

**Tahmoor South Coal Project (SSD 8445)**  
**Expert Report to Independent Planning Commission**  
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***Introduction***

I have been briefed by the Environmental Defenders Office (EDO) acting on behalf of Undermined Inc to provide an independent expert report in relation to greenhouse gas emissions and the Tahmoor South Coal Project. I have prepared this report in conformance with Part 31 Division 2 and the Expert Witness Code of Conduct in Schedule 7 of the *Uniform Civil Procedure Rules 2005*, and I am willing to be bound by them.

I presented at the Independent Planning Commission (IPC) public hearing held on 17 February 2021.

I am a Professor in Sociology and Politics at the University of Technology Sydney, where I am Director of the Climate Justice Research Centre. I have been working on climate related issues since the mid 2000's and have led two ARC Discovery Projects focused on climate change and energy policy. The first, 2014-18 'Beyond the Coal Rush', focused on approvals for coal mines in Germany, India and Australia. The second, 2018-22, 'Decarbonising Electricity', is focused on the question of social acceptance and legitimacy for renewable energy. I am lead author for the recent book with Cambridge University Press, '*Beyond the Coal Rush: Turning point for Global Energy and Climate policy?*' (Nov 2020).

***Summary***

I focus my comments on the impacts of the Tahmoor South Coal Project (Project) on Green House Gas (GHG) emissions, and consequently on climate change. I suggest that the assessment submitted by the applicant and endorsed by the Department of Planning, Industry and Environment (DPIE) fails to take into account critical impacts of the project. If it were to do so, using its own metric for calculating for per-unit cost of emissions, in my opinion the Project would have to be reassessed as producing a net dis-benefit of more than \$600m. The financial impact cost of abating the Scope 1 and 2 emissions alone is \$378m.

The narrative of GHG impact constructed in the Economic Impact Assessment (EIA) Report from Cadence Economics needs to be rejected. It is highly concerning that SIMEC and its parent company GFG believe it is acceptable to submit such inappropriate information to a public planning process. It beggars belief that DPIE considers the EIA Report to be a credible representation of the GHG impacts of the project.

Furthermore, I suggest that the DPIE report fails to properly assess the opportunity costs of proceeding with the mine. It is claimed the current prices for coking coal will remain static at current levels during the life of the mine and that 40% of the coal will supply the Whyalla steel works, owned by GFG. The move away from coking coal is said by DPIE to be a far-off prospect. Contrary to this account I draw attention to the rapid international move away from coking coal, including by GFG at Whyalla. I suggest the mine will quickly become a stranded asset, creating uncertainty over its capacity to maintain the projected employment levels.

I suggest that the priority should be to plan for transition for workers and communities affected by the mine's closure. The region is not coal dependent: it is a residential growth region on the fringes of Sydney; as a semi-rural zone it may benefit from opportunities for local and regional development in the emerging renewable economy. This offers an immediate planning horizon for the redeployment of existing workforce into the local economy, as currently debated at NSW State level.<sup>1</sup>

## **Background**

### *Planning Approval – an Impact Focus*

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) requires the authorities to focus on assessing the impact of projects, both negative and positive, to arrive at a decision. The 'Objects' of the EP&A Act include 'to promote the social and economic welfare of the community...' and at the same time 'to facilitate ecologically sustainable development...' (s 1.3). To enable this, DPIE requires an 'Environmental Impact Assessment', encompassing the 'economic, environmental and social impacts of the project...'. The focus on impacts is reflected in the Project assessment and also in DPIE's assessment of the Project. As DPIE states, in the assessment report it has 'weighed environmental impacts against socio-economic benefits' (xvi).

### *GHG Emissions – an Impact Focus*

The anticipated impact of climate instability drives the global goal established by the United Nations (UN) at the 2015 Paris Climate Summit, of achieving net zero GHG emissions globally by 2050. That goal is designed to achieve the UN's target of keeping anthropogenic global warming well below 2 degrees Celsius (DegC) and pursuing efforts to limit warming to 1.5 DegC. The UN and the Inter-governmental Panel on Climate Change (IPCC) have undertaken numerous studies into the impacts of increased global warming and have outlined a series of unacceptable impacts. These impacts threaten to tip the global climate system into a period of climate instability that will threaten habitability across the globe. In several respects that threat is especially pronounced for Australia and NSW.

Unfortunately the globe is well short of achieving this goal. At the Paris Summit most countries around the world, including Australia, submitted Intended Nationally-Determined Contributions (INDCs) as the first step towards the net zero goal. In 2018 the UN calculated that those aggregated INDCs would need to be tripled to meet the 2DegC target (UN 2018). The urgency for the globe to ratchet-up 'contributions' to avoid the worst impacts of climate change has been asserted repeatedly.

### *GHG in NSW Policy and Planning*

NSW annual emissions stand at 131Mt carbon dioxide equivalent (CO<sub>2</sub>e) and the proposed Tahmoor South mine would add 10.1Mt annually over its lifetime (2.3Mt Scope 1 and 2 plus 7.8Mt Scope 3). This amounts to 7.6% of the current NSW total emissions (and this proportion would rise as aggregate emissions are reduced). In my opinion, a decision to approve the extension would therefore be in direct contradiction with current NSW policy goal of reducing NSW annual emissions by 35% (on 2015 levels).

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<sup>1</sup> McCarthy, (2021) *Transitioning communities dependent on coal mining in NSW*, Briefing Paper No 1/2021, NSW Parliament.

Further, the necessity to reduce GHG emissions has been recognised within NSW planning decisions, as an imperative to minimise the impacts of climate change. The 2019 Rocky Hill decision of the Land and Environment Court stated clearly that the main reason for considering GHG was the impact that climate change would have in NSW. By taking into account the ‘dire consequences’ of climate change resulting from increased emissions, among other reasons, that court refused the project:

*“...the GHG emissions of the coal mine and its coal product will increase global total concentrations of GHGs at a time when what is now urgently needed, in order to meet generally agreed climate targets, is a rapid and deep decrease in GHG emissions. These dire consequences should be avoided. The Project should be refused.”*

The recent Dendrobium Extension IPC decision, which refused the extension mainly due to the likely impacts of the mine on water supplies, also considered GHG emissions. In its ‘Statement of Reasons’ for refusing the application the IPC stated that the impact of all GHG emissions had to be assessed.

The IPC noted that the economic impact assessment did ‘not include any of the costs associated with coal use in NSW, including scope 3 greenhouse gas emissions’ (para 353). Further, it agreed with the Lock the Gate submission that emissions across Scope 1, 2 and 3 were ‘significant’ (para 301) and needed to be ‘appropriately addressed’ (para 306).

### **Tahmoor South GHG Emissions, an Impact (Re)Assessment**

The proposed mine extension will increase emissions by 94Mt (10.1Mt annually) CO<sub>2</sub>e. The EIS, CBA and DPIE assessment reports all draw a distinction between Scope 1, 2 and 3 emissions. Scope 1 and 2 emissions (28Mt, 2.3Mt annually) arise from the extraction process; Scope 3 (66Mt, 7.8Mt annually) emissions are produced when the coal is burnt.

Under the EP&A Act, planning decisions are made on the basis of project impacts and, as noted, that includes all GHG emissions, including Scope 3.

Regardless of whether a particular unit of GHG emissions is designated Scope 1, 2 or 3, it has the same environmental impact. There is consensus reflected in the Project reports that if the mine extension proceeds then an additional 94Mt GHG will be released into the atmosphere. The impact of the Project on climate change should be assessed on this basis alone.

#### *DPIE assessment*

DPIE acknowledges the legal requirement to assess all emissions, including Scope 3, as ‘required to be taken into consideration by consent authorities’. Yet it endorses the GHG costing of the Project produced in the EIA, that excludes the cost of Scope 3 emissions. In my opinion, this distorts the full impact of the project.

The claimed grounds for excluding Scope 3 are spurious. One claim is that Scope 1 and 2 emissions are ‘within the control of entity’ while Scope 3 are not, and hence not their responsibility. The entity, in this case Tahmoor Coal is proposing to mine the coal that will produce the Scope 3 emissions. Clearly Scope 3 emissions are a direct impact from the Project - if the coal is not mined the Scope 3 emissions would not occur.

The Project’s ‘Green House Gas Assessment’ from ERM suggests that because the Government is not required to report to the UN on Scope 3 emissions then these do not have to be considered by

the IPC. It refers to the National Reporting Framework for GHG emissions, under the UNFCCC, which does not require reporting of Scope 3 emissions. Such reporting requirements enable the attribution of responsibility for emissions nationally and at State/Territory level in Australia, and internationally.

In my opinion, UN reporting requirements are not relevant to the planning approval process: the focus for IPC assessment is project impact not reporting responsibility. The Scope 3 emissions from this project have as much impact on NSW as the Scope 1 and 2 emissions.

There is no dispute that this mine will lead to a total increase in emissions of 94Mt CO<sub>2</sub>e. The fact that some of these emissions are produced by ‘upstream’ energy production to power the mine for instance, and by ‘downstream’ emissions from the burning of the coal, is immaterial. Neither upstream nor downstream emissions would occur if the mine was not to go ahead, hence must be taken as Project impact, *in toto*.

### *Cost of GHG emissions abatement*

The Cadence EIA excludes Scope 3 emissions, and then assesses the cost of abating Scope 1 and 2 emissions. It uses the current cost of abatement as expressed in the Federal ‘Emissions Reduction Fund’ (ERF) as a proxy cost of GHG emissions from the Project. It states the ERF unit cost of AUD\$13.52/ton CO<sub>2</sub>e is a ‘proxy to the marginal cost of abatement’ and then applies this ERF proxy cost to the anticipated Scope 1 and 2 emissions.

The ERF proxy cost is a very rough measure of the cost of carbon abatement. The low price tag reflects what the Australian Federal Government currently is willing to pay for emissions abatement to achieve its very modest INDC. It also reflects the very low cost of expanding carbon sinks in Australia: most of the ERF is spent on improving retention of soil carbon rather than on reducing industrial emissions and, in my opinion, is of questionable worth (not least during drought). Internationally, carbon abatement costs are significantly higher and there is no doubt that abatement costs will rise in Australia in years to come.

### *NSW vs the World?*

Cadence makes a further adjustment to the emissions cost, suggesting the impacts of the emissions are ‘global’, not simply in NSW. It states: ‘climate change is a global issue and a global externality’ and that therefore ‘apportioning all the costs of climate change impacts associated with the proposed development’s greenhouse gas emissions overstates the cost of these impacts to NSW.’ Its solution is to ‘attribute GHG costs based on the NSW population’ as a proportion of global population (Cadence, p. 27).

The NSW population of 7.5 million, is about 0.1% of the global population of 7.8 billion. The 28Mt Scope 1 and 2 GHG emissions associated with the Tahmoor South Coal Project add to global greenhouse gasses and, according to Cadence, only 0.1% of the resulting impact is felt in NSW. That is, only one thousandth of the total 28Mt can be attributable to the project: 0.028Mt, priced by Cadence at \$0.12m.

This adjustment returns us to the issue of impacts but does so in a way that bears no relation to climate realities. Emissions from NSW contribute to warming that affects the globe, not just NSW. It is not possible to seal-off NSW so that it is only affected by global warming in proportion to its population. The impact on global warming of releasing 94MtCO<sub>2</sub>e will be felt regardless of population: impacts are not divided up nationally, and NSW is not ‘apportioned’ a component of global costs.

The EIA is a very creative form of impact minimisation fiction. Cadence begins with the total GHG emissions for the project; Scope 3 emissions are then excluded as not 'attributable' to the mine; a notional 7% discount rate is applied; and these costs are then 'apportioned' only to the NSW population as a proportion of global population. Across the narrative a series of concepts of impacts and responsibility are used interchangeably, with no bearing on the underlying reality of the impact of emissions.

*Abatement cost: \$0.1m, \$378m, or \$1,270m?*

If we use the Cadence estimate of AUD\$13.52/tonne of CO<sub>2</sub>e as proxy for the actual cost of offsetting emissions, we can make a rough estimate of the net cost of GHG emissions from the mine extension. If 94MtCO<sub>2</sub>e is emitted at an abatement cost of AUD\$13.52 then the total estimated emissions cost is \$1,270m. The claimed net benefit of the project is \$666m; if the impact of the Scope 3 emissions is included in overall project cost, as logically it should be, then the project has a net loss of at least \$604m.

The NSW emission reduction target is for emissions produced in NSW. If all the coal is exported either overseas or shipped inter-state to Whyalla (see below) then the Project will add 2.3Mt annually to the NSW total. Current NSW annual emissions are at 131Mt, meaning that the Tahmoor South extension will add 1.8% to the NSW emissions annually at the start of the Project, rising proportionately over time to reach 3% by 2030 (when NSW reaches its 2030 target of a 35% reduction on the 2005 levels of 162Mt., NSW annual emissions will stand at 81Mt; 2.3Mt is 3% of 81Mt).

NSW will effectively be required to abate the additional Tahmoor South emissions annually. Taking the ERF proxy cost, as used in the EIA, abating 2.3Mt will cost the NSW Government \$31m annually. Total Scope 1 and 2 emissions stand at 28Mt, hence the total cumulative cost to the NSW Government of the extension will be \$378m.

The large abatement cost will be embedded in the NSW process of emissions reduction and will be borne by other sectors in the economy. The mine owner will not pay any of the costs associated with GHG emissions from the mine. DPIE accepts the flawed CBA model and its clearly erroneous calculation that the net GHG costs from the project stand at \$0.1M for the life of the project. This creative accounting clearly commits a clear injustice to the people of NSW.

### **Tahmoor South: stranded?**

The Tahmoor South Economic Impact Assessment assumes continued high returns for coking coal into 2035. The Department assumes coal-free steelmaking will be 'unlikely to be available on a commercial scale during the life of the Project'. It further states that 40% of the coal from Tahmoor South extension will supply the Whyalla plant, owned by the GFG Group, parent company for SIMEC (para 48). The 390 ongoing jobs at the mine are assumed to be secure.

A global move away from coal for steel is underway and is likely to occur during the life of this proposed project. In 2020 the International Energy Agency found 'coal use declining in virtually every sector of every region in the world', with a rapid shift to cheap renewables driving the decline. The International Energy Agency in its 'Iron and Steel Roadmap', released in October

2020, predicts that 30% of steel production will be hydrogen-fuelled by 2050.<sup>2</sup> In November 2020 BHP predicted an even faster transition, to 50% green hydrogen by 2050.<sup>3</sup>

### *Green Steel in Australia?*

There are now State-level energy plans being put in place for the decarbonisation of industry, including steel, powered by very cheap renewables. Some states, notably South Australia, are deliberately planning for 200-300% renewable energy in anticipation of a manufacturing boom on the back of cheap renewables and export hydrogen.<sup>4</sup>

The Grattan Institute's 'Start with Steel' report states "the green steel opportunity is both large enough and economically reliable enough to justify policy action... Australia should use the next decade to create a foothold in the emerging green steel market".<sup>5</sup>

There are dangers in being left stranded, dependent on coal for steel in a global context where there is likely to be a heavy premium for 'green steel', and not least to manufacture the new generation of electric vehicles. Such considerations are driving plans for instance being put in place the Baowu-BHP collaboration<sup>6</sup>, and by Thyssenkrupp which plans to open a .4Mt steel plant in Germany by 2025, expanding to 3Mt by 2030.<sup>7</sup>

### *Post-coal steel for Whyalla, 2021-22?*

DPIE claims that 40% of Tahmoor South coal will supply Whyalla to 2035. Yet the GFG Group, parent company for Tahmoor South and of Whyalla, has announced a rapid shift to Green Steel at the plant.

Whyalla will be wholly based on renewables by 2030 but, more important for Tahmoor South, will transition to gas well before then. GFG states the plant 'will be fed by Natural Gas, in time transitioning to green hydrogen'. The move to gas is imminent. As the CEO stated in 2020:

*'We have to-date invested over \$60 million in the engineering and design work for this project and are now ready to take the next steps of finalising funding and commencing construction. We plan to start construction later this year for the mill, and next year in 2021 for the EAF and DRI facilities'.*

Tahmoor South could no doubt find an export market for its coal but even this is not likely to bring the returns expected. The move to gas and then to hydrogen for steelmaking is being replicated across the global industry. The coking coal sector has an uncertain economic future to 2030.

Overall, Australia has a huge potential future as a renewable-hydrogen hub, linked to premium green manufacturing. The opportunity cost of proceeding with the Tahmoor South extension is to delay transition in Australia, and create a 'stranded' coal infrastructure, with local community and workers, left behind by the advent of renewable energy. Anticipating this transition and planning

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<sup>2</sup> <https://www.iea.org/reports/iron-and-steel-technology-roadmap>

<sup>3</sup> <https://www.bhp.com/media-and-insights/prospects/2020/11/pathways-to-decarbonisation-episode-two-steelmaking-technology/>

<sup>4</sup> <https://reneweconomy.com.au/south-australia-names-hydrogen-hubs-to-foster-epic-growth-in-wind-and-solar-63661/>

<sup>5</sup> <https://grattan.edu.au/report/start-with-steel/>

<sup>6</sup> <https://www.bhp.com/media-and-insights/news-releases/2020/11/bhp-partners-with-china-baowu-to-address-the-challenges-of-climate-change/>

<sup>7</sup> <https://www.reuters.com/article/thyssenkrupp-steel-hydrogen-idUSL8N2FU1JN>

for it, in terms of enabling a ‘just transition’ for coal-dependent workers and communities, should be the priority, and, as noted, is now actively on the agenda at the NSW State level.<sup>8</sup>

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<sup>8</sup> McCarthy, (2021) *Transitioning communities dependent on coal mining in NSW*, Briefing Paper No 1/2021, NSW Parliament.