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Submission on New Acland Coal Mine Environmental Impact Statement

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TAI

Submission

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Introduction

The New Acland Coal Mine Stage 3 Project proposes to expand the existing New Acland project through farmland and remnant vegetation to increase production from the current 4.8 million tonnes per year to 7.5 million tonnes per year. The New Acland mine and the current expansion proposal have been controversial due to impacts on nearby communities, particularly the town of Acland, where only one resident remains. Impacts on health and the agricultural economy have also been considerable and as a result, many local people oppose the project.

The environmental impact statement (EIS) of the Stage 3 expansion is currently on display. The Australia Institute welcomes the opportunity to make a submission on the EIS, particularly the economic aspects of the project.

The EIS misrepresents the economic impacts of the project in two ways, firstly through inappropriate economic modelling and secondly through selective misinterpretation of the EIS's economics chapter's own results.

The modelling relied on is known as input-output (IO) modelling which, in the context of project evaluation, has been described as "biased" by the Australian Bureau of Statistics, "deficient" by the NSW Land and Environment Court and regularly "abused" by the Productivity Commission.[1] These bodies have all been critical of the assumptions inherent in this model, particularly that there is a limitless amount of labour and capital available in the economy. Queensland government guidelines emphasise IO modelling is not a preferred method of economic evaluation.[2]

Furthermore, the EIS seems to misinterpret the results of research in the economics chapter, Chapter 17. While it suggests that the project is a "major employer in the region,"[3] data presented in Chapter 17 shows all mining represents only 2.5 percent of local employment. The economics chapter emphasises the importance of agricultural employment to the region (5 times greater than Queensland's average and 5 times greater than mining) and agriculture's contribution to regional economic output (4 times greater than Queensland's average and four times that of mining). Despite this, negative impacts on agriculture are downplayed.

These misrepresentations are repeated throughout the EIS Executive Summary, Introduction, Project Justification and Economics chapters. Decision makers should realise that their repetition does not add to their reliability. Given the potential impacts of the project on the local agricultural economy, health and the environment, and the uncertainty around the economic benefits of the project to Queensland, we recommend against approval of the project on economic grounds.

[1] (ABS, 2011; Gretton, 2013; Preston, 2013)
[2] (Qld DIP, 2011)
[3] EIS executive summary p1

Input-output model

An input-output (IO) model made by consultants Sinclair Knight Merz (SKM) is used in the EIS to estimate the impacts of the project on economic output and employment. Key results include:

- Project total impact on Queensland gross output of $16.7 billion (Table 17-10)
- Impact on Australian GDP of $7.7 billion (figure 17.5)
- Total employment impact of 2,546 jobs in Queensland and 3,082 in Australia (Table 17-12)

The results of the IO model are relied on heavily in the Project Justification chapter, see page 3-4, 11, 12, 26-27. They are also presented in the Executive Summary on page 8, 15-16, 33-34 as well as the Introduction on p9. They are also referred to in the media by New Hope representatives, even before the release of the EIS.[4]

The problems with IO models are well understood. Firstly, they assume that there are no limits on the amount of resources available in the economy, such as labour. This means that under the model, labour can be used in one project without taking it away from another project. The ABS describes this as a "lack of supply-side constraints":

> ***Lack of supply–side constraints****: The most significant limitation of economic impact analysis using multipliers 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.*[5]

As discussed in EIS Chapter 17, the local and regional areas are close to capacity in skilled labour, with low unemployment and large amounts of the projected workforce needing to be sourced from further afield. The results of the SKM IO model will be heavily overstated on this basis alone. This is acknowledged by SKM in Chapter 17:

> *IO modelling and derived multipliers reflect static impacts from observed industry linkages, and do not account for a fixed supply of labour and capital in the domestic economy. Therefore it is not known whether (for example) employment impacts from the revised Project constitute generated employment, or supported employment (employment transferred from other industries / developments). This applies not only to employment, but to estimates of output, value added and household income impacts. (p18)*

In other words anyone who already has a job who goes to work on this project is double counted. It is as if there is a "ghost workforce" just waiting to be employed, but not appearing in unemployment figures. This was noted in a case in the NSW Land and Environment Court looking at similar economic modelling of a mine in the Hunter region. In rejecting the mine's modelling, the judge noted:

> *I accept [The Australia Institute's] evidence that the assumption of the input-output model that there is a ghost pool of highly skilled yet unemployed people in the Hunter region, from which labour for the extension of the existing mine would be drawn, is unrealistic.*

[4] See for example, (Foley, 2013)
[5] (ABS, 2011)

Another shortcoming of IO models is that they are not suitable for assessing projects in smaller regional economies. Smaller regions, like the project area or even the Darling Downs often lack the resources that the model assumes it has, meaning that local impacts are lost to the wider area. As the ABS explains:

> ***Not applicable for small regions****: Multipliers that have been calculated from the national I–O table are not appropriate for use in economic impact analysis of projects in small regions. For small regions multipliers tend to be smaller than national multipliers since their inter–industry linkages are normally relatively shallow. Inter–industry linkages tend to be shallow in small regions since they usually don't have the capacity to produce the wide range of goods used for inputs and consumption, instead importing a large proportion of these goods from other regions.*[6]

Again, this is acknowledged in Chapter 17, but in no other part of the EIS:

> *It should also be noted that the Queensland and regional Study area IO model have been developed based on direct requirement aggregates from the national totals. Therefore there is potential that where a smaller sample area is assessed, results may not be aligned with an observed normal distribution and magnitude of impacts and impacts may be overstated. (p18)*

The fact that SKM's IO model overstates the impacts of the mine is not acknowledged anywhere else in the EIS, despite the results being the backbone of the project's justification. No sensitivity analysis or discussion of the extent of overstatement is provided.

Another shortcoming with using IO modelling for project evaluation is that it assumes that the money spent on this project would not be spent if it wasn't for this project. As explained in Chapter 17:

> *The direct output impact of the revised Project is equal to the estimated expenditure required for construction and operation. (p21)*

If this project did not go ahead, the money involved would almost certainly be used on another project with similar rates of return. To assume otherwise is to assume that investors would rather hide their money in a mattress than invest in any project other than this one. Clearly this is not the case and the impact of this project on the Queensland and Australian economies is nowhere near $19 billion of gross output or 3,000 jobs. What should be of interest to decision makers is the difference this project would make relative to the next best use of these resources. IO modelling provides no insight into this, as emphasised in Queensland government guidelines:[7]

> *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.*
>
> *Cost-benefit analysis generally assesses the impact of a project on the economic welfare of the community, and is therefore a key element in any public sector cost-benefit analysis.*

Why this economic assessment is based on IO modelling and not cost benefit analysis is unclear. [8] The Queensland planning department should ensure its guidelines are followed

[6] (ABS, 2011)
[7] (Qld DIP, 2011) p18
[8] For extended discussion on shortcomings of IO modelling for project assessment see (ABS, 2011; Denniss, 2012; Gretton, 2013)

and insist on cost benefit analysis in the terms of reference (ToR). The need for this was pointed out in a submission on the ToR of this project by Economists at Large and Doctors for the Environment Australia, but this submission was ignored.[9]

No quantification of benefits and costs

As the EIS economic assessment is based on IO modelling rather than cost benefit analysis, it gives no estimate of what Queensland actually receives in return for its coal. There is no quantification made of royalty or tax revenue. Nor is there any estimate of the value of tax offsets and subsidies that are provided to New Hope Coal. Despite this, taxes and royalties are claimed as "significant".[10] Without a good understanding of the financial value of the project, decision makers cannot balance the other costs that the project imposes on the state. IO modelling cannot provide input into this equation.

The only quantification of royalties in the EIS is that of the entire Queensland coal industry, $2.4 billion in 2012 (Project Justification p1). This figure needs to be put in context, however, as being only 5 per cent of Queensland government revenue.[11] The unquantified revenues this project will generate will amount to a fraction of one percent of this revenue.

Inconsistent employment figures

The EIS claims in Chapter 17 that:

> *The New Acland Mine currently employs 300 full time workers within the regional study area, of which approximately 35 per cent reside within the local study. This equates to 105 workers out of 1,887 employed persons in the local study area. (p9)*

This is inconsistent, however, with not only the table below this quote (Table 17-4), which shows the local area has 2,562 people employed, but also with Tables 17-5 and 17-6 which show there are 2,685 people employed. Some of this difference may be explained by differences between part time and full time work. More difficult to explain, however, is the data in Table 17-6 which shows only 68 people work in mining in the local study area. According to Table 17-6 only 2.5 per cent of local employment is in mining.

Misrepresentation of agricultural economy

The importance of agriculture to the local economy and the impact of the project on agriculture are selectively presented in the EIS. Chapter 17 discusses ways to assess industry contribution to local economies:

> *While the contribution to total employment in a region is a good indicator of the industry's contribution to the overall economy, an analysis of specialisation ratios (compared to Queensland) also provides an important indicator of the relative importance of an industry. Specialisation ratios measure the extent to which observations in the Study area are reflective of the Queensland average. In this instance, employment specialisation ratios are calculated as the ratio of the proportion of employment by industry in the Study area compared to the proportion by industry in Queensland, with a specialisation ratio greater than 1 indicating importance in the Study area in terms of overall contribution to employment. As already noted, the agriculture, forestry and fishing industry is more concentrated in the local and regional study areas compared to Queensland, and this is reflected in a*

[9] (DEA & Economists at Large, 2013)
[10] See Executive summary p16, Project Justification p2&8
[11] (CGC, 2012)

> *specialisation ratio of 5.0 in the local Study area and 3.7 in the regional study area. This means that the proportion of employed persons in the agriculture, forestry and fishing industry is 5 times greater in the local Study area than in Queensland overall. The specialisation ratio for the manufacturing industry in the local Study area is 2.4.*

While the EIS emphasises the importance of agriculture and manufacturing based on specialisation ratios, it omits to calculate the ratio for mining. The specialisation ratios for mining in both the local and regional areas are close to one (1.0 and 0.9). This means that the local area and Darling Downs regions have the same percentage of people working in mining as Queensland as a whole, around 3 per cent. The very high specialisation ratios for agriculture and local manufacturing suggest that these industries are particularly important to employment in this region, while mining is far less important.

This is further emphasised in Figure 17-9 which illustrates gross value added by industry, showing that agriculture is the largest industry by this measure, producing over 10 per cent of the region's output, while mining produces around 5 per cent. This is again emphasised in the EIS by reference to specialisation ratios:

> *An analysis of specialisation ratios of industry contribution to regional income indicates that the agriculture, forestry and fishing industry in the Darling Downs region contributes 4 times more (as a proportion of overall industry output) than it does in the remainder of Queensland. (p13)*

Despite this analysis suggesting the importance of agriculture in the local and regional economies, and the inconsistency around mining employment figures, the EIS presents the project as one that:

> *will ensure current employment and economic benefits are not lost to the Darling Downs and that NAC continues to be a major employer in the region.* [12]

In fact, the New Acland project will have considerable economic costs, particularly relating to its impact on the region's agricultural industry. The project will not only be an employer, but also a destroyer of employment in agriculture. This is recognised on pages 26-27 of Chapter 17, in the section titled *Economic impact on agricultural production*.

This section does not, however, accurately reflect these impacts. After estimating a change in agricultural gross output of over $2.3 million per year, the estimated impact on employment is five less jobs. This seems a heavy underestimate given that in Queensland agriculture contributes $7.9 billion in output and employs 59,400 people.[13] This results in output of around $133,000 per worker, far lower than the $460,000 assumed in the EIS.[14]

Decision makers should note the inconsistency in this section compared to the rest of the economic chapter. This section presents only direct impacts, whereas the rest of the chapter presents direct, indirect, induced and total impacts estimated from the IO model. This serves to downplay the losses of jobs in agriculture, while overstating the impact of the project. If subject to the same modelling as the rest of the impact assessment, it seems possible the project could destroy as many jobs as it creates in the local area, based on the ABS's estimate of local mining employment in Table 17-6. This seems likely given the specialisation ratios discussed above, which may result in a higher multiplier for agriculture

[12] EIS Executive Summary page 1
[13] ABS 2013 Cat 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly and ABS 2013 Cat5220.0 Australian National Accounts: State Accounts
[14] Note the difference between gross output and value added between the EIS and the ABS statistics. This may reduce the discrepancy by a small amount, but the results are still heavily overstated.

than other industries, although we note that the multipliers used in the IO model are not disclosed for scrutiny by the public.

Health impacts

Coal mining and power generation have substantial impacts on human health and these generate economic costs. As the Senate inquiry into Impacts on health of air quality in Australia found last year:[15]

> *Coal is a potential source of dust and particulates throughout its lifecycle as a fuel. Coal is likely to be a source of significant air pollution if not properly managed during extraction, storage, and transport. It is also a source of significant CO2 emissions during burning. Evidence provided from the NSW EPA indicated the contribution of coal mining to emission levels in that State broadly, with mining for coal accounting to 27.6 per cent of PM2.5 in the greater metropolitan region of Wollongong, Sydney and Newcastle (GMR), 58.4 per cent of PM10 in the GMR. In the Upper Hunter region (UHR), those levels are higher, at 66 per cent of PM2.5 and 87.6 per cent of PM10 emissions.*

These high levels of particulate pollution are of concern primarily due to their impact on human health. Particulate pollution is linked to cardiovascular and respiratory diseases, types of cancer and premature death. For some particles there is no safe level of exposure, even low levels of exposure can lead to health problems.[16]

In the USA quantification of the health impacts of coal is more advanced than in Australia. Studies on the Appalachian region in the US estimate that the cost of health impacts and in that region is US$74.6 billion per year.[17] This builds on another important study of the region which found:

> *Age-adjusted mortality rates were higher every year from 1979 through 2005 in Appalachian coal mining areas compared with other areas of Appalachia or the nation.*[18]

This study refers to past research on coal mining regions that found elevated levels of chronic heart, respiratory, and kidney disease, and lung cancer, after control for socioeconomic factors. They found that the health impacts far outweighed the economic benefits of mines.

While it is difficult to extrapolate the health impacts of coal mining in the USA to the Australian setting due to different mining practices and different pollutant levels, health costs are likely to be significant. The economic assessment presented in the EIS makes no consideration of these costs.

Greenhouse gas emissions

While the EIS Economics Chapter 17 emphasises the indirect aspects of the project, the EIS Greenhouse Gas Emissions Chapter 10 is careful to avoid discussing the indirect emissions created by the project when product coal is burned. This is inappropriate. If the EIS is to

[15] (Senate Standing Committee on Community Affairs, 2013)
[16] (Pui, Chen, & Zuo, 2013; Raaschou-nielsen et al., 2013; USA Environmental Protection Agency, 2009)
[17] (Epstein et al., 2011)
[18] (Hendryx & Ahern, 2009)p547

consider downstream economic impacts of using coal, it must also consider the downstream impacts on climate change.

Coal industry proponents often adopt the defence that if we did not sell the coal to users, someone else would, and our actions therefore make no difference. This is true to a large extent - most coal that would be consumed in the world would be substituted from other mines, but not all of it. The expansion of the coal supply that the project represents will exert some downward pressure on prices which will result in an increase in the amount demanded.

In the absence of the project, not all of the coal exported would be offset by production in other mines. To argue otherwise is to suggest that coal supply is perfectly elastic and therefore that coal price should not vary. This is clearly not the case. There is no discussion of this reality in either the Economics or Greenhouse Emissions chapters.

The Project Justification Chapter claims:

> *The revised Project's thermal coal products are a highly valued energy resource that possesses lower sulphur content, provides higher energy output and produces less greenhouse emissions than many alternative thermal coal sources.*

This claim is not substantiated anywhere in the EIS. No product coal specifications are provided. It should also be noted that even if the project produces thermal coal of a higher rank than other producers, coal is still the most carbon-intensive energy source and replacing it with virtually any other alternative would improve greenhouse emissions. Decision makers should be under no illusions that this project works against the goal of stabilising the world's climate.

Conclusion

The EIS of the New Acland Coal Mine misrepresents the economic impacts of the project. The economic modelling presented in the EIS is based on widely-criticised methodology that overstates the positive impacts of the project. These methodological issues are acknowledged in the economic section of the EIS, but no discussion of the extent of the overstatement is provided. This overstatement is not referred to anywhere in the EIS or in public statements by the proponent.

The EIS provides no quantification of the benefits and costs of the project to Queensland. There is no estimate of potential royalties and tax revenues and no discussion of the extent of government assistance and subsidies.

The EIS misrepresents the results of the economics chapter - that agriculture is particularly important as a local employer, five times the Queensland average, but that mining accounts for only 2.5 per cent of local employment, lower than the Queensland average.

The project could have significant effects on health and environmental issues, but none of these impacts are considered in economic terms. Given the potential impacts of the project on the local agricultural economy, health and the environment, and the uncertainty around the economic benefits of the project to Queensland, we recommend against approval of the project on economic grounds.

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