LOCK THE GATE ALLIANCE

AUSTRALIANS WORKING TOGETHER TO PROTECT OUR LAND, WATER, AND FUTURE

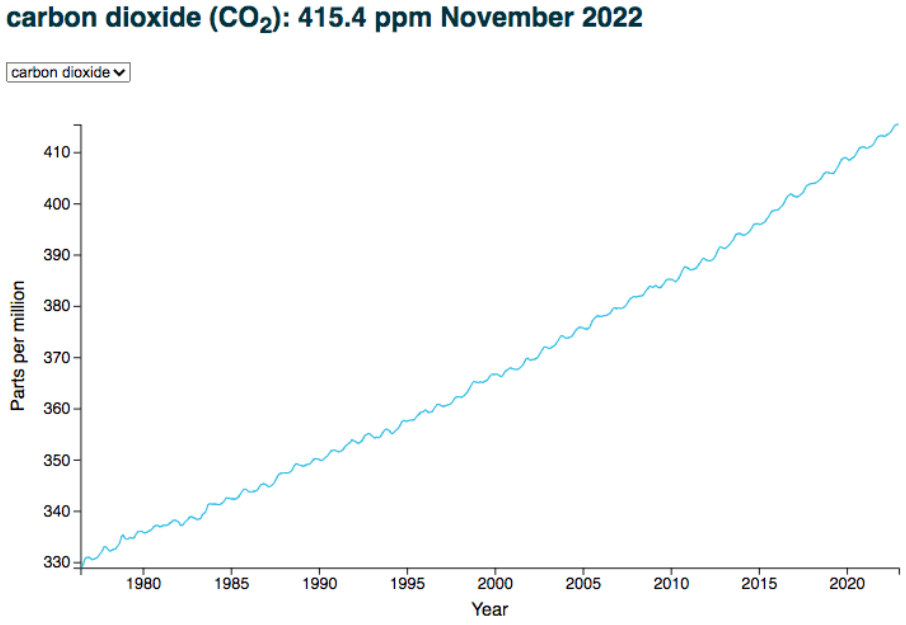
Ulan Coal Modification 6 - Underground Mining Extension - EIS Submission

15 December 2022

Thank you for the opportunity to make a submission on the EIS for the Ulan Coal Modification 6 - Underground Mining Extension.

Lock the Gate Alliance **objects** to this project to extend underground mining by two years to 2035 to mine an extra 27.5 Mt of ROM coal.

Please note that due to time and capacity constraints, we are only able to make brief comments on the greenhouse gas issues associated with this development. As an opening comment, we note that global heating will not stabilise at any temperature until the world gets to net zero. Approval of this Project - which would add ~65 Mt CO2-e in lifetime emissions - is not consistent with the goals of the Paris Agreement. We note that in 2016, the NSW Government endorsed the Paris Agreement and pledged *to "take action that is consistent with the level of effort to achieve Australia's commitments to the Paris Agreement."*[1] Approval of new coal capacity in NSW which adds to NSW and global GHG emissions is consistent with global CO2 emissions continuing to rise.



Source: Cape Grim Greenhouse Gas Data, https://capegrim.csiro.au/

[1] NSW Climate Change Policy Framework, November 2016, https://www.energy.nsw.gov.au/sites/default/files/2022-08/nsw-climate-change-policy-framework-160618.pdf

Summary

1. This expansion - if approved - would add additional lifetime Scope 1 emissions of 130,000 t CO2-e and Scope 2 GHGs of 247,000 t CO2-e to the NSW GHG inventory between 2033 and 2035, with no credible plan proposed to abate these emissions. "The majority of Scope 1 emissions will be generated by the ventilation system releasing coal mine waste gas."[2] In summary, another 2 years of mining will add ~377,000 t CO2-e in Scope 1 and 2 emissions, with a further 64.6 Mt CO2-e in Scope 3 emissions. These are significant new emissions and should not be permitted.

   As former Chief Scientist of Australia, Professor Penny Sackett recently stated (see below), "the effects of climate change … are already serious; more than that, they are in fact dangerous… Every tonne of GHG emission leads to (more) dangerous warming."

2. If this Project is approved, this modification proposes to generate approximately 247,000 t CO2-e of additional Scope 2 emissions. This cannot be allowed. As a minimum, these emissions must be abated via the purchase of 100% renewable energy for this mine.

3. Glencore state in their Ulan Coal Air Quality and Greenhouse Gas Management Plan that: **"It may be technically possible to install a thermal flow reversal reactor (TFRR) to oxidise low methane concentrations in the air flow exhausted from the underground ventilation system**, however, an equivalent investment at a gassy site would generate a better greenhouse gas control outcome for GCAA and the environment."[3] This Project would generate an additional 130,000 t CO2-e of Scope 1 emissions, with the majority of these being generated by the ventilation system. If this Project is approved, the proponent must be required to install and operate a TFRR (or similar) system to abate these emissions. In their Response to Submissions, NSW DPE should require Glencore to explain - in detail - their considerations regarding whether VAM abatement would be possible and practical in the circumstances. They must also be required to explain - in detail - the mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements that the installation and operation of VAM abatement / TFRR would deliver at this mine. Where claims are made by Glencore about the viability and cost of VAM abatement, evidence should be provided to substantiate these claims.

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[2] ULAN COAL MODIFICATION 6 – UNDERGROUND MINING EXTENSION Modification Report, Nov 2022, https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=MP08_0184-MOD-6%2120221117T095920.971%20GMT

[3] Glencore, 11 Jan 2021, Ulan Coal Air Quality and Greenhouse Gas Management Plan

4. As summarised in Table 1 (below), a steady stream of expert reports over the last two years or so highlights the folly of ongoing approvals of any new coal expansions in NSW, including this expansion:

    a. The Australian Academy of Science called for an **acceleration of Australia's transition to net zero**

    b. The International Energy Agency declared that **no new oil, coal or gas projects can be developed anywhere in the world** if we are to meet the Paris Agreement's 1.5 degree temperature goal.

    c. UNEP's 'Production Gap Report' - produced in collaboration with the UN Environment Programme (UNEP) – found that global coal production **"must start declining immediately and steeply to be consistent with limiting long term warming to 1.5°C."**

    d. NSW EPA's NSW State of the Environment 2021 report found that **key trends and indicators are "getting worse"** including annual mean temperature, sea level rise

    e. The Australian Government's 'Australia state of the environment 2021' found that "[o]verall, the state and trend of the environment of Australia are poor and **deteriorating as a result of increasing pressures from climate change**, habitat loss, invasive species, pollution and resource extraction."

    f. The CSIRO found recently that "Global emissions have risen sharply over the past few decades and time series data do not yet show indication of decline."

    g. The Climate Council released The Great Deluge: Australia's New Era Of Unnatural Disasters detailing the rapidly increasing costs of extreme weather.

        i. Storms and floods that affected Southeast QLD and coastal NSW in February and March 2022 caused $5.56 billion in insured losses

        ii. Extreme weather events over the past 12 months cost every Australian household, on average, $1,532. This figure is expected to jump to more than $2,500 a year by 2050.

        iii. The Feb-March 2022 floods in New South Wales badly damaged transport infrastructure costing at least $1.5 billion

5. The Ulan Coal Modification 6 - Underground Mining Extension will exacerbate the impacts of climate change and would take NSW in the wrong direction, adding to the state's GHG inventory at a time when costs from extreme weather events exacerbated by climate change are rising and urgent and deep reductions in GHG emissions are required.

6. One of Australia's most prominent economists - Nicki Hutley - says that the social cost of carbon (SCC), sometimes referred to as the 'damage cost' estimate, is considered perhaps "the single-most important economic concept in the economics of climate change." Professor Penny Sackett found earlier this year that the Social Cost of Carbon could be valued at about $600 AUD per tCO2. On this basis, the social cost of the climate damage likely to arise just from this Project's additional 377,000 t CO2-e in Scope 1 and 2 emissions would be approximately $226M. This is a hefty price for the global community to pay just for Glencore to extract this coal. The social cost of the Scope 3 emissions would be additional to this cost.

GHG issues with the existing mine

There is no evidence that Scope 1 and 2 emissions at the existing mining operation are being mitigated by the implementation of 'reasonable and feasible' measures. Our analysis of Annual Review data has found that:

- Ulan Coal has the 2nd highest Scope 2 emissions of any coal mine in NSW (2nd only to South32's Bulli Seams / Appin mine).
- Scope 2 emissions at Ulan increased - year on year - for the last three years in a row.
- Despite Scope 2 emissions being the simplest GHG emissions for coal mines to abate by purchasing renewable energy, there is no evidence that this is being considered either at the existing mining nor for the proposed modification.
- VAM abatement appears to have been dismissed on the basis that abatement of VAM emissions at other Glencore mines might have a higher impact; not on the basis of whether or not this is a 'reasonable and feasible' measure at Ulan.

Ulan Coal Mines - underground and open cut	2018/19	2019/20	2020/21
Scope 1 (tCO2-e)	59,829	36,147	41,154
Scope 2 (tCO2-e)	133,908	147,057	151,559
Total (Scope 1 and 2)	201,825	183,205	192,713
ROM coal production	12,623,841	11,166,859	12,511,000
Emissions intensity per t ROM coal	0.016	0.016	0.015

Methane emissions

Methane emissions globally are rising

Just last month, The BOM and CSIRO released State of the Climate 2022. The report found that in 2020 and 2021, atmospheric methane concentration increased by 13 and 20 ppb, respectively. "Increases of these sizes are unparalleled in three decades of direct atmospheric measurements."

Australia has joined the pledge to cut methane emissions by 30% by 2030

In October 2022, Australia joined the Global Methane Pledge: a voluntary commitment (122 signatories so far) working to reduce global methane emissions across all sectors by at least 30% below 2020 levels by 2030.

NSW is NOT on track to cut coal mine methane emissions by 30%

In NSW, current efforts to reduce methane emissions from coal mining are not aligned with the 30% reduction goal of the methane pledge. Under the 'current policy scenario' in the 'NSW Greenhouse Gas Emission Projections, 2021−2050', fugitive emissions from coal mines (open cut and underground) are projected to reduce by 13% from 11.63 Mt CO2-e in 2020 to 10.1 Mt CO2-e by 2030.

A 30% cut in methane emissions should be considered a minimum goal for methane abatement at Ulan. We note the IEA - in their Net Zero by 2050 report - called for the "elimination of all technically avoidable methane emissions by 2030". The IEA modelled a 75% fall in methane emissions from fossil fuels between 2020 and 2030 as result of "a concerted global effort to deploy all available reduction measures and technologies".

Does it matter if NSW's coal mine emissions abate either: a) slowly, at a pace driven by coal-industry self interest; or b) not at all?

Former Chief Scientist of Australia, Professor Penny Sackett recently provided expert evidence to the NSW IPC as a submission on the recently approved Mt Pleasant Optimisation Project:

> "the effects of climate change – which are caused by anthropogenic GHG emissions – are already serious; more than that, they are in fact dangerous. Furthermore, some of these effects are already irreversible and more will become so with even relatively small amounts of additional warming beyond that of 1.5°C, which is already locked in.
>
> Every tonne of GHG emission leads to (more) dangerous warming. It is not possible to know which amount, from which source, will precipitate environmental subsystems, including those in NSW, to tip irreversibly. In this context, the Precautionary Principle certainly applies."[4]

Every viable tonne of GHG abatement of Scope 1 and 2 emissions from coal mining in NSW counts.

Glencore is failing to implement all 'reasonable and feasible' abatement measures across its NSW coal mine operations

[4] Dr Penny Sackett, Distinguished Honorary Professor, ANU Institute for Climate, Energy and Disaster Solutions, 14 July 2022, 'Expert Report Regarding the Greenhouse Gas and Climate Implications of the proposed Mt Pleasant Optimisation Project (SSD - 10418)', pg 115

Total Scope 1 and 2 emissions at Glencore coal mines in NSW

- In the last FY, Glencore was responsible for emitting **3,143,638 t-CO2e** of Scope 1 and 2 GHG emissions to extract and process coal in NSW.

Scope 2 electricity emissions at Glencore coal mines in NSW

- By purchasing 100% renewable energy immediately to power its 10 coal mines in NSW, Glencore could reduce Scope 2 emissions to zero.
- A 100% renewable energy buy would reduce total Scope 1 and 2 emissions at the groups' 10 NSW coal mines by ~14% (~441,548 t CO2-e per annum). This measure alone, would abate ~3,532,384 t CO2-e between now and 2030 if implemented across Glencore's portfolio of coal mines in NSW.
- Scope 2 electricity emissions should really be quite simple to abate by buying 100% renewable energy through the grid. There is no evidence that Glencore has or is considering the purchase of renewable energy.

Diesel emissions

- Electrification of light vehicles or use of biodiesel may meet the 'reasonable and feasible' test, however there does not appear to be any evidence that either of these options is currently being considered by Glencore at their coal mines in NSW.
- In their 'Pathway to net zero 2021 progress report', Glencore pledge that in "the near-term, we will consider deploying existing fleet electrification technologies at our large open-pit operations that are connected to national grids already utilising renewable energy sources."
- Lock the Gate is not aware of any concrete plans that Glencore has to begin the electrification of their mining vehicles at Ulan.

VAM systems not being considered

- In Glencore's methane emissions fact sheet (Sydney, 6 July 2022), Glencore ask: "What are we doing to reduce emissions?" They answer this question by stating that "[e]ach of our operations continues to look at ways to reduce emissions."
- At Glencore's Ulan mine, Glencore state in their Ulan Coal Air Quality and Greenhouse Gas Management Plan that **"It may be technically possible to install a thermal flow reversal reactor (TFRR) to oxidise low methane concentrations in the air flow exhausted from the underground ventilation system**, however, an equivalent investment at a gassy site would generate a better greenhouse gas control outcome for GCAA and the environment."[5]
- Despite Glencore's assessment that this technology could provide significant mitigation at a "gassy site", there is no evidence at all that Glencore are considering installing this system at any of their gassy sites.

[5] Glencore, 11 Jan 2021, Ulan Coal Air Quality and Greenhouse Gas Management Plan

Table 1: GHG context - Ulan Coal MOD 6

Date	Recent developments in GHG mitigation, policy, science and awareness and costs of inaction on climate in NSW
March 2021	The Australian Academy of Science called for an **acceleration of Australia's transition to net zero** greenhouse gas (GHG) emissions over the next 10 to 20 years.
May 2021	The International Energy Agency declared that **no new oil, coal or gas projects can be developed anywhere in the world** if we are to meet the Paris Agreement's 1.5 degree temperature goal.
August 2021	The IPCC released part 1 of it's Sixth Assessment Report 'Climate Change 2021: The Physical Science Basis', finding that there's a finite amount of carbon left in our 1.5 degree carbon budget and that **at current levels of CO_2 emissions this 'carbon budget' would be used up within ~11.5 years**.[6]
October 2021	'Production Gap Report' - produced in collaboration with the UN Environment Programme (UNEP) – finds that global coal production "must start declining immediately and steeply to be consistent with limiting long term warming to 1.5°C." To be consistent with limiting warming to 1.5°C, the UNEP reports finds that **global coal production "would have to decrease by around 11% … each year** between 2020 and 2030."[7]
November 2021	The Global Methane Pledge to collectively reduce methane emissions by at least 30% below 2020 levels by 2030 was launched at COP26.[8]
December 2021	The NSW Minister for Planning published new Planning Principles which declared that the *"NSW Government recognises the need for **urgent and deep reductions in greenhouse gas emissions**"*. The Principles propose action and guidance that should result from this concern, with a common-sense directive that the *"planning system must promote strong action towards reducing carbon emissions."*
	The NSW Government announced a decision on 4 December 2021 not to proceed with new coal exploration west of the Blue Mountains (Hawkins Rumker). The gov't declared in their PRIA that *"the expected demand for thermal coal is … expected to decline and at a rate faster than anticipated"*.
January 2022	The US National Oceanic and Atmospheric Administration (NOAA) find that **methane concentrations in the atmosphere raced past 1,900 parts per billion in 2021, nearly triple pre-industrial levels**.

[6] https://www.carbonbrief.org/in-depth-qa-the-ipccs-sixth-assessment-report-on-climate-science
[7] SEI, IISD, ODI, E3G, and UNEP. (2021). The Production Gap Report 2021, pg 12, http://productiongap.org/2021report
[8] https://www.iea.org/reports/global-methane-tracker-2022/the-global-methane-pledge

	Scientists say the grim milestone underscores the importance of a pledge made at last year's COP26 climate summit to curb emissions of methane, a greenhouse gas at least 28 times as potent as carbon dioxide.[9]
February 2022	NSW EPA releases the NSW State of the Environment 2021. The report finds that for NSW, the following trends and indicators are all "getting worse": 1) annual mean temperature (present); 2) sea level rise (present); 3) annual mean temperature (2070): projected outcomes; and 4) sea level rise (2070): projected outcomes.
	The International Energy Agency released Global Methane Tracker 2022 on 23 February 2022. The IEA places a very high value on "cutting the world's methane emissions by 30% over the next decade", finding that such action would have the same mitigating effect on global heating by mid-century "as immediately shifting the global transport sector to net zero CO_2 emissions."[10]
	IPCC Working Group II release their 'Climate Change 2022: Impacts, Adaptation and Vulnerability' report which finds that "[t]o avoid mounting loss of life, biodiversity and infrastructure, ambitious, accelerated action is required to adapt to climate change, at the same time as making rapid, deep cuts in greenhouse gas emissions."
July 2022	The Australian Government releases 'Australia state of the environment 2021' which finds that "[o]verall, the state and trend of the environment of Australia are poor and deteriorating as a result of increasing pressures from climate change, habitat loss, invasive species, pollution and resource extraction."
	CSIRO release their 'once-in-a-decade report' Our Future World that identifies seven global megatrends that hold the key to the challenges and opportunities ahead. The report finds that "Global emissions have risen sharply over the past few decades and time series data do not yet show indication of decline."
Oct 2022	Australia joins Global Methane Pledge: a voluntary commitment (122 signatories so far) working to reduce global methane emissions across all sectors **by at least 30% below 2020 levels by 2030**.
	UNEP releases Emissions Gap Report 2022: The Closing Window – Climate crisis calls for rapid transformation of societies. The report finds: ● Climate pledges leave the world on track for a temperature rise of 2.4-2.6°C by the end of this century

[9] Nature, 08 February 2022, Scientists raise alarm over 'dangerously fast' growth in atmospheric methane, https://www.nature.com/articles/d41586-022-00312-2

[10] https://www.iea.org/reports/global-methane-tracker-2022/overview

	• Updated pledges since COP26 in Glasgow take less than one per cent off projected 2030 greenhouse gas emissions; 45 per cent is needed for limiting global warming to 1.5°C
Nov 2022	The BOM and CSIRO release State of the Climate 2022. The report finds that in 2020 and 2021, atmospheric methane concentration increased by 13 and 20 ppb, respectively. “Increases of these sizes are unparalleled in three decades of direct atmospheric measurements.“
	The Climate Council release The Great Deluge: Australia’s New Era Of Unnatural Disasters. The report details the rapidly increasing costs of extreme weather. The Insurance Council of Australia estimates that the storms and floods that affected Southeast Queensland and coastal New South Wales in February and March 2022 caused $5.56 billion in insured losses from more than 236,000 claims (ICA 2022b). Collectively, they were Australia’s costliest floods ever.