

Attention: Director Energy and Resources Policy
NSW Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

18th August 2021

RE: Hawkins Rumker Preliminary Regional Issues Assessment

Dear Chair and Representatives of the Advisory Body for Strategic Release,

I am writing in relation to the Preliminary Regional Issues Assessment (PRIA) that is considering the release of the Hawkins and Rumker areas for coal exploration.

My submission focuses on three aspects of relevance to the PRIA: 1. Changing global coal markets and the relevance for granting of coal exploration permits, 2. Social and Environmental context of the Hawkins and Rumker areas, and 3. The reserve auction price.

This submission is informed by the knowledge and experience I have gained when conducting research to improve long-term societal outcomes associated with the mining and mineral processing sectors. Currently, I am employed as a Chancellor's Postdoctoral Research Fellow at the University of Technology Sydney, where I develop scenario modelling of mineral and metal supply, as well as work to benchmark and identify opportunities to improve the long-term environmental outcomes associated with mineral supply chains. Prior to this, I was employed in roles at Monash University and CSIRO, where I developed expertise in techno-economic and life cycle assessment of mining, mineral processing and metal production technologies. Through this, I have developed an understanding of mineral markets, as well as how local and regional impacts of mining change through the life of a mine development.

I would like to thank the department and the advisory body for considering my submission. This submission reflects my personal views and does not necessarily represent the views of my employer.

Regards,

Dr Stephen A. Northey
Chancellor's Postdoctoral Research Fellow
University of Technology Sydney

T. +61 (02) 9514 9041
E. stephen.northey@uts.edu.au
PO Box 123 Broadway NSW 2007 Australia
Profile | <https://profiles.uts.edu.au/Stephen.Northey>
Publications | <https://scholar.google.com/citations?user=tgTdN2EAAA&hl=en>

When making recommendations to the minister, I would suggest that the Advisory Body for Strategic Release consider:

1. Changing global coal markets and the relevance for granting exploration permits

- a) The structure of demand for thermal and metallurgical coal has an uncertain future. Currently the majority of primary steel production uses coal as a reductant to remove oxygen from the iron. This produces CO₂ as a consequence and so steel production currently accounts for over 5% of annual greenhouse gas emissions.¹ Due to this, technologies and strategies are being developed to rapidly reduce coal use in the steel sector, with 'green' steel production using hydrogen reduction processes being the most likely alternative. These hydrogen-based processes are likely to begin to offset metallurgical coal demand over the coming decades. Concurrently, demand for thermal coal is increasingly being displaced by the accelerating roll-out of renewable energy technologies, as well as the gradual mothballing of end-of-life coal power plants.

Recommendation: Consider the changing structure of coal demand and the risk of erosion of traditional coal markets, which may substantially impact the profitability of any coal mine that has a long mine life (especially any greater than a decade).

- b) Lead times on exploration and mine development can be significant, with timeframes for exploration, approvals and mine development often ranging from 5 to over 10 years. Given global decarbonisation efforts and changing societal expectations, it is likely that the coal market and the surrounding social context is likely to have significantly changed. This includes the potential for growing public hostility to coal mine development, reduced capital availability for the sector, and also the potential for supporting sectors to be less willing to engage with the coal sector due to the reputational risk.

Recommendation: Consider the long-lead times for exploration and mine development and consider how the social and economic conditions required for coal mine development will have changed over the next 5 or 10 years. As part of this, consider the potential for wasted exploration expenditure due to market and societal conditions no longer being conducive for mine development after exploration, resource/reserve estimation, feasibility studies and regulatory approvals have been completed.

- c) New South Wales has a goal to reach net zero greenhouse gas emissions by 2050.² Under the International Energy Agencies (IEA) Net Zero Emissions by 2050 scenario they modelled a loss of 2.5 million jobs in the coal sector by 2030.³ The IEA also stated that "There is no need for investment in new fossil fuel supply in our net zero pathway."

Recommendation: The advisory board should consider the alignment of releasing new coal exploration areas with the broader goals of New South Wales Net Zero Plan. As part of this, the economic consequences of future coal mine development and how that may differ from historic coal mine development should be considered. Particularly given the risk of stranded assets in the coal sector.

¹ Azadi, M., Northey, S.A., Ali, S.H., Edraki, M. (2020). Transparency on greenhouse gas emissions from mining to enable climate change mitigation. *Nature Geoscience* 13: 100-104. <https://doi.org/10.1038/s41561-020-0531-3>

² NSW DPIE. Net Zero Plan, Stage 1: 2020-2030. <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/net-zero-plan-2020-2030-200057.pdf>

³ International Energy Agency (IEA). Net Zero by 2050, A Roadmap for the Global Energy Sector. <https://www.iea.org/reports/net-zero-by-2050>

- d) There has been significant divestment of coal assets by major mining companies, such as BHP Billiton and Rio Tinto, which on the surface appears to have occurred as a response to changing stakeholder expectations, changing access to capital markets to support coal mine development, increased risk of coal mines becoming stranded assets and general reputational risks for these companies. As a consequence of major mining companies proactively exiting the coal sector and refocusing on other commodities, there is the potential for lower willingness of technical expertise and skilled workforces to engage with the coal sector, as it could be viewed as a career limiting move. Additionally, there has been a significant drop-off in Australian mining engineering graduates that may translate into a significant skills shortage for the broader mining sector.⁴

Recommendation: The advisory board should consider the changing availability of technical expertise and skilled labour that would be willing to work in the coal sector. Particularly in light of the significant decrease in mining engineering graduates over the past decade.

2. Social and Environmental context of the Hawkins and Rumker areas

- a) Research into coal mining development in the Bowen Basin, Hunter Valley and Gunnedah Basin has revealed considerable complexity in how cumulative social and environmental impacts have arisen in these contexts.⁵ Unforeseen impacts can occur when individual developments within a region are approved in isolation, without broader consideration for potential interactions between developments and also other industries or changing environmental responses through time. Research into this issue has emphasised the benefits of strategic impact assessment and land-use planning processes at a regional level that allow for the potential interactions between industry, communities and the environment through time to be more holistically considered.

Recommendation: The advisory board should consider how social and environmental impacts of mining development in the Hawkins and Rumker areas could interact with nearby industries, communities and environmental assets. Additionally, the potential for cumulative impacts if the Gangaddy-Kelgoola area was released for coal mine exploration should be considered.

- b) The Hawkins and Rumker areas are directly adjacent to land that has been reserved under the National Parks and Wildlife Act 1974, where coal exploration and mining is prohibited.⁶ Mining operations, even when well managed, quite often have impacts that extend beyond the boundaries of a mine lease. For underground coal mines, this can include dust outfall from surface processing and coal product transportation, alterations to regional

⁴ Minerals Council of Australia (MCA). Submission to the Australian Curriculum Assessment and Reporting Authority Review of the Australian Curriculum F-10. 8 July 2021.
<https://www.minerals.org.au/sites/default/files/MCA%20Submission%20to%20the%20ACARA%20F-10%20curriculum%20review%20-%208%20July%202021.pdf>

⁵ Franks, D.M., Brereton, D., Moran, C.J. (2010). Managing the cumulative impacts of coal mining on regional communities and environments in Australia. *Impact Assessment and Project Appraisal* 28(4): 299-312.
<https://doi.org/10.3152/146155110X12838715793129>

⁶ Coal mining release and exclusion areas map.
https://www.resourcesandgeoscience.nsw.gov.au/_data/assets/pdf_file/0007/1236976/Coal-mining-release-and-exclusion-areas-map.pdf

groundwater flows and levels due to mine dewatering activities and physical intersection of aquifers by the mining process, pollutant migration through water systems, as well as noise and increased light pollution. These forms of mine site impacts have been known to impact adjacent ecosystems in other mining regions, even for underground mining operations with low levels of surface waste.

Recommendation: The advisory board should consider the proximity of the Hawkins and Rumker areas to sensitive environmental assets, waterways and communities. As part of this, the advisory board could consider the appropriateness of revising the boundaries of any approved exploration areas to ensure that sufficient buffer zones are created between potential future mining leases and sensitive ecosystems or land-use types.

3. The reserve auction price.

- a) Reserve auction prices should be set at a level that appropriately reflects exploration risks, mine development costs, market conditions, potential damage to natural assets and community cohesion, and the expected return to the state through royalties and taxation. Globally fossil fuel subsidies have contributed significantly to reduced rates of global greenhouse gas emissions reduction.⁷ Although not meeting the strict definition of a subsidy, setting low reserve auction prices for coal exploration releases acts in much the same way as a subsidy – as it can incentivise investment in the fossil fuel sector that would not have occurred if prices were set at appropriate levels.

Recommendation: Should the Hawkins and Rumker areas be released for coal exploration, the advisory board should consider the appropriate levels for the reserve auction price in light of the broader goals of the NSW Net Zero Plan and the global need to reduce subsidies to the fossil fuel sector.

--- End of Submission ---

⁷ Coady, D., Parry, I., Le, N.-P., Shang, B. (2019). Global Fossil Fuel Subsidies Remain Large: An Update Based on Country-Level Estimates. International Monetary Fund (IMF), Working Paper No. 19/89. <https://www.imf.org/en/Publications/WP/Issues/2019/05/02/Global-Fossil-Fuel-Subsidies-Remain-Large-An-Update-Based-on-Country-Level-Estimates-46509>