue. The EIS claims 1,300 people work on the project at the moment. Whether such levels of employment will be maintained in the future is uncertain and depends on whether the current proposal can be financially viable in the long term. If the project does not proceed, employment in the mine will decline over several years. Research quoted by the EIS shows that mining workers have the highest rates of turnover back into the mining industry and into other industries.[31]

The Warkworth project is important for those who work on the project, but has a minimal effect on overall employment in the Hunter, which is dominated by service industries and manufacturing.

External costs

The EIS economic assessment claimed benefits of $31 million relating to external costs – noise, visual amenity, ecological offsets, etc. The Deloittes review says:

Where costs have been quantified, the report often includes the impact as both a cost and a benefit to indicate that the impact will be attenuated through defensive expenditure, however, the impact on the benefit side should be removed since the attenuation simply restores the affected party to the baseline.[32]

We agree with Deloittes and also note further difficulties with the treatment of externalities in our submission. This is not the first time Deloittes have made exactly this point in relation to Warkworth. In a review of the earlier Warkworth Economic Assessment, Deloittes wrote:

[The assessment fails] to consider the full cost of all externalities, where costs are included in capital works as part of the benefit cost analysis. This approach can account for costs which exceed legislated standards, but does not account for costs incurred up to that standard.[33]

Basically, the assessment assumes that community welfare would not be affected if the project complied with regulations. This is inappropriate as compliance with guidelines does not mean community welfare is unaffected. The welfare of the people of Bulga will clearly be affected by the continuation of the mine regardless of compliance with guidelines.

[29] (HRF 2014) page 2
[30] (Campbell 2014)
[31] (D'Arcy et al. 2012) see p6
[32] (Deloitte Access Economics 2014) page ii. See also page 5 for a longer discussion of why the approach to externalities in the EIS is flawed.
[33] (Deloitte Access Economics 2012) page i.

A good comparison might be to imagine you have a neighbour who plays loud music every day. They play it from 8am until 10pm every day, except Friday and Saturday when they stop it at 12pm. This is compliant with NSW guidelines on residential noise.[34] The authors of the EIS think that you will not mind about this. If you were to sell your house, buyers would not mind either and would be prepared to pay exactly the same amount for your property. Many studies show, and every house owner knows, that noise does make a difference to house prices, even if it is compliant with guidelines.

The implication of Deloittes criticism is that significant costs are being borne by the local community. The EIS itself estimates this value at $31 million. We argue in our submission that this is an understatement as it does not account for the near impossibility of restoring an endangered ecological community.

Dollar terms may not be particularly useful for measuring some of these impacts. What decision makers need to bear in mind is that the impacts on the local community and environment will be large and that they are not correctly accounted for in the economic assessment.

These impacts have been central to our assessment over several years that the costs of the project on the community and the environment are not obviously outweighed by the financial return to the state.

Conclusion

The RTS makes several references to well-known economist Ross Garnaut and his recent book *Dog Days, Australia After the Boom*. The references highlight Garnaut's concern that living standards may fall in the post-mining boom era. The implication is that mining projects like the Warkworth project should be approved to cushion this decline. Garnaut himself makes no such argument.

Another of Garnaut's concerns in *Dog Days* is the lack of independence in economic practice in Australia. According to Garnaut, economic assessment was formerly the domain of independent academics and public servants. He laments that more recently economic assessment is conducted "on a commercial basis to assist businesses and lobbies that had [commissioned] them for this purpose." [35]

Independent assessment has shown several times that the benefits of the Warkworth Project do not outweigh its considerable environmental and social costs. Judges, peer reviewers and the wider community have found deep flaws in assessment of the Warkworth project over many years. Flawed assessment should not be the basis of approval of the Warkworth project and it should be rejected on this basis.

[34] http://www.environment.nsw.gov.au/askenvironmentlineapp/question.aspx?qaId=ael-197
[35] (Garnaut 2013) (p76)

Appendix One – Detailed response to parts of Response to Submissions, Appendix H "Response to The Australian Institute submission"

Section 2 TAI's counterfactual

The RTS says that two points of our submission are contradictory:

- That the Warkworth project may not be financially viable at current coal prices, exchange rates and estimates of costs.
- That Warkworth workers are likely to find employment opportunities either in the mining industry or in other industries.

It is not clear why the RTS authors find these points contradictory. In our submission they are supported by referenced, publicly available data. The RTS contains no alternative analysis.

Section 2.1 Whether MTW is financially viable

The RTS authors' only response to our finding that the project will lose money at current coal prices is to argue that Rio Tinto "would not go to the trouble" of pursuing the project "if it did not believe that the proposals would generate a positive return". As discussed in the body of this submission, there are several reasons why a proponent would pursue regulatory approval for a project that is not viable at current prices.

The RTS then claims there are three flaws in our analysis:

- That we have "mischaracterised" the purpose of the economic assessment
- Coal prices
- Operating costs

Purpose of economic assessment

The RTS author's claim that a cost benefit analysis should not include consideration of project-level finances. We argue that project-level assessment is important so decision makers can understand the financial strength of a project and the likelihood of state benefits eventuating. This position is supported by the Deloittes review, the Secretary's report, NSW Government Guidelines and common practice in NSW mining assessment.

Coal prices and exchange rates

The RTS says:

> *In evaluating the net benefits of a long-lived project such as MTW, which would operate until 2035 if approved, today's coal prices and exchange rates are not important. What matters instead, are coal price and exchange rate expectations over the term of the investment. (p5)*

We disagree that current prices are not important. They are the most important for understanding whether the project will proceed on schedule. Furthermore, current prices are known with certainty, whereas forecasts are necessarily uncertain. It is surprising that the RTS suggests that decision makers should be entirely unconcerned about the project's viability at current coal prices, which many analysts suggest will continue. See for example the International Energy Agency's latest World Economic Outlook, which is assuming roughly 2012 coal prices out to 2040.[36]

Deloittes are also dismissive of this claim in the RTS:

> *In addition to the need to include more information on costs, two key parameters drive much of the results but receive little attention…*
>
> *The coal price is assumed to be $85/t (presumably for the life of the extension, although this is not stated). More details should be given around this forecast, and the coal price forecast could usefully be presented graphically in a chart over the life of the proposal…*
>
> *Without this information we do not believe that the report provides a sufficient level of information on the key impacts of the proposal. (p6)*

The project should be tested more thoroughly at a range of coal prices, including current levels.

Operating costs

The RTS is critical of our use of cost information from the neighbouring Bulga Mine in our modelling, suggesting that it is not appropriate to use one mine's costs for another mine, even if they are adjacent to each other. While it is not ideal, this was necessary as no cost per tonne information was provided with clarity in the EIS. We derived a cost of $70.50 per tonne from present value figures in the EIS and the RTS seems to endorse our derived numbers. There is no discussion to support either the present value figure in the EIS or to evaluate our derivation from it.

We note Deloittes discussion on costs:

> *A particular omission resulting from conducting the analysis from the NSW perspective is the absence of important cost data from the analysis. While there is a discussion of the proposal's GOS, including the net present value of operating expenses, the report does not contain any details on the capital or exploration costs that may be incurred. Further, presenting the CBA in the absence of such costs gives the impression that the proposal is, in some sense, costless.(page 4)*

Deloittes are also critical of the approach on "all costs, particularly ongoing operational costs" on p6.

The RTS claims that Deloittes have made a typographical error in their assessment of the Bulga mine, which we used as our source. We have reread that section of Deloittes Bulga assessment and there is inconsistency in Deloittes figures. It is not clear exactly what figure has been used. Regardless, adjusting our model to a cost of $68.5/tonne still leaves the project with a negative net present value of over $200 million on today's prices.

Employment in economic assessment

As discussed in the main part of this submission the approach to employment benefits in the EIS in not in line with NSW Government guidelines and standard practice in cost benefit analysis. This overstates the value of the project significantly.

[36] International Energy Agency (2014) World Energy Outlook 2014, p187

This section of the RTS does not offer new assessment or data that supports the EIS or responds to our submission. Our concern remains that the authors used figures from a Reserve Bank publication that supported their assumptions, while omitting reference to parts of the same publication that contradicted these assumptions. (See Figure A1 of BAEconomics (2014) economic assessment and figures 5 and 6 from our submission, all of which are sourced from (D'Arcy et al. 2012).)

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