Climate Change Balmain-Rozelle
PO Box 890
Rozelle NSW 2039
w: climatechangebr.org
e: ccbalroz@gmail.com
ABN: 31 258 840 648

To Department of Planning

Ulan Modification 6 - underground mining extension MP08_184 Mod6

Submission

Climate Change Balmain-Rozelle (CCBR) is an independent community group in inner west Sydney with over 1000 supporters. We campaign to promote local and national action to reduce fossil fuel use, increase the adoption of renewable energy, and head off catastrophic global warming.

Recommendation

That the extension proposed for the Ulan Coal Complex be rejected.

Key points

- Extension of coal mine operations until 2035 is incompatible with the need to reduce carbon emissions urgently to avoid worsening impacts of climate change
- Underground mining contributes to cumulative groundwater drawdown causing ecological damage
- Surface activities further impact vegetation communities, and habitat for endangered birds and mammals
- The net benefit to NSW has been overstated because the social cost of carbon pollution has been greatly underestimated and the cost inappropriately apportioned
- The total resulting greenhouse gases from the project would significantly harm the Australian environment, for example the Great Barrier Reef.

Our more detailed explanation of these points follows.

Submission prepared by A Michaelis and D Bolton
on behalf of CCBR Committee

14 December 2022

Extending a coal mine until 2035 exacerbates the climate crisis

The Modification Report from Glencore blandly states that it has "strengthened its commitment to reducing its total emission footprint", and restates its commitment to "be a net-zero emissions company by 2050". But the comments in the Executive Summary on Greenhouse Gas and Energy propose no action to reduce emissions at Ulan beyond "ongoing energy initiatives and optimising productivity" – in other words, no method to offset the extra emissions from extracting an extra 25 million tonnes of coal over an extra 2 years of operation.

The comments emphasise that the Scope 3 emissions dwarf the Scope 1 and 2 emissions, suggesting that those Scope 1 and 2 emissions are therefore insubstantial and should be ignored. Scope 1, 2 and 3 emissions will increase if this extension is granted.

If every coal miner took the attitude (and most do!) that their mine causes only a fraction of NSW emissions, and therefore its contribution should be ignored, we will never reduce any emissions from coal mining in NSW until we stop mining coal completely. And yet Scope 1 and 2 GHGs from coal mining in NSW in 2019-20 were 18.6 Mt CO2-e. This is **approximately 14% of all of NSW's GHG inventory**.

Reference: NSW Legislative Council, QUESTIONS AND ANSWERS No. 809 FRIDAY 19 AUGUST 2022, pg 16, 9330 ENERGY—GREENHOUSE GAS EMISSIONS FROM COAL MINES—Mr Justin Field to the Minister for Finance, and Minister for Employee Relations representing the Treasurer, and Minister for Energy—, https://www.parliament.nsw.gov.au/hp/housepaper/28717/QuestionsAndAnswers-LC-809-20220819-Revised.pdf

In the meantime, the International Energy Agency in May 2021 called clearly for no new coal and gas projects to be begun if the world is to have a chance of keeping below 15 ℃ of global heating.

> Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway [to net Zero by 2050], and no new coal mines or mine extensions are required.

NSW in 2022 is already experiencing severe greenhouse gas impacts, for example catastrophic flooding which can be attributed to increased rainfall from increased atmospheric temperatures. Continued extension of our coal industry is incompatible with a sensible response to the climate emergency.

Surface activities impact endangered vegetation and fauna habitat

The Modification Report admits that the extension "would result in some direct impacts on biodiversity values (i.e. loss of native vegetation and fauna habitat through clearing) within the areas associated with the construction of the proposed surface infrastructure (27.4 hectares). Of this area, 9.5 hectares has been assessed as vegetation consistent with the Box Gum Woodland Critically Endangered Ecological Community (CEEC)".

Creating offset credits is not adequate: the Box Gum Woodland is Critically Endangered because there are very few equivalent identical communities, and these should be preserved anyway. We cannot go on pretending that vegetation communities can be both critically endangered and also in such abundance that we can find identical communities waiting around to be conserved,

The NSW Office of Environment and Heritage reports of this community that "Remnants support many species of threatened fauna and flora" and also comments on their economic value:

> Retention of remnants is important as they contribute to productive farming systems (stock shelter, seed sources, sustainable grazing and water-table and salinity control). The fauna of remnants (insectivorous birds, bats, etc) can contribute to insect control on grazing properties.

Reference: https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10837

Underground mining contributes to cumulative groundwater drawdown

The Ulan mining complex covers over 120 sq km of sensitive environments and straddles the Great Dividing Range. The Modification Report acknowledges "... changes in the groundwater interception of the underground mining area associated with the additional mining area" and notes "this includes an increase in the groundwater drawdown area, reflecting the increase in mining area".

Local sources (MDEG Mudgee District Environment Group) suggest that the iconic groundwater dependent ecosystem on the Goulburn River known as the Drip is incorrectly described in the Modification Report with no recognition of the connection to the regional groundwater system.

As with carbon emissions, and land subsidence, when many mines operate in an area the impact is cumulative, and is not adequately assessed by a mine-by-mine analysis.

The net benefit to NSW has been overstated

We find that a fair cost of the scope 1 & 2 emissions puts the carbon cost at $38m, not $19,000.

The Proposal's Economic Assessment puts the Net Present Value cost of its 0.38Mt CO2-e of scope 1 & 2 emissions at $19,000. This is based on a carbon price of $76/tCO2e, rising to $95 over the life of the project, and a discount rate of 7%. That may be a suitable rate for speculative income, but various studies on greenhouse gas costs have arrived at an appropriate discount rate of 2%-3% and a Social Cost of Carbon of USD200-USD3000.

References: *http://piketty.pse.ens.fr/files/DruppFreeman2015.pdf*
https://iopscience.iop.org/article/10.1088/1748-9326/ab3cc9
https://www.lse.ac.uk/granthaminstitute/explainers/what-are-social-discount-rates/
*Kikstra, Jarmo S.; Waidelich, Paul; Rising, James; Yumashev, Dmitry; Hope, Chris; Brierley, Chris M. (2021-09-06). "The social cost of carbon dioxide under climate-economy feedbacks and temperature variability". Environmental Research Letters. **16** (9): 094037. Bibcode:2021ERL....16i4037K. doi:10.1088/1748-9326/ac1d0b. ISSN 1748-9326.*

More egregiously, this world cost in the Economic Assessment has then been apportioned to NSW in proportion to its fraction of world population to arrive at a trifling $19,000 cost. A simple thought experiment demonstrates that this is completely unjustified. Why not substitute electorate for State? The economic income would remain the same, but the greenhouse gas costs would dwindle yet further .

The NSW Independent Planning Commission has recognised that the entire cost of carbon should be deducted from the calculated benefit to NSW.

Reference: NSW Department of Planning, *Narrabri Underground Mine Stage 3 Extension Project (SSD 10269), Assessment Report,* p xii

Assuming the rate of increase of carbon price roughly matches a suitable discount rate, and allowing a modest $100/t carbon price today, puts the carbon cost at $38m. This eats significantly into the net benefit claimed to NSW of $292m.

Greenhouse gas effects will significantly harm Australia's environment

The greenhouse gas effects of these emissions would cause significant harm to the health and biodiversity of areas in which Australia has international obligations: World Heritage sites including the Great Barrier Reef, and Ramsar wetlands.

Climate Sensitivity

Climate sensitivity (ECS) is the number of degrees Celsius that Earth's surface warms for each doubling of atmospheric CO_2.

The IPCC Sixth Assessment Report (AR6) stated that there is high confidence that ECS is within the range of 2.5°C to 4°C, with a best estimate of 3°C.

Reference: *https://en.wikipedia.org/wiki/Climate_sensitivity#Measures*

Atmospheric carbon now

Current carbon content of the atmosphere is 884Gt. (That is just the carbon atoms, not the oxygen in the CO_2. Greenhouse gas emissions are measured the same way.)

Impact of one additional Gt on temperature

From the above, we can calculate that additional CO_2e will raise Earth's surface temperature at a marginal rate of 3°C x $\log_2(1+1/884)$ = 0.005°C per Gigatonne.

Impact of temperature rise on the Reef

The consensus is that a 1.5°C rise is now unavoidable. Going to a 2.0°C rise will pretty much destroy the reef.
Reference: *https://www.theguardian.com/environment/2021/nov/30/confronting-great-barrier-reef-faces-frequent-extreme-coral-bleaching-at-2c-heating-research-finds*

A rise of 0.005C is 1% of the additional rise to go from 1.5°C to 2.0°C. Since the GBR has an area of 348700km^2, we can think of that as meaning that each additional $GtCO_2e$ destroys, on average, 3487km^2. Note that for these purposes emission scopes 1, 2 and 3 are all relevant.

Project	Emissions scope	mtC02e released	Planetary warming °C	Warming as a percentage of the 0.5°C rise from 1.5°C to 2.0°C	km² of GBR destroyed
Ulan Mod 6	scope1+2	0.38	0.000002	0.0004%	1
	scope 3	64.60	0.000316	0.0633%	221
	total	*64.98*	*0.000318*	*0.0636%*	*222*

Other environmental impacts from the Greenhouse Gas emissions

It is likely that analyses similar to that above regarding the Great Barrier Reef would demonstrate significant environmental impacts on other Australian marine and terrestrial flora and fauna, through direct effects of the warming and through consequential floods, droughts and bushfires. It would be appropriate to seek such assessments from the experts before approving the proposals.