Please sir, I want Tahmoor

Submission on the Tahmoor South Coal Project

The economic case for the Tahmoor project has been heavily overstated by its consultants and the Department of Planning, Industry and Environment. Methods relied on have been described in the NSW Land and Environment Court as "inflated", "incorrect" and "plainly wrong".

Rod Campbell

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Summary

Like Oliver Twist, coal mines in NSW always want to expand a little more. Unlike Mr Bumble, the NSW Department of Planning, Industry and Environment (DPIE) usually gives the miners what they want, regardless of any contrary advice that the Department may have received.

The Tahmoor South Coal Project should be rejected by the NSW Independent Planning Commission (IPC). The economic case for the project has been overstated and is based on methodologies that have previously been criticised by DPIE's experts in the Land and Environment Court, the judgement in the Rocky Hill case and a review of the Tahmoor assessment commissioned by DPIE. The likely net value of the project to the NSW community is negative once consideration is given to environmental impacts and the project's likely-precarious position in the coal market.

Oxford Economics reviewed an earlier Environmental Impact Statement of the project, identifying key flaws in the economic assessment of the proposed mine extension. The review pointed to exaggeration of benefits to workers and suppliers, and an unrealistic outlook for the project in the coal market. The assessment of the Tahmoor project currently before the IPC makes no reference to the review by Oxford and makes no changes suggested in that review. DPIE have largely ignored Oxford's suggestions and misrepresented them in its assessment report and in a hearing before the Commission.

This submission will outline three major flaws in the economic assessment of the Tahmoor mine project:

1. **The workers benefits are overstated by some $212 million**. Conventional economic analysis calculates that labour is priced at its opportunity cost. The Tahmoor mine assessment instead assumes that workers employed by the mine would earn 54% less in wages if the project does not proceed. The same consultant using the same methodology was criticised in the Rocky Hill judgement as "inflated", "at odds with guidelines" and "lacking evidentiary foundation".

2. **The supplier benefits are overstated by approximately $211 million**. Economic assessment usually assumes that the prices of goods and services reflect their opportunity cost. The Tahmoor mine assessment assumes that suppliers earn more from Tahmoor than from other opportunities. The Rocky Hill judgement described this approach by the same consultant as "inflated", "not able to be tested or verified", "orders of magnitude different" to estimates from DPIE's economist, "unreliable and unproven" and "plainly wrong".

3. **Coal market, viability not considered despite advice from Oxford review.** The assessment ignores the impact of cost blowouts, COVID-19 and the forecast

declining global demand for coal, on the viability of the Tahmoor mine project. These represent realistic future risks to the operation of the mine and are relevant to assessing the financial strength of the project.

The approach taken by Tahmoor's consultants is not consistent with NSW guidelines and is different to that of other consultants such as Deloitte Access Economics. If Cadence/EY's approach to the Tahmoor assessment is accepted, this raises the problem that a project's value will be assessed as being hundreds of millions of dollars higher or lower depending on the consultant engaged. This significantly undermines the planning process and whatever respect the public might have for the economics profession. Whatever the IPC's final decision, we urge commissioners to make a strong statement on economic assessment particularly on the inflated values of worker and supplier benefits.

Introduction

Like Oliver Twist, coal mines in NSW always want a little bit more. Unlike Mr Bumble, the NSW Department of Planning, Industry and Environment (DPIE) usually gives the miners what they want, regardless of any contrary advice that the Department may have received.

The Tahmoor South Coal Project, owned by SIMEC, is a proposal to expand an existing mine to the south of Sydney and extend its life to 2032. It is currently seeking approval from the NSW Independent Planning Commission (IPC). The Australia Institute welcomes the opportunity to make a written submission to the IPC, expanding on our appearance via Zoom at the public hearing on Monday 15 February.

The economic case for the project has been overstated with benefits calculations based on unorthodox techniques that have been heavily criticised in the NSW Land and Environment Court's Rocky Hill case. The techniques in question, relating to supplier and worker benefits, were included in the original December 2018 economic assessment in the Tahmoor Environmental Impact Statement (EIS) by consultancy Cadence Economics.[1] Despite the Rocky Hill judgment's criticism of Cadence in early 2019 and further criticism in a DPIE-commissioned review of the Tahmoor EIS economic assessment, the 2020 economic assessment of the project is based on the same discredited techniques.

The DPIE assessment report relies on the results of this discredited economic assessment in recommending approval of the project. The Department concedes only that the hugely-inflated worker benefit value should be omitted, although it does not subtract it from any of the values repeated in the assessment report. In our view, it is extraordinary that the Department is prepared to accept a form of economic assessment in relation to Tahmoor that it argued vigorously against in Rocky Hill. The IPC's discussion with senior DPIE officers on Day 3 of the Tahmoor hearings suggests that the Department has little understanding of, or interest in, these issues.

As discussed in this submission, it is clear that the Tahmoor project economic assessments and the DPIE assessment report overstate the economic case for the project. In our view the net present value of the project is at least $450 million dollars less than claimed in the assessments. When local environmental impacts and the future of the coal market are considered this value is likely to be negative. We recommend against approval and urge the IPC to make a strong statement about the need for higher standards of economic assessment in the NSW planning process.

[1] Cadence (2018) Economic impact assessment of the Tahmoor South Project, https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-8445%2120190328T225855.770%20GMT

Tahmoor-specific documents

Before discussing the technical aspects of the economic assessments and how they were dealt with in the Rocky Hill case, this section discusses Tahmoor project-specific documents that themselves raise concerns about the overstatement of the economic case for the project.

In April 2020 BIS Oxford Economics were commissioned by the DPIE to review the 2018 Cadence report. They identified key flaws in this assessment, particularly exaggeration of benefits to workers, benefits to suppliers and the outlook for the project in the coal market and treatment of environmental costs.

One clear example is the recommendation that worker benefits of $264 million be omitted as this calculation ignores the fact that most mine workers have experience working in the mining industry and unless the project was to recruit largely inexperienced workers then "there is no wage premium for such employees".

The Cadence business was subsequently bought by major consulting firm Ernst and Young (EY), but the same consultant, Steve Brown, continued to work on the project, producing a subsequent assessment of the amended Tahmoor project. This EY report is dated August 2020 yet makes no reference to the 2019 review by Oxford and makes no changes suggested in that review. For example, it includes a $217 million value for 'benefits to NSW workers' based on a methodology unchanged from the 2018 Cadence report, the change in value instead reflecting the amendments to the project, not the approach of the economic assessment.

It is unclear whether DPIE provided the EY report authors with the Oxford review, or whether they chose to ignore it.

The DPIE assessment report does not apply Oxford's advice for interpreting the Cadence or EY reports. The EY report results are repeated uncritically in the assessment report's executive summary (pxvi) and on page 129, as shown in Figure 1 below:

Figure 1: Extract from DPIE assessment report – acceptance of proponent estimates

- For NSW, the EIA estimated that the Project would result in:
  - direct benefits of $215 million NPV, including royalties of $131.5 million NPV;
  - indirect benefits of $450 million in NPV terms, comprised of $217 million of worker benefits and $233 million of supplier benefits;
  - indirect costs of $0.11 NPV for greenhouse gas emissions; and
  - an overall economic benefit of $664.9 million NPV.

Source: DPIE (2021) Tahmoor assessment report, p129

As shown in Figure 1, DPIE present the EY results with no effort to interpret or adjust in line with Oxford's advice. This is despite elsewhere stating that the Department "agrees with findings from Oxford that worker benefits should be excluded from the [analysis]".[2] In the only other reference to the Oxford review in the assessment report, DPIE gives the impression that Oxford were supportive of the Cadence/EY assessment, with concerns raised only in relation to worker benefits and greenhouse gas emissions, as shown in Figure 2 below:

Figure 2: Extract from DPIE assessment report – presentation of Oxford review findings

- The Department commissioned the Oxford Economics (Oxford) to provide an expert review of the EIA. Overall, Oxford considered that the CBA was broadly consistent with the Economic Guidelines, but identified several areas requiring further consideration. Key issues identified included the:
  - calculation of benefits to workers should be excluded from the CBA as it is unlikely that the entire Project's workforce would be drawn from the non-mining sector or that workers would be employed in occupations other than mining if the mine did not exist; and
  - allocation of Scope 1 and 2 greenhouse gas emission costs to NSW (only) when the global cost of such externalities is calculated as $102.3 million NPV.

Source: DPIE (2021) Tahmoor assessment report, p129-30

In fact, the Oxford report raised a long list of "areas of concern" around the Cadence report:

- Production volumes and pricing assumptions, including impacts of the pandemic and "growing opposition to the use of coal as an energy source".
- Producer surplus and treatment of costs – "no indication that contingencies have been allowed for in the calculation of project costs"
- Sensitivity tests – including "apparently perverse effects of increasing operating costs (which increase benefits to NSW), [and] a lack of discussion about remedial environmental measures not being successful…"
- Benefits to workers – "calculations in this section are not consistent with key elements of the Guidelines…"
- Benefits to suppliers – requiring "more transparency"
- Distributional impacts – "omitted from the analysis in contrast to the requirements of the Guidelines "
- Environmental and social externalities – in addition to greenhouse gas emissions, Oxford state "relatively small groundwater and surface water costs could be called into question, while the subsidence, ambient noise, biodiversity and net public infrastructure assessments might also require further scrutiny."

[2] DPIE (2021) *Tahmoor South Coal Project – Secretary's final assessment report*, page 130, https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-8445%2120201218T073017.375%20GMT

The DPIE assessment report makes no mention of most of these issues raised by Oxford and no consideration appears to have been given as to how they might impact the economic case presented by the proponent.

In the recent public hearings in front of the IPC, DPIE officers continue to misrepresent and ignore the Oxford advice by focusing on the dubious claim that Cadence/EY's assessments comply with relevant guidelines, worker benefits and greenhouse emissions. Figure 3 below is an extract from the Day 3 IPC hearings transcript:

Figure 3: Extract from transcript of IPC hearings

MR YOUNG: Sure. Thank you, Commissioners, and I'm assisted by Steve O'Donoghue, Director of Resource Assessments in my team, but I'll kick off in regard to the issue around the cost benefit analysis. We're certainly aware of the concerns around – that have been raised by The Australia Institute and note that the economic impact assessment was done in accordance with the guidelines but also the notes of Oxford Economics in regard to those benefits, in terms of the workers and also the greenhouse gas issue. We certainly in our report agreed or noted those findings of Oxford Economics, and regardless of whether you include them or don't include them – and I guess there's different arguments about whether you ought to – the net economic benefit is still substantially positive, I think in the order of about $448 million - - -

PROF MACKAY: Yes.

MR YOUNG: - - - instead of the quoted figure in our report. So even with those things taken into consideration, we were satisfied that from an economic efficiency point of view – and I know it's not necessarily the determinative factor but one factor to consider in the assessment process – that it was fundamentally positive and therefore economically efficient in accordance with the economic impact assessment guidelines that Treasury has published.

Source: IPC (2021) Tahmoor public hearings Day 3, p61

Mr Young's claims are misleading at best. Oxford state that the Cadence report "recognises many of the stipulations of the Guidelines. However, there are areas of concern, and these have been detailed below". More important than compliance with guidelines, the Oxford review highlights a range of flaws that could influence the overall economic case for the project, recommending that the DPIE get further advice on those areas.

Perhaps the most surprising aspect of the DPIE's response to technical issues such as worker and supplier benefits is its amnesia. These issues were covered in detail by a DPIE-called expert and the Cadence/EY consultant Steve Brown in the Rocky Hill case in the NSW Land and Environment Court in 2018, with a judgement handed down in early 2019.

Worker benefits overstated

In standard approaches to cost benefit analysis, workers' wages are treated as a cost to the project. The (often unstated) assumption behind this is that the labour market is functioning efficiently and so regardless of the project being analysed, workers would earn a similar wage at a similar job. In economics jargon, labour is priced at its opportunity cost. Because of this, NSW assessment guidelines state that the starting assumption for this value should be zero, as noted in the Oxford review.

The approach taken by the Cadence/EY consultant, Steve Brown, was to assume that workers in the Tahmoor project would earn $150,000 per year if the project proceeds, but that they would earn the average NSW wage of $68,000 per year if it does not proceed, resulting in a benefit of $217 million in present value terms.

Mr Brown adopted the same approach for his 2018 assessment of the Rocky Hill coal mine as part of an expert witness report to the NSW Land and Environment Court. His approach was criticised by the expert witness called by the DPIE, Nigel Rajaratnam, and in the final judgement Preston CJ was highly critical of Mr Brown's evidence in relation to worker benefits:

> Mr Brown sought to inflate the benefit to workers by adopting a different methodological approach to that required by the Economic Assessment Guidelines.
>
> …
>
> Contrary to the comparison required by the Economic Assessment Guidelines, Mr Brown incorrectly compared the average coal mining wage (instead of the wage paid in the Project) to the weighted average non-mining wage (instead of the minimum or reservation wage of workers in the mining sector).
>
> Mr Brown assumed that there is no disutility of working in the mining sector and there are no additional skills needed to work in a mine compared to an average job. These assumptions are not only at odds with the Economic Assessment Guidelines that refer to the "wage difference due to skills and disutility to work in mining industry" (see p 13 and Chart 3.8 on p 14), they also lack evidentiary foundation. Mr Rajaratnam noted that Mr Brown put forward no evidence in support of his assumptions.[3]

[3] NSW Land and Environment Court (2019) *Gloucester Resources Limited v Minister for Planning*, https://www.caselaw.nsw.gov.au/decision/5c59012ce4b02a5a800be47f

Preston CJ also agreed with evidence from the DPIE expert that Mr Brown's approach was "contrary to economic theory".

In our view, it is extraordinary that Mr Brown continues to use the same methodology to inflate the value of coal mines despite such strong criticism from the Chief Judge of the Land and Environment Court and the expert witness called by the DPIE. The fact that the DPIE still accepts assessments that include these calculations and quotes figures that include this value is difficult to understand.

Supplier benefits overstated

A similar logic applies to claims around supplier benefits. The usual economic assumption is that suppliers provide goods and services at prices that reflect their opportunity cost and that with or without a particular project, they would sell them at this price. As NSW Treasury puts it:

> The costs of resources are based on the principle of opportunity cost. In a competitive market, the market prices reflect the value of resources in alternative uses. Most markets for goods and services in NSW are largely competitive and as a result market prices tend to reflect the value of resources used in production.[4]

Treasury note that there may be some situations where this is not the case and the *Guidelines for cost benefit analysis of mining and coal seam gas projects* do mention the possibility of benefits to suppliers but provide little commentary on this.[5]

Under standard cost-benefit analysis assumptions, supplier benefits are taken to be zero, while the Cadence/EY estimate is $211 million. The Oxford review raises concerns around the transparency of Cadence/EY's calculations on this unorthodox value in relation to Tahmoor. Again, exactly the same approach was taken by Mr Brown in his assessment of the Rocky Hill project, with Preston CJ also highlighting problems of transparency:

> Mr Brown sought to inflate the benefits to suppliers by using his firm's Regional Input-Output model. This is a specialised modelling tool of Mr Brown's firm and the results are dependent on the assumptions embedded in the model. Mr Brown did not make the model or the assumptions embedded in the model available to Mr Rajaratnam or the Court. Mr Brown's results were therefore not able to be tested or verified. Mr Rajaratnam undertook preliminary modelling, using his centre's equivalent model, but the results were orders of magnitude different to Mr Brown's results.

Preston CJ also criticised the wider logic and approach taken by Mr Brown:

> I find that any economic benefit to suppliers by achieving higher surpluses through supplying to the Project will be small, in the order of magnitude of Mr Rajaratnam's estimate $2.86 million (in NPV terms). It may even be that there are no supplier

[4] NSW Treasury (2017) *NSW Government Guide to Cost-Benefit Analysis*, https://www.treasury.nsw.gov.au/sites/default/files/2017-03/TPP17-03%20NSW%20Government%20Guide%20to%20Cost-Benefit%20Analysis%20-%20pdf_0.pdf

[5] DPIE (2015) *Guidelines for cost benefit analysis of mining and coal seam gas projects,* https://www.planning.nsw.gov.au/Policy-and-Legislation/Mining-and-Resources/~/media/C34250AF72674275836541CD48CBEC49.ashx

> benefits, as the DAE 2016 report concluded. Mr Brown's inflated figure of $408.7 million (in NPV terms) is unreliable and unproven. Mr Brown's inputs and methodology are uncertain and not able to be tested or verified. A number of inputs seem plainly wrong. I accept and adopt the critical analysis of Mr Brown's estimates by Mr Rajaratnam and the Minister in cross-examination, summarised above.

The cross examination of Mr Brown in the Rocky Hill case is worth reading in relation to supplier benefits. In it, he blames multi-million dollar inconsistencies in his report on "typos", concedes that he "performed modelling for the single largest benefit [in the analysis] based entirely upon a figure that was given to [him by his] client", figures which he cannot vouch for the accuracy of:

> Barrister: We have, Mr Brown, a calculation where you can't vouch for the accuracy of the 896.9 figure because you've taken it from elsewhere? That's correct, isn't it?
>
> WITNESS BROWN: Well it's a figure that was reported that I've used. I, I, I'd assume that it's, it's accurate in the DAE report.
>
> Barrister: You heard my question, Mr Brown. You can't vouch for the accuracy of that figure, can you?
>
> WITNESS BROWN: I guess - I suppose not.
>
> Barrister: And you can't vouch for the accuracy of your assumption that there would be 75% of the supplier benefits would go to New South Wales, can you?
>
> WITNESS BROWN: Again, that's a figure that was provided so I can't, I can't vouch for that figure. That's a figure that we used.[6]

In Rocky Hill, Mr Brown's approach to supplier benefits was "inflated", "plainly wrong", based on "typos" and figures he "cannot vouch for". The same approach is taken in his Tahmoor assessment. It is surprising, to say the least, that the DPIE is willing to accept such estimates, estimates that its own witness has criticized.

[6] Gloucester Resources Limited v Minister for Planning, Wednesday 22 August 2018

Coal market, viability not considered

Returning to elements of the Oxford review ignored by DPIE, the reviewers highlighted risks to the Tahmoor project in relation to cost blowouts and how the coal market might be affected by the COVID-19 pandemic and “growing opposition to coal as an energy source”. An extract of the Oxford report is reproduced in Figure 4 below:

Figure 4: Extract from Oxford review

> We do not possess detailed data on the nature of the mining operations in question in order to independently test the reasonableness of these assumptions or the related issue of project costings. It is noted that the sensitivity tests (EIA p.22-23 and Appendix B) include separate allowances for an increase in operating and capital costs of 10% as well as a “worst case scenario”, through there appears to be no allowance for production volume risk Nonetheless, as discussed below, it is not clear if any contingencies have been allowed for in the base project costings – and these might be relevant if mining operations prove more complex than originally anticipated. If there are concerns about project operating cost blowouts this may be an issue worth investigating in more detail.
>
> Though it is noted that while most of the TSCP output is coking coal, another production-related risk is the growing environmental concern about the mining of coal under any circumstances (see sensitivity tests discussion below).
>
> Apart from this, of course, there is the short to medium term impact of the COVID-19 pandemic on coal demand and production, though this could not have been foreseen at the time of writing of the EIA.
>
> Given our previous experience with discussions over the viability of production volumes and associated operating costs for coal mining operations, we suggest that the Department seek further clarification on the production assumptions and the associated operating cost assumptions.

Source: BIS Oxford Economics (2020) page 6

The DPIE has not sought further advice on these issues. The IPC has been given no objective information relating to the financial strength of the project and its likelihood of development and operation in line with the proposal. While the Cadence/EY assessments give no suggestion that the project is anything other than an economic bonanza, the Department concedes that this is not the case, as shown in the extract from IPC hearing transcripts below:

Figure 5: Extract from IPC transcript

The other thing I would say is in terms of the economic efficiency and the application of the guidelines, and my understanding is that certain sensitivities were included in that NPV estimation around coking coal demand and particularly in regard to prices within the market, and that even within that sensitivity analysis, it was still found to be a significantly positive economic proposition to proceed with the project. But, clearly, at the end of the day, Mr Beasley, I would say that, well, if the demand is not there and the price is not right, then the project won't be developed.

MR BEASLEY: Yes.

MR YOUNG: Or it will be – or it will cease earlier than expected.

Source: IPC transcript day 3

The contradiction here is that despite claiming that the net present value of the project is strongly positive, the DPIE representatives concede that the project may not proceed or may cease after commencing. The Cadence/EY assessments make no suggestion that such an outcome is possible. It is clear that the DPIE recommendation to approve the project comes with no consideration of the fundamental economics of the project, or detailed consideration of the place of the project in the coal market.

The DPIE reference to sensitivity testing is disingenuous. Oxford's review devotes two pages to the shortcomings of the Cadence/EY sensitivity testing, the final paragraph of which is worth quoting in full:

Figure 6: Extract from Oxford review on sensitivity testing

As indicated, and although not mentioned in the Guidelines, an additional risk is obviously the question of global demand for coal (and justification for the export of Australian coal) given increasing concerns about global warming impacts. These concerns have been rising in recent years and may well sharpen during the lifetime of the project (2020-2035). Obviously this would affect the financial viability of the TSCP itself, however to the extent that this would also impact on NSW this is also a relevant issue. In short, there is arguably a risk that costs of mine development impact the State but the full benefits (e.g. taxation benefits) are never realised. This may be an issue the Department could further examine.

Source: BIS Oxford Economics (2020) page 15

Conclusion

The analogy of the orphan Oliver Twist to the proponents of the Tahmoor project may be awkward, but the comparison of DPIE officials to Mr Bumble is more apt. Mr Bumble is a beadle, which Wikipedia defines as "a minor official who carries out various civil, educational, or ceremonial duties on the manor." Like Bumble, the Department ignores or punishes those without significant power and complies with more powerful interests. The merits of what is being said is largely irrelevant.

Through tireless advocacy the Gloucester community and the then-Gloucester Council had built strong political momentum against the Rocky Hill mine. The Department hired a well-qualified economist, Nigel Rajaratnam of Centre for International Economics, to argue against the mine and its inflated assessment by Cadence's Steve Brown. The Tahmoor project does not seem to have the same political headwinds and as a result the Department endorses methods of assessment that until recently it opposed.

In our view, the economic value of the project has certainly been overstated and is likely to be negative when environmental impacts and its probably-precarious position in the coal market are considered. It should therefore be rejected.

Whatever the IPC's final decision, we urge commissioners to make a strong statement on economic assessment particularly on the inflated values of worker and supplier benefits. It is worth noting that Deloitte Access Economics, and most other consultants, do not include these values. The following extract is from Deloitte's assessment of the Maxwell coal project:

Figure 7: Deloitte on worker and supplier benefits

For the purposes of the CBA, it is assumed that local suppliers will earn similar margins relative to what they receive under the Base Case such that there are no additional benefits to suppliers in NSW. This is a conservative estimate given that suppliers might otherwise be affected by a decline in mining activity in the region. Similarly, it is also conservatively assumed that, on average, workers employed by the Project would not receive a wage premium. This assumes that workers will receive a net wage consistent with market rates.

Source: Deloitte (2019) Economic assessment of the Maxwell project, page vii

If Cadence/EY's approach to the Tahmoor assessment is accepted, this raises the problem that a project's value will be assessed as being hundreds of millions of dollars higher or lower depending on the consultant engaged. This significantly undermines the planning process and whatever respect the public might have left for the economics profession.