

Submission on Russell Vale Underground Expansion Project (MP09_0013)

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EXECUTIVE SUMMARY

We **object** to the Russell Vale Underground Expansion Project Revised Preferred Project Report proposal.

The purported economic benefits of the project are unlikely to be realised, due to technical competence of the proponent, their non-compliance and their precarious financial position.

The strategic value of the Special Areas is of paramount concern. The most important land use here is as a water catchment.

The ecosystems of the Special Areas are of crucial importance, not merely in their own right, but for the role they play in catchment integrity.

The instability of the triple seam mining environment makes impacts highly unpredictable. Recent testimony by the Resources Regulator Chief Subsidence Engineer is crucial to this issue. We are “in the dark” about pillar stability. A decision to defer investigation of Bulli seam pillar instability to post-approval stage is unacceptable and would undermine public confidence in the Major Projects approval process.

INTRODUCTION

POWA is a Wollongong- based, grassroots organisation committed to protecting Greater Sydney Water Catchment from the damage and degradation that is being caused by mining.

We maintain that the Special Areas should not only be off limits to the public, but also protected to the centre of the earth from extractive industries.

We **object** to the Russell Vale Underground Expansion Project Revised Preferred Project Report proposal.

DAMAGE TO GREATER SYDNEY WATER CATCHMENT

Risky Mining in our water catchment

The mining will take place in the Special Areas of the Greater Sydney Water Catchment – areas that forbid public access because of their sensitivity and strategic importance - and up to the shores of the Cataract Reservoir. If the public is forbidden to enter the Special Areas, mining companies should certainly be forbidden from entering and undermining it.

Mining in the Schedule 1 Special Areas has multiple damaging impacts including: subsidence; cracking (both subsurface and seam to surface); water contamination with metals leached from cracked rock surfaces; disturbance due to access by mining staff and vehicles and building of infrastructure such as mine ventilation shafts; and, displacement and loss of surface and ground water.

We refer the Panel to the Open Letter to the Premier of NSW Regarding Coal Mining in the Schedule 1 Special Areas of the Sydney Drinking Water Catchment, 18/5/20¹ which outlines concerns from 20 scientists who are truly independent of the mining industry – being not on the payroll of a mining company in any way, shape or form. The letter critically reviews the Reports of the Independent Expert Panel on Mining in the Catchment and writes:

“to urge an ongoing suspension of the approval processes for any further planning applications or post-approval plans (Subsidence Management Plans and Extraction Plans) for mining in the Schedule 1 Special Areas of the Sydney Drinking Water Catchment.”

Damage to Upland Swamps

We urge the Panel to incorporate an understanding of the role of upland swamps in maintaining catchment water quality and quantity. The IEPMC has Ann Young as an esteemed member, who has devoted four decades to researching the upland swamps and authored the book *Upland Swamps in the Sydney Region* (2017). These "Highly patterned wetland mosaics and ecological islands (are) hydrological sinks within the drier landscape matrix" (p. 55 - citing the work of David Keith and Tanya Mason) . "Monitoring by coal companies in both the Southern and Western Coalfields has continued to show that the water table in upland swamps drops to below the bedrock base of the swamps within weeks of undermining and does not recover to its pre-mining position except very briefly after heavy rainfall". (p.5) This issue of swamp damage has not been adequately addressed by the Department of Planning, Infrastructure and Environment (DPIE)'s Final Assessment Report (FAR).

The DPIE's characterisation of the project as "non-caving first workings" is inaccurate for at least two reasons: firstly, the fact that 25m of longwall 6 will be extracted using longwall method to retrieve the abandoned longwall machine; and secondly, the unstable state of the remaining pillars in the overlying Bulli Seam workings, as referred to in the Panel's meeting with the Resources Regulator on 13 October, 2020.

The state and location of the euphemistically named "marginally stable" (in other words **unstable**) pillars in the Bulli seam workings is largely unknown.

As submitted by Dr Ann Young to the Russell Vale PAC Review 2015: *"In short, the swamps are damaged by undermining, and their capacity to store water for long periods is reduced. This must have cumulative impacts on baseflow to the catchment."*²

¹ <https://sites.google.com/site/specialareasconcerns/>

² Russell Vale Underground Expansion Project PAC Hearing, 3rd February 2015 Notes for comments by Dr Ann Young, p.3 <https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2014/12/russell-vale-colliery-underground-expansion-project-review/submissions--presentations/6-ann-young-comments-to-pac-215pdf.pdf>

Board and Pillar Mining

The issue of unstable pillars should not be glossed over in this approval and relegated to the extraction plan stage

Longwall 4 was commenced under a Subsidence Management Plan (SMP) under Part 3a transitional legislation. The prediction for longwall 4 subsidence was 30cm, but the actual subsidence was 1.78m.³ That subsidence was **8 times higher than predicted** demonstrates, firstly, the inherent risk in this 3 tier mining environment and, secondly, that the SMP/Extraction Plan approval process failed to bring sufficient rigour to the assessment.

We know that the effects of triple seam mining are difficult to predict⁴. Russell Vale is the only mine in the Southern Coalfields to attempt it and the impacts of longwall 4 prove that triple seam mining is too risky for an area of such strategic importance. It doesn't matter whether it is bord and pillar or longwall; "adaptive management" approach and "Trigger Action Response Plan" (TARP) have failed to protect the catchment.

An understanding of the stability of Bulli seam pillars is a prerequisite for assessment of the proposal, especially as it has been presented by the DPIE as "non-caving first workings". We request that the IPC refuse consent and recommend at least a full independent investigation to establish the location and the condition of all the Bulli seam workings east of Cataract Reservoir, with particular attention to pillar stability **before** any further proposals for mining Wonga East are considered.

Ecological Impacts and Biodiversity

Both federal and state agencies have deemed the unique ecology within the lease area worthy of statutory protection, this obliges land managers and decision makers to take careful consideration of the ecological impact on Endangered Ecological Communities and Threatened Species. Rather than single out the individual species at risk, the Panel ought consider the totality of the system. Like a coral reef this area is a biodiversity hotspot. "The swamps are species-rich, partly because of the mosaic of plant habitats. In O'Hares Creek catchment, over 240 species were identified within the swamps".⁵

The proponents believe that impacts will be negligible; that subsidence, drawdown and surface water losses will be insignificant. At the same time they have done everything to avoid monitoring the communities they confidently predict will be unaffected. In 2013 "the Department considered the original environmental assessments for this application inadequate for public exhibition".⁶ No surveys have ever been adequately performed to map plant and animal communities prior to subjecting them to subsidence. No significant ecological effects of surface cracking and water drawdown have ever

³ IPC Panel meeting with Resources Regulator, 13.10.20, p. 5, accessed at:

<https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/transcripts-and-material/2020/russell-vale-uep/201013-meeting-with-resource-regulator-transcript.pdf>

⁴ Pells, PJN & Pells S. E., 2011 Review of subsidence and related facets of the NRE No. 1 Colliery – underground expansion project draft environmental assessment Consultants Report by Pells Consulting for Gujarat NRE, Ref P043.R2 (Final draft) Oct 2011

⁵ Ann Young Upland Swamps in the Sydney Region pg. 8

⁶ Appendix A Summary of Previous UEP Assessment and Commission Reviews, pg A1. Final Assessment Report, Sept. 2020

been detected by this proponent⁷ yet the DPIE have now set up a large number of extra groundwater monitoring conditions to be met by the same proponent to establish whether such effects may indeed be happening. While this shell-game proceeds, complex ecosystems dependent on the retention and cycling of water will invariably suffer drying effects. There will be elevated fire risk and increased local extinctions of rare and protected plants and animals, the only question is whether we quantify these changes. We cannot accept the foregone conclusion that changes are insignificant. Nor can we accept the provisional escape clause that unexpected changes might be offset by the protection of similar landforms in other locations; there is no open marketplace for Endangered Ecological Communities.

Bushfire risk

Dewatering of the Illawarra Plateau will make this area more prone to bushfire and less likely to recover after bushfire. We refer to two sources in relation to this:

- We received comment from Associate Professor Owen Price, Director of the Centre for Environmental Risk Management of Bushfire, University of Wollongong in relation to groundwater drawdown effects on eucalypt forests in the project area and the implications for bushfire risk.

This is included as Appendix A. It concluded:

“In summary, there is potential for groundwater drawdown to stifle forest growth and change understory plant composition, but it is not likely that the predicted 1-2m drop will have a substantial effect. On the other hand, this drop may be enough to make the forest more susceptible to drought, hence lowering live moisture content of the leaves and increasing bushfire risk. There are thousands of homes within 20 km of the drawdown area so this issues should be given serious consideration.”

- A study of bushfire impacts on the peatland swamps of the Newnes Plateau⁸ found:

“that hydrological changes associated with underground longwall mining has reduced the resilience of these peatland ecosystems to the bush fires.”

“that peatland sites that were relatively undisturbed before the fires are showing rapid recovery following severe fire. Other peatlands that are associated with earlier longwall mining have experienced ecosystem collapse and were still largely unvegetated 10 weeks after the fire.”

The Special Area on the Illawarra Plateau is one of the few remaining areas of unburnt NSW bushland after the Black Summer Bushfires. Although research in the area of mining and fire risk is in its infancy, common sense tells us that the dewatering caused by the mining will dry the area, making it more prone to drought, more likely to catch fire and less likely to recover after a fire. Therefore, the project will not only impact the Cataract Reservoir and the catchment ecosystems, it poses a risk to the City of Wollongong, much of which is located on the heavily treed escarpment just east of the mining area.

⁷ Upland swamps, Section 7.1 128 Final Assessment Report, Sept. 2020

⁸ Final Report of the NSW Bushfire Enquiry, p. 241, accessed at:
<https://www.dpc.nsw.gov.au/publications/categories/nsw-bushfire-inquiry/>

Mining of Longwall 6

In addition to the issue of the unstable pillars in the Bulli seam, twenty five metres of longwall 6 will need to be mined to retrieve the longwall machine that Wollongong Coal abandoned there. The DPIE has failed to address this longwall mining in its FAR. This longwall is a key part of the project, and the Dept and the proponent should give due consideration to the potential for damage to the catchment and specifically to the endangered upland swamp CCUS4, which will surely be impacted by the longwall.

This is particularly concerning given Wollongong Coal's record with longwall mining. This record includes subsidence of Longwall 4 which was eight times the predicted level, unanticipated cracking to the surface and the failure of the proponent to attempt water impacts monitoring (installing piezometers) until **after the mining was completed**.

Aboriginal Heritage

Recent ABC News reports of damage to Aboriginal cultural heritage⁹ show just the tip of the iceberg when it comes to the damage that mining is inflicting on both tangible heritage items (such as rock shelters, art and axe grinding sites) and intangible aspects, such as; connection between sites, the movement of surface water between connected sites and the stories and songlines associated with these areas. Several Aboriginal Heritage sites have been identified within the project area: including shelter with art, axe grinding grooves and camps sites¹⁰. We believe it is reprehensible for mining interests to desecrate Aboriginal Cultural Heritage whilst the area remains out-of-bounds for the Aboriginal community. Furthermore, the Aboriginal community needs to be resourced so that they can have proper input into the Major Projects decision making process.

The cumulative impacts of mining on the Special Areas

Cataract Reservoir area has been extensively mined already and the ground was *still moving* 25 years after a project in the 1990's longwall mined around and *under* the Reservoir¹¹. The project area, to the east of Cataract and up to the reservoir's shores, is in an area that has already been mined extensively in the Bulli and Balgownie seams and is cited in the FAR as in "limited equilibrium", ie still moving/subsiding. The issue of the cumulative impacts of mining in the Special Areas has been raised but not resolved in successive government and agency enquiries and panels. This project can be expected to add to the cumulative damage and water loss from existing and historic mining. We again refer the Panel to the Open letter to the Premier of NSW¹², which addresses this matter and also details how the Independent Panel on Mining in the Catchment has fallen short on the issue of cumulative impacts from mining in the catchment. It is certain that the Russell Vale Expansion project will add to the cumulative damage from mining in the catchment.

⁹ <https://www.abc.net.au/news/2020-10-02/illawarra-indigenous-sites-being-destroyed-behind-barricades/12717976>

¹⁰ Gujarat NRE Coking Coal Ltd NRE No. 1 Colliery Longwall 4 End of Panel Report, Figure 1: Surface Features Plan, p.13, Accessed 26.9.20 at <http://wollongongcoal.com.au/monitoring-r/>

¹¹ Is there a 4th Dimension to Subsidence Monitoring? W Ziegler, Manager Mining Impacts, NSW Dam Safety Committee and H Middleton, Mining Regulation Officer, NSW Dam Safety Committee, Proceedings of the 9th Triennial Conference on Mine Subsidence, 2014, Accessed at https://moam.info/mine-subsidence_5c555997097c47034d8b45b0.html

¹² <https://sites.google.com/site/specialareasconcerns/>

SHORTCOMINGS IN TECHNICAL CAPACITY OF THE PROPONENT

The shortcomings in the technical capacity and standards of the proponent confirm that the proponent, Wollongong Coal Ltd (WCL) is not a fit proponent to mine in such a strategically important area as the Greater Sydney Water Catchment. Some examples of this lack of capacity are drawn from the Russell Vale and Wongawilli mines, both of which are owned by WCL:

- Roof falls at Russell Vale causing the closure of the mine¹³
- Roof collapse at Wongawilli mine buries longwall machine worth tens of millions of dollars¹⁴
- Wongawilli mine shut down due to serious safety issues¹⁵
- Wongawilli mine catastrophic failure could have caused an explosion¹⁶

The proponent's record on technical competence, compliance and mining safety is crucial to the assessment of this project. Even strict conditions will not overcome an under resourced and technically challenged mining operation. We maintain that the protected Schedule 1 Special Areas should be off limits to extractive industries. However, if mining is to occur in the Special Areas, it should be carried out by well resourced companies possessing the highest level of technical expertise and competence. This is clearly not the case with this proponent. We acknowledge the absence of a "Fit and proper" test in the EPA Act, however surely the technical competence, compliance record and resourcing of the proponent is crucial in a decision on this project; without the necessary technical competence, compliance and adequate resourcing the proponent is unlikely to deliver on the conditions of consent.

INSECURE EMPLOYMENT AND SAFETY RISKS

There's a high risk that promised socio-economic benefits won't be delivered or sustained given WCL's inability to safely and profitably operate mines.

- In April 2019, Wollongong Coal shut down operations at its Wongawilli mine throwing 45 people out of work after the NSW Resources Regulator identified "significant safety issues" (16).
- In 2017 a 'catastrophic failure' of a diesel engine occurred at Wongawilli, which the Regulator said could have caused an explosion in the methane-rich underground workplace (17).
- In 2014, 100 miners lost their jobs at Wongawilli after an expensive longwall machine was buried in a roof collapse (18). Workers were asked to take a pay cut to keep the mine going, but the company's offer of \$21.50 an hour combined with a loss of working conditions was voted down by miners. The miners were made redundant (19).

¹³ <https://www.illawarramercury.com.au/story/3458659/ban-slapped-on-mine-after-another-roof-fall/>

¹⁴ <https://www.abc.net.au/news/2014-05-05/wollongong-coal-woes/5429676>

¹⁵ <https://www.illawarramercury.com.au/story/5962850/wongawilli-coal-mine-shut-down-due-to-serious-safety-issues/>

¹⁶ <https://www.illawarramercury.com.au/story/5121373/catastrophic-failure-at-wollongong-mine-could-have-exploded/>

ECONOMIC RISKS

The Economic Impact Assessment which estimates the net benefit to NSW of \$174.3 million in net present value (NPV) terms **is incorrect and must be reviewed.**

The economic flows to NSW and the local community have been significantly overstated in the Economic Impact Assessment (EIA). While we do not have the resources to re-calculate this, we urge you to request an updated Economic Impact Assessment (EIA) which is independently audited.

Cost Benefit Assessment Outcomes:

1. *Direct benefits of the Project are estimated to be \$116.9 million (net present value or NPV), including royalties of \$33.2 NPV.*¹⁷
2. *The project is also expected to generate total indirect benefits of \$57.4 million in NPV terms, comprised of \$43.6 million of worker benefits and \$13.8 million of supplier benefits.*¹⁸
3. *The Revised UEP is expected to generate modest incremental indirect costs on the NSW community of about \$19,158, which is the cost of water licences and greenhouse gas emissions attributable to NSW.*¹⁹

Objections to Economic Impact Assessment

1.1. Net Producer Surplus is overstated

\$215m is released to profit in FY2020 if remediation can be pushed back to 2025 providing a 57.7m gain to profit in NPV terms²⁰. However only \$40m has been set aside in the balance sheet for Rehabilitation²¹, thus the reversal of \$215m remediation in 2020 is incorrect.

1.2. Net Producer Surplus attributable to NSW of 35.4% is incorrect

Ownership structure is changing on in December 2020 due to the recent agreement with Bellpac to cancel their 2,472,063,690 shares in WCL (26.39% at 31 March 2020)²². Currently NSW is allocated 35.14% of profits, however this will decrease significantly to 9% in December, thus the whole basis of the EIA is flawed.

1.3. Royalties are overstated due to falling metallurgical coal price

Revenue forecasts rely on the Coking Coal price of \$197 to 2024, however the price of Met Coal has significantly reduced due to reduced global demand reaching **four year lows of \$106 in 2020**. The Australian Government Resources and Energy Quarterly estimates metallurgical coal prices forecast

¹⁷ Cadence economics 2019, Economic Impact Assessment of the Russell Vale Colliery, p4

¹⁸ DPIE Final Assessment p.67

¹⁹ Cadence economics 2019, Economic Impact Assessment of the Russell Vale Colliery, p5

²⁰ Cadence economics 2019, Economic Impact Assessment of the Russell Vale Colliery, p.11

²¹ WCL Annual Report 31 March 2020.

²² WCL Annual Report 31 March 2020.

to average US\$126 a tonne in 2020, only expected to recover to US\$145 a tonne in 2022²³. The sensitivity analysis (+25% price change) was not broad enough and the royalties attributable to NSW must be reviewed.

1.4. Company taxes will never be paid

Wollongong Coal has a \$329m in tax losses²⁴ ensuring the company **will not pay tax in the future**. In the 2020 Annual Report, they noted that deferred tax assets have not been recognised because it is “not probable that future taxable profit will be available against which the Group can utilise the benefits” indicating they have no future plans to pay tax in Australia.

1.5. Indirect Environmental costs to NSW are **significantly understated**

➤ *Environmental measures*

mitigation measures and monitoring costs are incorporated in the capital and operating costs of the project of \$4.3 million with the assumption that impacts are negligible, but this report shows the high risk of environmental impacts relating to the UEP area, which will be born by NSW and should be considered.

➤ *Understating Cost of Greenhouse Gases*

Scope 1 and 2 emissions are directly related to this mine, however **only allocates 0.1% of the cost of abatement to NSW which is wrong**. Using the Clean Energy Regulator price of \$15.74 per tonne of abatement²⁵, it would cost about \$24M to abate the 1,523,000 t CO₂-e of Scope 1 and 2 emissions that this project will generate in NSW over 5 years. As Wollongong Coal pay no company tax, they will likely contribute nothing towards the cost of abatement.

➤ *Cost of water discharge from adit from 2057*

The long-term management and operational costs of the water treatment system that may be required to treat water outflows from the adit following mine closure as well as the long term on-going cost for monitoring water quality after mine closure to 2057 have not been considered.²⁶ WCL committed to a funding arrangement which would be sufficient for 10-years of monitoring and treatment of adit discharge water. **The remaining cost falls to NSW and should be included in the CBA.**

➤ *Cost of subsidence remediation*

This has not been included in the cost benefit analysis as it is deemed low risk and a part of the operating costs. As per the issues outlined above, subsidence impacts are expected and should be included in a cost benefit analysis.

²³ DISER 2020, Resources and Energy Quarterly June 2020

<https://publications.industry.gov.au/publications/resourcesandenergyquarterlyjune2020/documents/Resources-and-Energy-Quarterly-June-2020-Met-Coal.pdf>

²⁴ WCL Annual Report 31 March 2020, p.88

²⁵ 11th Emissions Reduction Fund auction results, 18 September 2020

²⁶ DPIE Final Assessment p.68

➤ *Cost to Ecology*

The costs of undertaking these mitigation and management measures are included in the operating costs of the UEP rather than as a part of the cost benefit analysis, however the plan assumes negligible impacts to biodiversity and negligible consideration in costs in the UEP which we would argue is incorrect.

➤ *Cost to Water Flows*

Provisions must be made for the expected surface water and water balance (dams) impacts, as the proposed UEP indicated there will be a surplus of water in all years which we have shown above is incorrect.

How is water valued within this project? There is significant academic literature concerning the increasingly understood value of natural capital and ecosystem services this area provides.

In addition, they must forecast their contribution to the whole of catchment monitoring system as recommended by the IEPMC per the “polluter pays” principal.

➤ *Costs to Indigenous Heritage*

A detailed Heritage assessment has not been undertaken indicating costs of protection have not been considered. After the recent destruction of Indigenous sites in WA, there is significant attention on this issue and must be included in any Economic Assessment.

1.6. Indirect Social costs to NSW are excluded from CBA

➤ *Public Health Costs*

Does not consider the cost of health impacts from coal dust (discussed above), the lost productivity this causes the local economy, the increasing healthcare costs and associated flow on effects.

➤ *Cost to landowners & NSW*

Environmental issues and health issues will lead to decreased land values. The department notes that the effects on the mine to property house prices in the area have been slim previously²⁷, however this area is going through a boom with social housing being converted to private ownership, with greater expectations regarding property valuations.

➤ *Infrastructure costs*

We would argue that UEP will generate additional public infrastructure costs to NSW which should be included in the cost benefit analysis including repairs and maintenance of Memorial Drive due to the increase in heavy coal loads moving along this road at 35trucks/hour.

➤ *Local Effects Analysis also flawed*

The Local Effects Analysis also excluded the local effects of the externalities mentioned above and should also be reviewed.

1.7. A 7% discount rate is imprecise.

We understand this is not in the scope of the commission to change discount rates, however the assessment can be viewed with a critical eye, understanding an appropriate discount rate would be in

²⁷ DPIE Final Assessment p.68

line with government bonds at 2.75%²⁸ severely increasing the cost of future externalities in the cost benefit analysis

Wollongong Coal Balance Sheet highlights

- \$1billion debt including borrowings and working capital facilities of \$1,064,949,000 (at 31 March 2020). These debts have to be classified as current liabilities, even though JSPML and JSPAL have confirmed they will not recall the debts up to 31st January 2022 due to breaches in financial covenants. (WCL 2020m p.43)

This precarious financial position indicates they do not have the resources to invest in sustainable practices.

- \$12.5m bond will not cover the 215m of remediation works already outstanding and the full amount should be provided for on the balance sheet.
- They are only “going concern” due to significant waiving of loans and restructuring of debt to become payable after 31 January 2022 due to the continuous support from JSPML and JSPAL.
- - If they can’t continue as a going concern, they will be required to realise their assets outside the normal course of business at amounts less than stated on the balance sheet. In light of changing attitudes towards mining and COVID-19 impacts, this may become a stranded asset, however there are no adjustments on the BS relating to the recoverability of assets at their recorded amount. (WC 2020, p.45)

The relative INsignificance of the resource is far outweighed by the risk

This is a relatively small mining project. The 2 April 2015 PAC Report on Russell Vale states:

“The Department of Trade & Investment’s Division of Resources & Energy notes that this proposal is considered small and would be ranked 50 out of 56 producing coal mines in NSW if approved (DRE, 2015).”²⁹

It is unrelated to Australian steel production, is majority Indian owned and is not even listed on the ASX. However, the Greater Sydney Water Catchment Schedule 1 Special Areas are of strategic importance, as the water source for the largest city in the driest inhabited continent on earth. They should be off limits to mining and certainly should be off limits to Wollongong Coal Ltd.

CLIMATE CHANGE AND GHG EMISSIONS

GHG emissions will be produced at every stage of the production process while NSW has committed to reducing emissions.

²⁸ <https://www.aofm.gov.au/securities/treasury-bonds#:~:text=Consider%20the%202.75%25%2021%20October,date%20of%2026%20September%202019.>

²⁹ https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2014/12/russell-vale-colliery-underground-expansion-project-review/completed-review-report/russell-vale-review-report--main-volumepdf.pdf?fbclid=IwAR3LtK_fuqG1WO-Qeeuaj5cUhRHT1hm_5Qw2Gsfawf1IMjKNII6FrzOIOo, p ii

If the Russell Vale coal project goes ahead, an additional 304,600 t CO₂-e per annum of Scope 1 and 2 emissions³⁰ will be added to the NSW GHG inventory for the next 5 years, working in the opposite direction to NSW Government policy which requires a reduction in GHGs of 35% by 2030³¹.

In a recent submission on the Narrabri Gas project, former Chief Scientist of Australia Professor Penny Sackett stated that meeting NSW's own 2030 GHG target "will require an annual new reduction of about 2.4 MtCO₂-e per year, year on year"³².

The Russell Vale project would nullify about 12% of the intended reductions in all other areas of NSW industry and commerce.

Russell Vale would add only a very small volume of additional met coal to Australia's export volumes (about an extra 0.25% per annum) but it would add a large volume of GHGs to NSW's inventory.

If approved, Russell Vale would be in the top 100 largest emitters of Scope 1 emissions in Australia. Russell Vale is a gassy mine, meaning a lot of methane would be released into the atmosphere during mining.

The Intergovernmental Panel on Climate Change (2018) states that "Impacts on natural and human systems from global warming have already been observed. Many land and ocean ecosystems and some of the services they provide have already changed due to global warming."³³

Without further action to reduce greenhouse gas emissions, the IMF says, "the planet is on course to reach temperatures not seen in millions of years, with potentially catastrophic implications".

In the past, extreme heating of 5C was thought necessary to pass tipping points, but the latest evidence suggests this could happen between 1C and 2C. The planet has already heated by 1C and the temperature is certain to rise further, due to past emissions and because greenhouse gas levels are still rising. Scientists further warn that one tipping point, such as the release of methane from thawing permafrost, may fuel others, leading to a cascade.³⁴

TIPPING POINTS

At the recent World Economic Outlook (October 2020), the IMF warned the window for attaining net zero emissions by 2050 and holding temperature increases to safe levels is "rapidly closing". They note

³⁰ Russell Vale Revised Underground Expansion Project (MP09_0013) | Secretary's Final Assessment Report, op cit, p. 66

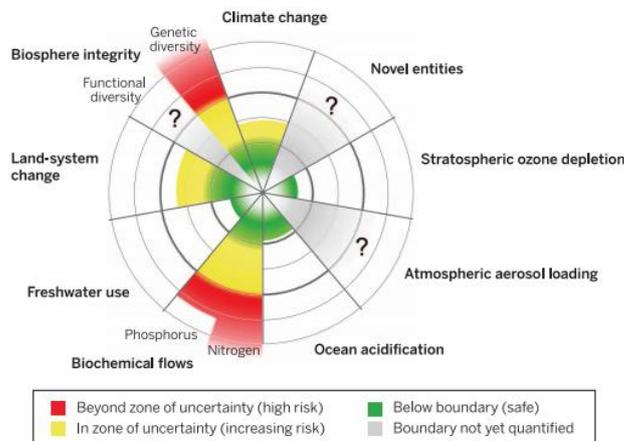
³¹ NSW DPIE 2020, Net Zero Plan Stage 1: 2020-2030, <https://www.environment.nsw.gov.au/topics/climate-change/net-zero-plan>

³² Expert Report on the Greenhouse Gas and Climate Implications of the Narrabri Gas Project (SSD-6456), Professor Penny D Sackett Honorary Professor, Climate Change Institute, The Australian National University Advice Provided: 9 August 2020, p. 24, accessed at https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/03/narrabri-gas-project/correspondence/edo/sackett-narrabri-gas-project-ipc-advice-revised_final.pdf

³³ IPCC, 2018: Summary for Policymakers.

³⁴ Murphy, K 2020, 'IMF warns emissions policies 'grossly insufficient' and urges green recovery', *The Guardian*, 13 October 2020, <https://www.theguardian.com/business/2020/oct/13/imf-warns-emissions-policies-grossly-insufficient-and-urges-green-recovery>

that global sea levels are rising, and evidence is mounting that the world is closer to abrupt and irreversible changes, “so-called tipping points”, than previously thought³⁵.



Current status of the control variables for seven of the planetary boundaries. The green zone is the safe operating space, the yellow represents the zone of uncertainty (increasing risk), and the red is a high-risk zone. The planetary boundary itself lies at the intersection of the green and yellow zones. The control variables have been normalized for the zone of uncertainty; the center of the figure therefore does not represent values of 0 for the control variables. The control variable shown for climate change is atmospheric CO₂ concentration. Processes for which global-level boundaries cannot yet be quantified are represented by gray wedges; these are atmospheric aerosol loading, novel entities, and the functional role of biosphere integrity.

Source: *Planetary boundaries: Guiding human development on a changing planet* (Steffen et al., 2015)

Tipping points are reached when the changes caused by human activities become unstoppable, such as the runaway loss of ice sheets or biodiversity loss. Scientists warn that one tipping point, such as the release of methane from thawing permafrost, may fuel others, leading to a cascade.

The potential damage from the tipping points is so big and the time to act so short, that “to err on the side of danger is not a responsible option”. The IMF is calling for **urgent international action**.

The planetary boundary (PB) framework combines scientific understanding of Earth System functioning with the precautionary principle to determine the level of human interference with natural systems where there is a low risk of destabilising the earth's systems at the planetary scale.

The PB framework identifies two of the planetary boundaries, climate change and biosphere integrity, as core boundaries due to their fundamental importance to earth systems.

With this in mind, we have already surpassed the earth system process boundaries for climate change, biosphere integrity, biogeochemical flows, and landsystem change (Steffen et al, 2015).

The UEP will further interfere with Earth's natural systems impacting biodiversity, water, land use, and climate change and contributing to the risk of passing irreversible tipping points.

³⁵ Murphy, K 2020, 'IMF warns emissions policies 'grossly insufficient' and urges green recovery', *The Guardian*, 13 October 2020, <https://www.theguardian.com/business/2020/oct/13/imf-warns-emissions-policies-grossly-insufficient-and-urges-green-recovery>

CONCLUSION

In conclusion, we urge you to refuse this project. It is not in the public interest. The proponent and project have no social license. Many of the claimed benefits are unlikely to be realised and the costs will certainly outweigh the benefits. Any economic benefits would be short term. Moreover, they would come at significant cost to the public, the environment and future generations. Water security and the integrity of Greater Sydney Water Catchment are long term benefits that any planning decision must prioritise.