NSW Planning Minister Anthony Roberts
The Hon. Anthony Roberts, MP
52 Martin Place
SYDNEY NSW 2000

Letter & Submissions Bundle submitted online at
https://pp.planningportal.nsw.gov.au/major-projects/projects/dendrobium-mine-extension-project-0

14 June 2022

Dear Minister Roberts,

We write to you on behalf of Protect Our Water Catchment Incorporated (POWC Inc), to **object very strongly to Illawarra Metallurgical Coal's/South32's proposed Dendrobium Coal Mine Extension SSI-33143123 ('the Project').**

POWC Inc is a not-for-profit, non-partisan, non-charitable community group whose purpose is to take actions associated with protecting the Sydney Water Catchment including protection from fossil-fuel mining and its impacts. POWC Inc's activities include actions that are directly legal in nature as well as actions that have legal implications. All members of POWC Inc are volunteers and we are also all residents of NSW.

We have engaged the Environmental Defenders Office to brief experts about the Project on our behalf and you will receive our submission and the submissions of eight experts in this submissions bundle. Please see our formal submission below, followed by the submissions of our experts (former Chief Scientist of Australia and Distinguished Professor Penny D Sackett; Prof Stuart Khan (UNSW); Mr Peter Dupen (H2onestly); Mr Tony Wood (Grattan Institute); Dr Liam Phelan (UNewcastle); Dr Ian Wright (WSU); Dr Tanya Mason (UNSW) and Dr Neil Perry (WSU)).

Thank you for the opportunity to make a submission on this project.

Yours sincerely,

Tom Kristensen & Dr Deidre Stuart
(For POWC Inc).
contact.powc.inc@gmail.com

SUBMISSION OF
PROTECT OUR WATER CATCHMENT INCORPORATED (POWC Inc)
OBJECTING to the South32-proposed Dendrobium Coal Mine Expansion Project SSI-33143123

14 June 2022

Please note that throughout this document, we refer to the Environmental Impact Statement (EIS) for the SSI-33143123 Project as provided at https://pp.planningportal.nsw.gov.au/major-projects/projects/dendrobium-mine-extension-project-0

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EXECUTIVE SUMMARY

Protect Our Water Catchment Incorporated (POWC Inc) objects strongly to the proposed Dendrobium Coal Mine Extension Project (SSI-33143123).

POWC Inc considers that all of the IPC's reasons for refusing consent to the earlier Dendrobium Coal Mine Extension Project (SSD-8194) still stand as reasons for refusing consent to this current SSI project. Even though the current project is smaller, its essential character is the same. The Project proposes highly damaging 305 m wide longwalls, up to 3.2 m high with the same proposed chain pillar widths. The predicted subsidence for Area 5 was 2.05 m for the refused project and unsurprisingly for this Project it is a very similar 2.00 m. Furthermore, quite likely, given past experiences at Dendrobium, these predicted subsidence levels may be under-estimates. This level of subsidence and the other related geological destruction are unacceptable. Approval of this project would lead to disruption of surface water and groundwater systems with associated water quantity and water quality losses. It would lead to biodiversity losses, and non-reversible destruction of threatened ecosystems and Australian First Nations Peoples' Cultural Heritage. On top of that, the coal mine and mining operations themselves would release very significant quantities of GHGE – and the predicted GHGE are under-estimates of the real GHGE that will arise. POWC Inc is particularly concerned by the very high global warming potential of fugitive methane emissions because their heating effect will be concentrated over the next 20 years and this intense heating capacity is not captured in the predicted estimates. Moreover, the next 10 years are humanity's last chance to act to prevent an unimaginable climate catastrophe.

POWC Inc considers that impacts on koalas is a further very significant reason why this Project should be refused, beyond those still-valid reasons provided already by the IPC. Since the IPC's February 2021 refusal decision for the Dendrobium SSD-8194 project, koalas have been declared endangered under both the Australian EPBC Act and the NSW BC Act. Recent koala field studies and koala desktop studies suggest the presence of koala populations within the Metropolitan Special Area that would be impacted by this Project. However, the EIS provides no credible assessment of koala incidence in the impacted area. POWC Inc asserts that approval of this Project, without undertaking a thorough independent koala assessment of the area would be irresponsible and reprehensible.

As well as strongly objecting to the Project, POWC Inc objects to the declaration of this proposed coal mine extension Project within a legislated *Special Area* of the Sydney Drinking Water Catchment, as *State Significant Infrastructure* (SSI) – and in the middle of a climate crisis! POWC Inc members were involved as POWA members in the assessment for the SSD-8194 project, and are now defending the IPC refusal-decision in the NSW Land and Environment Court. We and many others in the community engaged in the IPC-process in good faith and we feel betrayed by the NSW Government who then reclassified this otherwise *State Significant Development* project to SSI. This is an attack on good governance. The current mine Project is, if anything, now only more controversial because of the political interference.

This Dendrobium Coal Mine Extension Project does not present or contribute towards a positive future for our region or for NSW or for Australia. Rather it demands further subsidisation by the community of the business-as-usual status quo that threatens koalas, wrecks biodiversity, damages our water catchment permanently, contributes towards further climate instability, facilitates increased social inequality and weakens our economy. Approval of this Project would be inconsistent with EP&A Act objects, inconsistent with Ecological Sustainable Development and is not in the public interest.

POWC Inc repeatedly asks you, Minister Roberts, in your capacity as NSW's Planning Minister to refuse this Project.

INTRODUCTION

1. Protect Our Water Catchment Incorporated (POWC Inc) is a not-for-profit volunteer-driven association that formed in early 2021 to take legal actions, where necessary, to protect the Sydney Drinking Water Catchment ('the Catchment'), where there were not already other incorporated groups actively defending the Catchment. Members of POWC Inc were all involved in Protect Our Water Alliance (POWA) during the 2020 Independent Planning Commission (IPC) public submissions process. POWA and many community members committed a lot of time and energy opposing the earlier proposed Dendrobium coal mine extension (SSD-8194). We were utterly relieved when the IPC refused consent in February 2021.

2. Subsequent to that refusal, Illawarra Coal Holdings (ICH) requested a judicial review of the IPC refusal decision. POWC Inc is currently Second Respondent in the NSW Land and Environment Court proceedings, defending the SSD-8194 project IPC-refusal that was so hard fought for by the Illawarra and wider community.

3. On May 5, 2021, the NSW Legislative Council approved the Mark Latham-led Motion to declare any future South32 Dendrobium Coal Mine Extension Project as *State Significant Infrastructure* (SSI) so that the Minister could determine the project. The Motion included an amendment by Labor that "South32 lodge a new planning proposal for the Dendrobium Extension Project, which takes into account issues raised by the Independent Planning Commission in its Statement of Reasons of 5 February 2021".[1]

4. Then Planning Minister Rob Stokes also provided the following commitments to MLC Justin Field who had dissented, stating in his letter to Mr Fields:

   "While I note the Legislative Council's support for the motion, I can assure you that if a new application is submitted by South32, regardless of the planning pathway, the Department will undertake a comprehensive assessment in accordance with the statutory requirements under the *Environmental Planning and Assessment Act 1979,* including on the issues raised by the Commission in its determination of the project.

   This assessment would include independent expert advice on a range of matters, including the economic costs and benefits of the project and consideration of the importance of a local coal supply to BlueScope Steel. Any application would also be referred to the *Independent Advisory Panel for Underground Mining* and the Commonwealth *Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development*."[2]

5. On December 2, 2021, the NSW Government reclassified any future Dendrobium Coal Mine Extension project from *State Significant Development* (SSD) to *State Significant Infrastructure*[3]. In the Government's media release[4], Deputy Premier and Resources Minister Paul Toole claimed:

   "Dendrobium is a critical source of coking coal for the Port Kembla steelworks and the decision to declare the project SSI will provide thousands of workers with greater certainty on the future of their jobs"

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[1] Legislative Council Hansard. 5 May 2021. South32 Dendrobium Extension Project. https://www.parliament.nsw.gov.au/Hansard/Pages/HansardResult.aspx#/docid/HANSARD-1820781676-85424

[2] Undated letter (file reference MDPE21/971) sent from Minister Rob Stokes to MLC Justin Field via email.

[3] Environmental Planning and Assessment Amendment (Dendrobium Mine Extension Project) Order 2021 under the Environmental Planning and Assessment Act 1979. 2 Dec 2021. Signed by Rob Stokes MP as Minister for Planning and Public Spaces. https://legislation.nsw.gov.au/view/pdf/asmade/sl-2021-741

[4] NSW govt media release of 4 December 2021. https://www.nsw.gov.au/media-releases/coal-certainty-delivers-job-security

"This decision recognises the proposal's potential economic benefits, with the mine already contributing $1.9 billion to the State's economy each year, employing 4,500 workers and supporting another 10,000 jobs across the Illawarra." In that same media release, the then Planning Minister Rob Stokes is reported to state that "Dendrobium mine's proponent, South32, had taken into consideration concerns raised by the Independent Planning Commission".

6. Notably, Minister Toole's claim that the Dendrobium coal mine is critical for BlueScope Steel runs counter to the IPC's finding on this matter:

   "The dependence of BlueScope Steelworks on Wongawilli Seam coal from the Dendrobium Mine is unclear given that the Wongawilli Seam coal would not be available for some considerable time after the proposed cessation of longwall mining at Dendrobium Mine in 2024 even if the Project was approved. This is based on the Applicant's scheduling of Area 5 (Bulli Seam) from 2024, followed some 19 years later by Area 6 (Wongawilli Seam). The Commission does not accept the suggested dependence of BlueScope Steel on ongoing access to the Wongawilli Seam coal from this Project"[5]

7. Also during December 2021, the South32 Dendrobium Coal Mine Extension Project SSI-33143123 *Scoping Report* was published on the NSW Planning Portal. Then earlier this year (2022) the *Environmental Impact Statement* (EIS) was exhibited publicly online.[6]

8. The current SSI-33143123 project proposes to:
   i. Extract a total of 32 Mt ROM coal from the Bulli Seam in a new underground mining area (Area 5) within CCL 768, at a maximum rate of 5.2 Mtpa. The mine would use 305 m wide longwalls that average 2.8 m high and are up to 3.2 m high. The depth of cover over the Bulli Seam being mined is 250-400 m and in the project location the Bulli Seam thickness varies from 2.1-3.2 m[7]. The EIS proposes that Area 5 longwall mining would occur during 2027 to 2034[8].
   ii. Develop new underground roadways from existing underground areas (mainly Area 3) to enable access to Area 5.
   iii. Develop new surface infrastructure that would disturb 30 ha, impacting about 20 ha of native vegetation.
   iv. Engage in numerous multiple activities/exchanges with several other locations, including possibly the receipt and processing of Appin coal at the Dendrobium CPP.
   v. Undertake collection of water and recycling of treated mine water.
   vi. Undertake gas management activities, though these are very unclear in the EIS, and fugitive methane emissions might or might not be somewhat abated through flaring or they might just be released.
   vii. Transport, then emplace up to 1 Mtpa coal wash by road from Dendrobium CPP to West Cliff Stage 3 and/or to West Cliff Stage 4 Coal Wash Emplacement Areas.
   viii. Extend the life of the Dendrobium mine to the end of 2041. Longwall mining in Area 3 has already been approved to the end of 2030, but Area 3 is very gassy. The EIS proposes that mining in Area 3 would occur to the end of 2027, then pause for 6 years then resume during 2032 to 2039. A separate approval for an extension of time specifically for mining in Area 3 will be required.

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[5] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. p 6. https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

[6] https://pp.planningportal.nsw.gov.au/major-projects/projects/dendrobium-mine-extension-project-0

[7] Table 4.2. EIS. Section 4 – Project Description. P 4-5.

[8] Figure 4-4. EIS. Section 4 – Project Description. P 4-14.

9. The proposed (new) Area 5 underground longwall coal mining will occur in the Avon and Cordeaux catchments, including in the catchment of the Avon Dam, all within the supposedly protected Metropolitan Special Area (legislated under the *Water NSW Act 2014*).

10. The EIS for this Project does not adequately address the *key issues* identified by the IPC associated with the earlier SSD-8194 Dendrobium project which the IPC refused. POWC Inc considers that the IPC's objections on these key issues remain unaddressed in the current SSI-33143123 Project. We compare the two projects below:

Key Issues / Characteristics	**Dendrobium SSD-8194 (refused by the IPC, Feb 2021)**	**Dendrobium SSI-33143123 (the current Project)**
Proposed Additional Mine Areas	Area 5 & Area 6	Area 5
Mining Method and Design	Longwalls 305 m wide, up to 3.9 m high	Longwalls 305 m wide, up to 3.2 m high
Adequate Consideration of Alternative Mine Designs and Related Benefits	NO	NO
Maximum predicted vertical subsidence (m)[9]	2.05 m (Area 5) 2.45 m (Area 6)	2 m
Surface Area Directly Above Proposed Longwalls and Chain Pillars Between Longwalls[10]	1520 ha (Impact zones are much bigger)	792 ha (Impact zones are much bigger)
Impacted First Nations Cultural Heritage "Sites"	58 (loss of wider cultural landscape; ongoing disrespect)	31 (loss of wider cultural landscape; ongoing disrespect)
Predicted Av Water Losses (surface water (SW) &/or groundwater (GW))	12 ML/day mine inflow (sealing of mine not possible)	1.2 ML/day SW & 3.8 ML/day GW[11] (sealing of mine not possible)
Scope-1 GHGE (total)	**15.2 M tonne CO2e** (Under-estimate) (Area 5 & Area 6 estimate, excluding Area 3 that was included in SSD-8194 estimates)	**14.3 M tonne CO2e** (Under-estimate, Area 5 only, assuming no flaring)
Scope-2 GHGE (total)	**1.2 M tonne CO2e** (Area 5 & Area 6 estimate, excluding Area 3 that was included in SSD-8194 estimates)	**1.2 M tonne CO2e** (Area 5 only)
Scope-3 GHGE (total)	**162.7 M tonne CO2e** (Under-estimate) (Area 5 & Area 6 estimate, excluding Area 3 that was included in SSD-8194 estimates)	**75.8 M tonne CO2e** (Under-estimate, Area 5 only)
Biodiversity & Upland Swamps	Irreparable and extensive damage / destruction; lost habitats, lost ecosystems, biodiversity impacts.	Irreparable and extensive damage / destruction; lost habitat, lost ecosystems, biodiversity impacts. Koalas recently declared endangered.
Bushfire	Desiccation at surface caused by fracturing of the landscape increases fire risk. Climate impacts also increase fire risk.	Desiccation at surface caused by fracturing of the landscape increases fire risk. Climate impacts also increase fire risk.
Economic Assessment in EIS	Flawed CBA, numerous errors. Baseline ignores climate heating. (Correction of CBA for cost of GHGE only, shows that climate impacts alone outweigh benefits).	Flawed CBA, numerous errors. Baseline ignores climate heating. (Correction of CBA for cost of GHGE only, shows that climate impacts alone outweigh benefits).
NorBE Test (water quality) SDWC SEPP	Negative impacts on water quality. (Cont Developt finding by IPC)	Negative impacts on water quality.

[9] Two data sources: (1) SSD-8194 EIS Table 6-3 South32 (2022). https://pp.planningportal.nsw.gov.au/major-projects/projects/dendrobium-mine-extension-project & (2) EIS. Appendix A – Subsidence Assessment. MSEC. (2022). p ii.

[10] EIS. Appendix A – Subsidence Assessment. MSEC (2022). p ii.

[11] EIS. Section 7 – Environmental Assessment. South32 (2022). P 7-33

11. Furthermore this Project raises two new specific concerns that were not factors in the IPC's determination of the SSD-8194 project:
    i. Concern for koala populations in water catchment Special Areas: Koalas have been listed as 'endangered' under both the Australian EPBC Act[12] and NSW Biodiversity Conservation Act[13] since February 2021 when the IPC refused the SSD-8194 project. There are koalas present in the Metropolitan Special Area and they are likely to be adversely impacted by this Project. Koalas and their trees and their water supplies need protection. Koala numbers in the Metropolitan Special Area need to be determined properly and independently.
    ii. Concerns about governance: The reclassification of the Dendrobium Coal Mine Extension project from its original *State Significant Development* (SSD) status to SSI status following the IPC refusal decision of the SSD-8194 project, because some members of the NSW Government did not like the refusal decision, is objectionable in of itself. This is an assault on good governance.

12. We explain these points further below.

[12] Koalas listed as endangered under EPBC Act. 12 February 2022. https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=85104

[13] Koalas listed as endangered under NSW Law. 20 May 2022 https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10616

POWC INC's REASONS FOR OBJECTING TO THIS PROJECT

PROPOSED MINE DESIGN: South32 fails to genuinely and comprehensively consider less damaging alternatives to the proposed mine design based on 305 m wide longwalls, even despite being required very explicitly to do so in the SEARs, and required under the law. Approval of this Project would not be consistent with ESD principles, or with Objects (a), (b), (c) and (e) of the EP&A Act.

13. In their Statement of Reasons (SoR) for refusing consent to the Dendrobium SSD-8194 project, the IPC considered the **Proposed Mine Design** to be a *key issue* and they made the following findings related to it[14]:

> 115. Special Areas are lands declared under the WNSW Act for protecting the quality of stored waters, whether intended for drinking or other purposes, and maintaining the ecological integrity of that land. The Commission acknowledges that this is a highly sensitive and significant receiving environment and is of great importance to NSW.
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> 116. The Commission notes that Area 5 and Area 6 are located in the Metropolitan Special Area comprising one of the Greater Sydney Water Catchment Special Areas. The Metropolitan Special Area is within the Upper Nepean Scheme which provides 20 – 40% of Greater Sydney's water supply and supplies drinking water to the populations of the Macarthur and Illawarra regions, the Wollondilly Shire and Metropolitan Sydney.
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> 117. The Commission notes that the mine design is the primary determinant of the Project's impacts. As stated in the Department's AR (see paragraph 97 above), of the 21 proposed longwall panels, 18 have a void width of 305 m. This width is such that subsidence cracking would extend from the mine to the surface over (at least) the major proportion of the two mining areas. The Commission agrees with the Department's assessment that this cracking would cause infiltration of surface water from upland swamps, watercourses, and the water table. A significant proportion of this water would continue to infiltrate through fractured rock strata and reach the mine.
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> 118. The Commission notes the Applicant's advice that it seeks to maximise the efficient recovery of metallurgical coal resources through the continued use of 305-metre-wide panels (see paragraph 95).
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> 119. The Commission agrees with the IAPUM's advice that no justification on technical or environmental grounds has been provided for panel widths of 305 m, with the IAPUM being advised by the Proponent that it is based on experience with this width at Dendrobium Mine and economic returns (paragraph 110). The Commission further notes that there was no environmental assessment of mine design alternatives undertaken by the Applicant, despite repeated requests by WaterNSW and BCS.
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> 120. The Commission notes that the IAPUM and public submissions have raised significant concerns about the mine design for the Project.

[14] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. pp 34-35 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

121. The Commission acknowledges that the Applicant does not disagree with the IAPUM's suggestion that surface water loss would be reduced if the mine was designed with the sub-surface fracture network remaining below the Bald Hill Claystone (paragraph 96). However, the Applicant believes the impacts of the fracture network extending to the surface would have negligible impacts at the catchment scale and would be offset in accordance with the terms of the proposed planning agreement.

122. The Commission agrees with the IAPUM and other submissions that inadequate consideration has been given in the EIS to the environmental assessment of alternative mine designs, the risk evaluation of options and associated environmental impacts. The Commission notes that this was required in the SEARs, under the EP&A Act and the principles of Ecologically Sustainable Development (**ESD**) and was identified by statutory agencies during the EIS preparation and public exhibition.

123. With respect to the principles of ESD, the Commission is of the view that the mine design is not consistent with the precautionary principle and the principles of inter-generational equity and conservation of biological diversity and ecological integrity or with the Objects of Act contained in Section 1.3 of the EP&A Act, particularly objects (a), (b), (c) and (e). The Commission has given further consideration to the principles of ESD and the Objects of Act in section 4.19 of this report.

124. For the reasons set out above, the Commission does not consider the mine design and predicted impacts of this Application to be acceptable in the Metropolitan Special Areas. Consequently, the Commission's findings on the proposed mine design of the Project before it form part of the Commission's reasons for refusing the present Application, along with the other findings set out in this Statement of Reasons.

14. The previous Dendrobium SSD-8194 proposed highly damaging 305 m longwalls in Areas 5 and 6. At paragraphs 115-124, the IPC found that the EIS had inadequately considered less damaging alternatives.

15. This current Dendrobium project proposes a significant reduction in the area of underground mining (Area 5 only; and a smaller Area 5 than previously) but still proposes mining using longwalls and equally wide longwalls (305 m) at that. This does not alter the essential character of the activity and the extensive damages that will result. As the EIS MSEC Subsidence Assessment report states[15]:

> "The maximum predicted subsidence effects for the Revised Layout in Area 5 are the same or slightly less than the maximum predicted values based on the Previous Layout in Area 5. The reason is that the longwall widths, chain pillar widths, depths of cover and proposed mining heights remain the same".

16. With this SSI application, South32 has again refused to genuinely consider less damaging mine design options. For example, in relation to the less damaging bord-and-pillar mining method, even though required by the SEARs[16] to consider this option, the EIS merely claims that:

> "Bord and pillar mining would not be economic for the Project as longwall mining is the only economic primary production method in Australia to use at depths from the surface that are greater than about 200 m (Department of Planning [DoP], 2008)."[17]

17. This is just a claim rather than a genuine feasibility assessment, and this claim runs contrary to the NSW DPE-endorsed and IPC-approval for only bord-and-pillar mining at the nearby Russell Vale coal mine, also in water catchment[18], where the mined coal is also all below 200 m depths.

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[15] EIS. Appendix A. Subsidence Assessment. MSEC. March 2022. p ii.

[16] The SEARs stated: *The EIS must address the following specific matters:* ***1. Justification and Alternatives*** *…a comprehensive assessment of alternatives, including alternative mine design (including panel dimensions and layout), mining methods (including minimal subsidence options such as bord and pillar/ partial extraction) and 4 coal supply (including supply from other coal operations in the Southern coalfields);*. pp 3-4. Issued SEARs_23/12/2021. https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-33143123%2120211223T054047.962%20GMT

[17] EIS Section 2 – Strategic Context. P 2-16.

[18] https://www.abc.net.au/news/2020-12-08/russell-vale-mine-expansion-approved/12962538

18. Similarly, the mine layout proposes longwalls still set back only 1,000 m from dam walls[19], instead of set back 1,500 m as advised by WaterNSW during the earlier SSD assessment process[20].

19. This application for a smaller, though similar-in-character, coal mine extension is also potentially a strategic move on the part of South32 who may intend to apply for a series of small incremental projects in the future as project modifications.

20. POWC Inc opposes all coal mining in the Sydney Drinking Water Catchment. However, we object even more strongly to coal mining in a designated Special Area especially when that mining is done using highly damaging very-wide longwalls and without real regard for recommendations from WaterNSW who is charged with the responsibility of managing and maintaining the state's water systems.

21. The Independent Expert Panel for Mining in the Catchment (IEPMC) was set up in 2017 to provide advice to DPE related to the damaging impacts of coal mining in Special Areas in the water catchment with a focus on water quantity impacts[21]. In fact, reports discussing the damages and water impacts associated with coal mining under the SDWC abound![22] In any case, the IEPMC's first report summarised Dendrobium's then operations (approved 2001) as:

    "305 m wide longwall panels, 87% areal extraction, vertical surface subsidence of typically 2.5 to 3 m and a total mine water of about 7.5 ML/day that responds to rainfall."[23]

    And later compared the Metropolitan's (2009-approved) operations to the Dendrobium's as follows:

    "The influence of the greater depth of mining, the narrower longwall panels and the lower extraction height compared to Dendrobium Mine are reflected currently in 78% areal extraction, around 1.1 to 1.2 m of vertical surface subsidence and a total mine water inflow of about 0.5 ML/day that does not respond to rainfall".[24]

22. These IEPMC summary points clearly show the effects that different mine design have on subsidence, water losses and likely connectivity of the mine voids with the surface through fracturing (leading to rainfall responsiveness or not).

23. Moreover, later the IEPMC report stated (referring to Dendrobium mine operations):

    "MSEC provided subsidence predictions for Area 3B in October 2007 on the basis of a panel width of 245 m and a mining height of 3.9 m (MSEC, 2007). The consultants advised that the maximum predicted conventional subsidence parameters for future longwalls in Areas 3B and 3C could be expected to be greater if mining height and/or panel width were to be increased in these areas, citing an example of approximately 20% increase in subsidence if panel width were to be increased to 300 m.

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[19] EIS. Section 4 – Project Description. P 4-24.

[20] WaterNSW (06/03/2020) Letter to DPIE-Planning re South32 Response to Submissions https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-2101%2120200306T045644.719%20GMT

[21] IEPMC (2018) *Initial report on specific mining activities at Metropolitan and Dendrobium coal mines.* 12 November 2018. https://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0006/313917/IEPMC-Report_Term-of-Reference-1.pdf

[22] To see a list of some such reports, see the POWA Submission on SSD-8194 EIS. 18 Sept 2019. https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-1523%2120200908T013357.734%20GMT

[23] IEPMC Report as above at footnote 18. P i.

[24] IEPMC Report as above at footnote 18. P i.

MSEC concluded from the ALS survey data for LW 7 and LW 8 in Area 3A and LW 9 and LW 10 in Area 3B, that it appeared the maximum observed subsidence exceeded predictions in many locations, typically being up to 1.3 times predicted. The observed subsidence directly above the tailgate chain pillars for LW 7 and LW 8 in Areas 3A and LW 10 in Area 3B was also greater than predicted (MSEC, 2016a). It was considered that the exceedances were probably due to the greater depths of cover and wider longwall panels."[25]

24. POWC Inc considers that the IPC's concerns related to the Dendrobium SSD-8194 Proposed Mine Design still apply in relation to the 305 m longwalls mine design proposed in Area 5 for this current project. The IPC's stated concerns remain a reason for refusal of this revised SSI project.

25. During the IPC-assessment of the SSD-8194 project South32 seems to have been wilfully deaf to the very strongly expressed, serious concerns of multiple agencies and individuals: that project was ultimately rejected. It seems that South32 considers yet again, that an approval of its project is a foregone conclusion. We are writing to you expressing our objections, appealing to you, because we hope that is not the case.

[25] IEPMC Report as above at footnote 18. pp 42-43.

SUBSIDENCE: If approved, the 305 m wide longwall underground mining is predicted to lead to vertical subsidence of 2 metres (possibly more), accompanied by multiple other surface geology deformation impacts. Approval of this Project would not be consistent with ESD principles, or with Objects (a), (b), (c), (e) or (f) of the EP&A Act.

26. The IPC considered **Subsidence** to be a *key issue* in their SoR for refusing consent to the Dendrobium SSD-8194 project and they made the following findings related to subsidence[26]:

> 140. The Commission finds that the likelihood of significant subsidence (cracking) impacts from the proposed longwall mining in Area 5 and Area 6 is high, largely due to the mine design. The Commission finds that the consequences of subsidence impacts are long term and the severity of damage to the landscape, water resources (ground water, surface water and watercourses), biodiversity (including upland swamps) and Aboriginal cultural heritage values are potentially irreversible. These aspects are further addressed in Sections 4.11 to 4.14 of this Statement.
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> 141. The Commission agrees with the IAPUM's conclusions (paragraphs 137 - 139) and acknowledges the concerns raised by WaterNSW (paragraphs 128) regarding stream flow losses, impacts upon upland swamps and Dendrobium Mine being the only mine in the Southern Coalfields to have recorded valley closure over 650mm and a series of cracks up to 1.5 metres wide at the commencing end of Longwall 3, as stated on page 8 of the IAPUM's report. The Commission notes that Wollongong City Council also raised concern regarding to the extent of subsidence related impacts upon streams and coastal upland swamps.
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> 142. The Commission acknowledges WaterNSW's concerns in paragraph 128 that the Project would cause unprecedented levels of subsidence, surface-to-seam fracturing and groundwater depressurisation, which would result in a range of significant predicted impacts to the Special Areas of Sydney's drinking water catchment which are inconsistent with WaterNSW's statutory role "to protect and enhance the quality and quantity of water in declared catchment areas" and its Mining Principles. The Commission is of the view that the concerns raised by WaterNSW are valid and finds the predicted impacts to be unacceptable.
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> 143. The Commission notes that there are 40 cliffs identified above the proposed longwalls in Area 5 and potential impacts include fracturing and cliff instabilities. There are also 46 cliffs located outside the extent of the proposed longwalls and within the 35^0 angle of draw. The Commission finds that there is uncertainty in relation to the number of cliffs impacted by the Project and the extent of impact.
>
> 144. The Commission agrees with the IAPUM's conclusion 17 in paragraph 137 regarding the expected reduction in the intensity of conventional subsidence impacts including fracturing width, frequency and depth from narrower longwall panel widths. The Commission agrees with the IAPUM that this has important implications for the volume of surface water that can be diverted in the subsurface and the mine through connected fractures.
>
> 145. The Commission agrees with the IAPUM's conclusions 18 and 19 in paragraph 137 regarding the subsidence impact assessment for watercourses. Environmental impact assessments of valley closure were conducted for Avon River, Cordeaux River and Donalds Castle Creek but not for other significant watercourses. As concluded by the IAPUM, the setback distances are not based on the level of risk of impact (where risk is a combined measure of likelihood of an impact and the consequences of the impact). The Commission agrees with the IAPUM's conclusion in paragraph 139 that there continues to be much conjecture and uncertainty as to both how to predict the height of connective fracturing and how to confirm this height in the field.
>
> 146. For the reasons set out above the Commission finds that the extent and nature of the predicted subsidence, the lack of adequate risk assessment and uncertainty as to appropriate setbacks and impacts of alternative mining panel widths is unacceptable and incapable of being sufficiently addressed by conditions of consent.

[26] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. pp 41-42 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

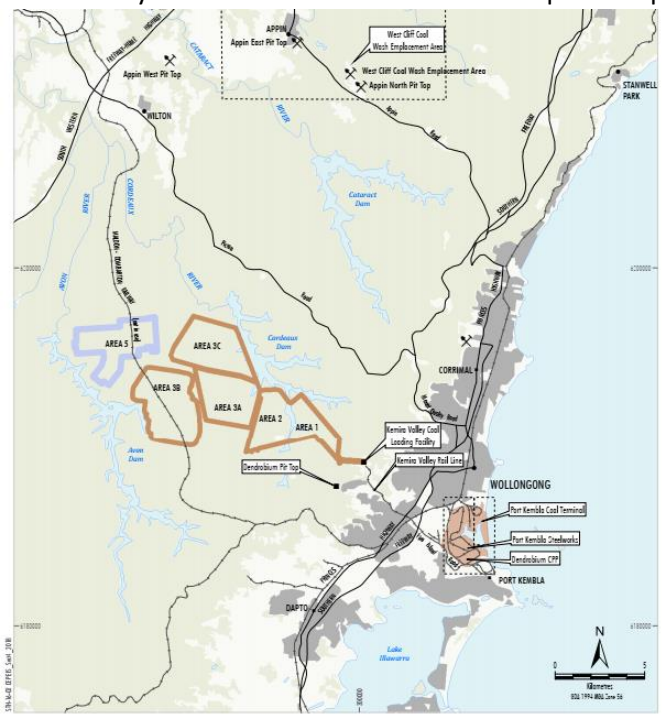
147. Further, the Commission is of the view that the risk of significant and irreversible subsidence impacts is not consistent with the principles of ESD and the Objects of Act contained in Section 1.3 of the EP&A Act, particularly objects (a), (b), (c), (e) and (f).

148. The Commission therefore finds that the subsidence risk (including its uncertainty and potentially significant and irreversible consequences) of the Project, taken with the other findings of the Commission, is a reason for the refusal of the present Application.

27. The EIS Subsidence Assessment[27] for the current project:
    - Predicts maximum vertical subsidence of 2000 mm in Area 5 and other surface geological deformations that include: 25 mm/m tilt, 0.50 km-1 hogging curvature and 0.60 km^{-1} sagging curvature.
    - Specifies the Study Area that was calculated, as a minimum, as the surface area enclosed by the greater of the 35° angle of draw from the extents of the proposed longwalls and by the predicted 20 mm subsidence contour due to the extraction of the proposed longwalls.
    - Identified natural and built features within or in the vicinity of the Study Area as including: the Avon River, Donalds Castle Creek, unnamed streams, cliffs, minor cliffs, steep slopes, swamps, a disused railway corridor, unsealed tracks, Avon and Cordeaux Reservoirs and associated dam walls, Aboriginal heritage sites, historical heritage sites and survey control marks.

28. All of these natural or built features are liable to be damaged or destroyed. Even though this project's EIS proposes increased setbacks compared to the earlier SSD-8194 project for some features, those setbacks potentially reduce damages outside Area 5, but do little to reduce the impacts across the large Area 5 impact zone itself (at least the size of the Study Area: 1,980 ha)[28].

29. The EIS Figure 4-10a[29] (copied in below) shows that already a significant proportion of the area between the Cordeaux and Avon systems has already been undermined (brown-outlined), and if the proposed Area 5 (grey-outlined) is approved, then there will not be much left that is untouched and undamaged between those water systems– and this within the Metropolitan Special Area!



[27] EIS. Appendix A – Subsidence Assessment, p ii

[28] EIS, Appendix F – Aboriginal Cultural Heritage Assessment. Niche. February 2022. P 8

[29] Copied cropped version of Figure 4-10a from EIS. Section 4 Project Description, p 4-26

30. Table 1[30] from the MSEC Subsidence Assessment is copied in below and demonstrates the still very significant subsidence effects that are predicted for this project (*Revised Layout*):

Table 1 Maximum predicted subsidence effects for the natural and built features based on the Previous and Revised Layouts

Feature type	Parameter	Name	Previous Layout (i.e. Previous Area 5 and Area 6)	Revised Layout (i.e. Revised Area 5)
Named streams	Total length of stream within 600 m of the longwalls (km)	Avon River	0.8	0.0
		Cordeaux River	1.4	0.0
		Donalds Castle Creek	3.3	0.0
		Wongawilli Creek	0.0	0.0
	Maximum predicted additional closure due to the longwalls (mm)	Avon River	200	30
		Cordeaux River	80	< 20
		Donalds Castle Creek	200	30
		Wongawilli Creek	< 20	< 20
Unnamed streams	Total length directly above the longwalls (km)	Third order	0.9	0.0
		First and second order	34	14
	Maximum predicted total closure due to the longwalls (mm)	Third order	1150	325
		First and second order	1000	750
Key stream features	Number located within the Study Area	-	45	15
	Maximum predicted total closure (mm)	-	700	300
Cliffs	Number located directly above longwalls	-	40	12
	Total length located directly or partially above longwalls (km)	-	2.2	0.8
	Maximum predicted total vertical subsidence (mm)	-	2000	1600
Rock outcrops and steep slopes	Maximum predicted total vertical subsidence (mm)	-	2450	2000
Upland swamps	Number directly or partially above longwalls	-	26	15
	Number within the 600 m boundary	-	46	22
	Maximum predicted total vertical subsidence (mm)	-	2300	1950
Dam walls	Minimum distance from the longwalls (km)	Avon Dam Wall	1.0	1.0
		Cordeaux Dam Wall	1.1	> 4
	Maximum predicted total closure (mm)	Avon Dam Wall	20	10
		Cordeaux Dam Wall	20	< 3
Aboriginal heritage sites	Number directly or partially above longwalls	Isolated finds	0	0
		Grinding groove sites	11	3
		Rock shelters	9	3
	Maximum predicted total vertical subsidence (mm)	Isolated finds	< 20	< 20
		Grinding groove sites	2150	1550
		Rock shelters	1650	1750

SUBSIDENCE REPORT FOR THE DENDROBIUM MINE EXTENSION PROJECT
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[30] EIS. Appendix A – Subsidence Assessment. MSEC. March 2022. p iii

31. The IEPMC recommended use of the Tammetta Equation in future mine proposal documents to predict heights of complete groundwater drainage[31] (as this is related to subsidence impacts and the extents, depths and widths of cracking and fracturing of surface geological layers, which affects the amounts of ground and surface water losses).

32. We refer you to the submission (not included here) of National Parks Association of NSW's Mining Projects Science Officer, Dr Peter Turner, who is a very knowledgeable and long-involved community expert on this topic. We asked Dr Turner what he thought about this Project's EIS. Dr Turner expressed some concerns, suggesting that while it appears that the Tammetta Equation was used to generate data, the results were then interpreted in a way that effectively denied Tammetta's findings[32]. He indicated that establishing whether or not that really was the case would mean looking very closely at hydrographs, but that doing so required information that was not provided in the EIS itself, and so checking was taking him considerable time. We are sure he will write up his findings into a formal submission and we urge you to read it carefully.

33. EDO also engaged the water specialist expert Mr Peter Dupen (from H2onestly) on POWC Inc's behalf. Near the end of his Expert Submission (**Attachment 1**) Mr Dupen has recommended a Tammetta volumetric conservation method for determining subsidence/fracturing-induced surface water losses (p 16) following discussion of problems with the use of groundwater models and other possible approaches (pp 12-14).

34. It seems that both Mr Dupen and Dr Turner, two experts in this area, independently of each other share concerns about the methods used in the EIS to determine ground/surface water losses that arise as a result of subsidence and associated landscape fracturing. Given this, POWC Inc asks you, Minister to require the IAPUM to investigate this aspect in detail when they review the EIS, to ensure that at least this IEPMC recommendation is adhered to properly.

35. Moreover, Mr Dupen points out that while much is already known about the extreme damages caused by Dendrobium mine already, mostly resulting from seam-to-surface fracturing across most of the existing Dendrobium Mine's footprint, he also discusses cumulative impacts. He points out that historical bord-and-pillar mine workings in this wider area, are still not fully subsided. And further, Mr Dupen finds in relation to this Project that: "Although the fracturing is not predicted to be quite as continuous at Area 5, there will almost certainly be increased bulk permeability caused by longwall subsidence which will lead to water exiting streams and storages and moving towards the mine." (**Attachment 1**, p 4).

36. It seems clear to POWC Inc, that even if the EIS-provided subsidence and related impacts under-estimate what would eventuate if this Project was approved, these predicted subsidence impacts are already very large and will undoubtedly lead to **further** massive irreparable damage to the water catchment. POWC Inc asserts that this is another reason to deny approval to this Project.

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[31] IEPMC (2018) *Initial report on specific mining activities at Metropolitan and Dendrobium coal mines.* 12 November 2018. P ii. https://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0006/313917/IEPMC-Report_Term-of-Reference-1.pdf

[32] Tammetta, P. (2013). *Estimation of the Height of Complete Groundwater Drainage Above Mined Longwall Panels.* Groundwater, 51(5), 273-734.

GROUNDWATER: This project will lead to groundwater losses into mine voids and water pollution problems. These impacts will most likely be ongoing into perpetuity because there is no guarantee of ever being able to properly close and seal mines. The impacts on groundwater mean that approval of this Project would be inconsistent with ESD principles, and inconsistent with Objects (a), (b), (c), (e) and (f) of the EP&A Act.

37. The IPC considered Groundwater to be a *key issue* in their SoR for refusing consent to the Dendrobium SSD-8194 project and they made the following findings related to Groundwater[33]:

> 165. Comments made by WaterNSW in paragraph 152 above detail the differences in estimates of the proportion of surface water in predicted mine inflows calculated between the Applicant, Dr Col Mackie and the IEPMC. This impacts upon the Applicant's groundwater model in predicting the surface water component of mine inflows. The Commission accepts there is uncertainty and acknowledges the estimates by Dr Col Mackie and the IEPMC are similar.
>
> 166. In paragraph 163 above the IAPUM concludes (#22) that in the long term the mine inflows will be fully derived from surface recharge and due to lack of clarity as to if and how the Dendrobium Mine can be sealed it should be assumed that surface losses from the catchment will be long term and potentially in perpetuity. The Commission agrees with this conclusion.
>
> 167. In paragraph 163 above the IAPUM concludes (#23) that the groundwater modelling of the post mining period is not based on a clear, technically feasible description of mine sealing and that as a consequence, it is not possible to assess the risks and impacts of groundwater recovery on the surface water environment or on the pattern of discharges of mine water and potential contamination from the mine. The Commission agrees with this conclusion.
>
> 168. In paragraph 163 above the IAPUM concludes (#24) that there are uncertainties associated with groundwater pressure recovery and mine outflow volumes and quality following mine closure, which are not addressed in the EIS and which require considerable investigation and planning, including analysis of the feasibility of sealing Dendrobium Mine, whether or not the Dendrobium Extension Project is approved. The Commission agrees with this conclusion.
>
> 169. In paragraph 164 above the IAPUM provided comment by referring to the IEPMC's two fundamental aspects associated with connective fracturing to the surface. On the latter aspect, the IEPMC noted that much depends on whether it is physically possible to confine water in the mine and the extent to which the water table can be re-established in order to reverse depressurisation. Thus, the importance of assessing whether it is physically and technically feasible to seal Dendrobium Mine, such that there are no ongoing (in perpetuity) cumulative impacts of its mining operations on water quality and quantity. The IAPUM also has serious reservations on the issue of outflow from the mine post-closure. The Commission agrees with the comments above by the IAPUM and IEPMC.
>
> 170. The Commission therefore finds that there is uncertainty as to how close to pre-mining levels the regional groundwater table which support the surface water flows, will return to after mining or how long this will take.
>
> 171. The Commission also finds that there is uncertainty as to mine outflow volumes and quality following mine closure and repressurisation.
>
> 172. The Commission does not consider the uncertainties to be acceptable.
>
> 173. The Commission is of the view that the long-term and uncertain impacts upon groundwater quantity and groundwater quality are not consistent with the principles of ESD and the Objects of the Act contained in Section 1.3 of the EP&A Act, particularly objects (a), (b), (c), (e) and (f).
>
> 174. The Commission's findings on the impact of the Project on groundwater, taken with the Commission's other findings in these reasons, form part of the reasons for the refusal of the present Application.

38. POWC Inc notes from the IPC's findings (para #165- 174, above) that the IPC was very concerned that negative groundwater impacts (water losses and water pollution) for the Dendrobium SSD-8194 project would continue into perpetuity based on advice provided to them by the IAPUM. There was significant

[33] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. pp 46-47 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

uncertainty around how much surface water versus ground water ends up in the water that ends up in the mine voids underground, with much lower estimates provided by South32 compared to estimates provided by Dr Mackie and the IEPMC (as alluded to, above, in para #165). But one point from IAPUM is alarmingly clear in the IPC's findings above (para #166), namely that: "in the long term the mine inflows will be fully derived from surface recharge and due to lack of clarity as to and how the Dendrobium Mine can be sealed it should be assumed that surface losses from the catchment will be long term and potentially in perpetuity".

39. This is alarming because when, in the long term, **all of the water** making its way into the mine voids is surface water rather than groundwater, this means that the groundwater has depressurised to the extent that the groundwaters above the level of the mine void – water that has possibly resided there for hundreds or thousands of years – has all drained away. It also means that the impact on surface waters will be large indeed.

40. This current SSI-33143123 Project is merely a smaller version of the SSD-8194 project which the IPC partly refused because of these very real and likely permanent groundwater impacts. Mine closure and mine sealing are still going to be problematic for this Project as it was for the IPC-refused project. The IAPUM told the IPC back in 2020 that this was not a Dendrobium-specific problem, but rather a global mining problem.[34]

41. The EIS predicts that groundwater losses under Area 5 only (this Project), will average 3.8 ML/day and peak at 5.5 ML/day (equating to an average 1400 ML/year and peak of more than 2,000 ML/year). The groundwater across the mine as a whole will increase up to 5,600-5,900 ML/yr. This predicted inflow is an increase on historical inflows at Dendrobium Mine.[35]

42. The EIS contains many pages describing modelling around subsidence impacts and water losses. However, the murky technical issues surrounding cracking and water losses do not obscure the fact that subsidence from mining leads to disruption of groundwater. It is an accepted fact that the Dendrobium mine has already caused depressurisation of ground water aquifers as evidenced by a drop in the water table. Displaced groundwater may be pumped from the mine or it may leak through other connective pathways. There now exists an association between rainfall events on the lease site and pumping from the mine, indicating surface to seam cracking. Extension of mining into Area 5 will add to the already very large impacts in previously mined areas.

43. The cumulative creep of impacts has been obscured by a history of geotechnical reports that tended to raise more questions that would require more reports to answer. This era is now closed, all necessary reports have been written. Definitive expert opinion provided to government by both the IEPMC and the IAPUM following the work done by IPM consultants on the Height of Cracking make it clear that the Dendrobium mine is damaging the catchment and draining water. Major findings determined that groundwater in shallow Hawkesbury sandstone is affected by mining. Piezometer readings demonstrate draining of swamps from as far away as 250-900m. Apart from periods of very high rainfall the swamps remain completely drained once they are undermined.[36]

44. Surface water and ground water hydrology are interconnected. The full extents of impacts are not quantifiable as they may extend in perpetuity, but the scale of losses exceeds the capacity of

[34] IAPUM meeting 14 December 2021 with IPC. Transcript. P 4. https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/transcripts-and-material/2020/dendrobium-extension-project/iapum-meeting-transcript.pdf

[35] EIS. Section 7 Environmental Assessment. P 7-33.

[36] Young, Ann (2017) Upland Swamps of the Sydney Region, ISBN 9780-0-9943814-1-5

WaterNSW to accept proposed temporary offsets.[37] The admission to the IPC that there is no solution to sealing the mine has altered the wishful calculus of offsets.

45. The pumping of significant groundwater from the mine was not anticipated in the prior terms of approval. Apart from contesting the detailed impacts on hydrology the miner is no longer able to dispute that groundwater is affected. It is possible that the mine will fall into non-compliance with regards to holding a sufficient licence to allow drawing down surface water and interfering with Aquifers. Prohibitions on mining activity are set out in the Aquifer Interference Policy, but such details seem to be more honoured in the breach than in the observance.

46. The SSI declaration draws attention to the concept that the mine constitutes infrastructure or at least provides coal resources for the economic infrastructure of BlueScope steelworks, such coal could be obtained elsewhere at a price. It might be useful to consider whether the water catchment land above the coalmine also constitutes infrastructure, given that it was specifically set aside to provide an essential drinking water resource to the people. The following outline of responsibilities of WaterNSW gives voice to the contested concept of "infrastructure".

47. WaterNSW has defined Mining Principles to manage mining and coal seam activities in Declared Catchments. These Principles establish the outcomes WaterNSW considers essential to protect the drinking water supplies to the four and half million people of Sydney, Illawarra, Blue Mountains, Southern Highlands, Goulburn and the Shoalhaven. A key policy position of WaterNSW is that: WaterNSW opposes any longwall mining located within the Dams Safety Committee notification areas surrounding WaterNSW's dams in the Declared Catchment, or elsewhere, where it is predicted to damage Sydney drinking water supply infrastructure. We refer you to these Mining Principles which address the following:[38]
    - Protection of water supply infrastructure;
    - Protection of water quantity;
    - Protection of water quality;
    - Protection of the ecological integrity of Special Areas.

<u>Expert Submission</u>

48. We refer you, Minister, to the Expert Submission of Mr Peter Dupen (**Attachment 1**) who discusses both groundwater and surface water issues related to this Project. Like the IAPUM highlighted to the IPC during the assessment of the earlier SSD-8194 project, Mr Dupen also highlights in his report that groundwater takes eventually become surface water takes:

    "What these predictions don't highlight is that ultimately all of these inferred groundwater takes will be reflected by surface water takes (Section 6.1.3), as there is an unstable depressurisation induced by pumping at seam level which must ultimately be filled from infiltrating surface waters above. The groundwater takes from Area 5 alone will average around 4 ML/day between 2026 and 2038, and the total groundwater which needs to be pumped to keep Area 5 open will average around 14.5 ML/day. Based on the figures presented in the EIS, H2onestly calculates that the total volume of groundwater, and ultimately by surface water from overlying catchments, taken in order to mine Area 5 will be around 80 GL using a volumetric conservation estimation method" (**Attachment 1**, p 9).

[37] WaterNSW submission to the Independent Expert Panel on Mining in Sydney Catchment – Task 1 Matters May 2018
[38] https://www.waternsw.com.au/__data/assets/pdf_file/0009/119889/Mining-Principles.pdf

49. Clearly this Project will only further damage the water catchment and devastate ecosystems contained within it. Approval will further reduce catchment water supply and water quality. POWC Inc supports WaterNSW's mining principles, and we submit that no more damage to the water catchment is acceptable and no further ground water losses are acceptable. Minister, POWC Inc requests that you refuse consent on the basis of groundwater impacts.

SURFACE WATER: The Project's EIS-estimated surface water losses, though large, are likely under-estimates of real surface water losses given prior history at the Dendrobium coal mine. Furthermore, mining-induced water losses and associated water quality impacts are likely to be permanent and enduring problems for future generations, given that sealing of the mine will be impossible. Approval of this Project would not be consistent with ESD principles, or with Objects (a), (b), (c), (e) or (f) of the EP&A Act.

50. The IPC considered Surface Water to be a *key issue* in their SoR for refusing consent to the Dendrobium SSD-8194 project and they made the following findings related to Surface Water[39]:

> 208. The Commission acknowledges the uncertainty about the accuracy and reliability of predicted catchment water that would be lost to subsidence from mining activities at Area 5 and Area 6 from the 25 watercourses described in paragraph 185.
>
> 209. The Commission acknowledges that the findings of the IEPMC, the IAPUM and WaterNSW regarding surface water losses differ markedly from that of the Applicant. However, it is apparent from the submission of WaterNSW that water loss estimates at existing Dendrobium mining areas have continuously been underestimated.
>
> 210. The Commission agrees surface water losses are derived from the groundwater modelling. Due to the reasons outlined in the Concluding Statement No. 29 of the IAPUM Report (see paragraph 206) the IAPUM does not consider the predicted losses from rivers and named creeks to be necessarily conservative. Nevertheless, the IAPUM considers they are likely to be very low relative to water supply yields from the catchment. According to the IAPUM the Project would result in a 3.9 percent reduction of the yield of the Avon Reservoir catchment during drought conditions. There is uncertainty about the quantity of surface water that would be lost due to subsidence from mining activities in Area 5 and Area 6.
>
> 211. The Commission acknowledges that the IAPUM and numerous submissions have raised concerns about the impacts of mining activities and subsidence on water quality.
>
> 212. The Commission notes that the IAPUM in Concluding Statement No. 34 of the IAPUM Report (see paragraph 207) states the impact assessments do not recognise that watercourses constitute systems that can rely on all stream features for their function and ecological integrity and that the identification of the selected stream features does not assure the full protection of streams from mining impacts. The Commission agrees with the IAPUM.
>
> 213. The Commission agrees there is uncertainty with mine closure planning for the Project. The Commission's concerns include whether it is possible to seal the mine and the long term and potentially irreversible impact upon the quantity and quality of surface water.
>
> 214. The Commission agrees there is uncertainty in accurately quantifying water losses and hence is of the view that it is not possible to assess the appropriateness of the Applicant's proposed financial offset for surface water losses and water quality impacts (paragraph 187).
>
> 215. For the reasons set out above, the Commission is of the view that the long-term and uncertain impacts upon surface water quantity and quality are not acceptable and are unable to be adequately addressed by conditions of consent. The impacts are not consistent with the principles of ESD and the Objects of Act contained in Section 1.3 of the EP&A Act, particularly objects (a), (b), (c), (e) and (f).
>
> 216. Consequently, the Commission's findings on the Project's impacts on surface water, taken with the other findings in this Statement, are a reason for the Commission's refusal of the present Application.

51. WaterNSW make it clear that they are reluctant participants in the planning process that allows continuing damage to the water catchment and water losses. POWC Inc draws attention to the following advice offered by WaterNSW to the DPE in the writing of SEARS for this SSI Project:

> "**Surface water losses and water offsets.** Any lost surface water due to the proposed mining means a loss to WaterNSW for use as a drinking water supply and distribution. The IEPMC has highlighted that the mine design adopted for mining in Dendrobium Mine Areas 1, 2 and 3 has resulted in surface water losses that are very significant compared to other mines in the Special Areas like Metropolitan Mine and Russell Vale Colliery. There is also no licensing arrangement in place for the surface water take at Dendrobium Mine. The draft Greater Sydney Water Strategy is currently out

[39] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. pp 55-56 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

for consultation wherein it identifies: "Our sustainable supply level is up to 540 gigalitres (GL) per year (a bit less than the volume of water in Sydney Harbour) and modelling suggests this may be about 40 to 70 GL/year less than we need under a moderate growth scenario. Increasing climate variability means that, without action, we could face a shortage of drinking water with more and longer periods of severe drought". WaterNSW will only support the consideration of water offsets for the Area 5 Extension Project as a Contingency Measure. WaterNSW does not support IMC's proposal to offset surface water take for the revised Dendrobium Area 5 Extension Project as suggested in the Scoping Report. IMC need to consider mine design options to avoid/minimize surface water losses and options for treating and returning underground mine water back into the Sydney drinking water catchment."[40]

52. This Project's EIS predict surface water losses in Area 5 to about 428 ML/y (which the EIS expects will compound the predicted 'take' from surface watercourses up to 1450 ML/y from the whole Dendrobium Mine, including Area 5.[41] However, POWC Inc does not have much confidence in these estimates given that the experts in this space – namely the IEPMC, the IAPUM and WaterNSW – all disagree with South32's estimates, with WaterNSW specifically noting that water loss estimates at Dendrobium coal mine have consistently been under-estimates of real water losses (IPC SoR, para 209, above).

53. Surface water losses are the immediate red flag for mining impacts occurring inside an area set aside especially for the protection of water assets; yet the extent of losses are clouded, built on predictions flowing from a long history of inadequate geotechnical reports from the miner. This history so concerned government that reports from WaterNSW and the Office of Environment and Heritage and an external expert report were commissioned to examine the concerns of the technical obfuscation by miners that had been raised in the media. The Height of Cracking report (PSM 2017)[42] provided a starting point for terms of reference in the establishment of the IEPMC. The IEPMC then provided a further report to government and the IAPUM offered advice to the IPC on the previous Dendrobium SSD-8194 project. The upshot is that WaterNSW currently has no confidence that water losses have been adequately quantified in either extent and duration.

54. Furthermore we have no confidence that the plan to inflict damage has been modified in the latest iteration to achieve anything other than maximum coal extraction within the mine footprint. There is no viable proposal to stop groundwater from leaking in perpetuity from the mine portal at the base of the escarpment. Continuing leakage from below will continue to draw in surface water from above.

55. Given all of the above, POWC Inc considers that the IPC's final statements in the context of surface water in the previous SSD-8194 project that

    "the long-term and uncertain impacts upon surface water quantity and quality are not acceptable and are unable to be adequately addressed by conditions of consent. … [T]he Project's impacts on surface water … are a reason for the Commission's refusal of the present Application"

    apply equally as well to this current Project.

[40] WaterNSW Input into Secretary's Environmental Assessment requirements (SEARs) for Dendrobium MineArea 5 Extension Project D2021/130215, p 5. https://pp.planningportal.nsw.gov.au/major-projects/projects/dendrobium-mine-extension-project-0

[41] EIS, Section 7, Environmental Assessment. P 7-19

[42] PSM Consultants. Height of Cracking – Dendrobium Area 3B. For the Department of Planning and Environment March 2017

Expert Submissions

56. We refer you to the Expert Submission of Mr Dupen (see **Attachment 1**) who made the following comments in relation to surface water quantity impacts:
    - "Analyses performed by Dendrobium's surface water consultants (HEC, 2022) suggest that these stream lengths will be affected by subsidence, and most of the streams and catchments overlying the Area 5 longwalls will become cracked and dry as have the Areas 1, 2 and 3 longwalls to date." (p 6)
    - The total surface water lost "ultimately must add up to the volume of the void created, plus the total water volume pumped out over the life of the mine" (p 6)
    - "H2onestly does not agree that the volumes which will be diverted from the surface catchments attributable to Area 5, which we predict will total around 80 GL (refer Section 6.1.3), are "low"." (p 6)
    - "streams may thus also incur partial or complete loss of pool holding capacity. As a result, the riparian ecosystems which fringe the streams over the project area will be significantly and permanently altered." (p 7).

57. Dr Dupen's Expert Submission (**Attachment 1**) also discusses surface water quality impacts. He points out that orange (iron-containing) pollution is visible in streams in subsided areas, and expressed concerns that partially repressurised springs may continue to discharge water with elevated metal concentrations for decades or even centuries. Moreover, in relation to our drinking water reservoirs he stated:

    "The IEPMC report (2019) notes that "there is no evidence that mining in the Special Areas is currently compromising the ability of WaterNSW to meet raw water supply agreement standards". Whilst this remains true, it does not confirm that there is no toxic metal legacy accumulating within the sediments of the receiving storages (particularly Avon, Cordeaux and Woronora Reservoirs). The possibility that the metals from the impacted streams are settling and adsorbing to sediments and colloids remains a very plausible but largely untested hypothesis. If there are such metal-laden sediments accumulating, there of course remains a risk that these will eventually compromise drinking water quality (health or aesthetics) and will require expensive and ongoing treatment for future generations of Sydney and Illawarra residents to pay for." (p 9)

58. The Project will contribute to further water pollution impacts in the Sydney Water Catchment. We submit the Expert Submission provided by Dr Ian Wright (**Attachment 7**) who considers that potential water pollution and related impacts on water ecology are inadequately addressed in the EIS. Dr Wright has spent several years investigating and documenting water quality issues related to mining in the water catchment. Dr Wright expresses concern also that subsidence damages to stream channels is irreparable.

59. Further, Dr Wright (**Attachment 7**) highlights that impacts of wastewater generated by this Project and discharged into Allans Creek are poorly considered within the EIS. He considers this "a major omission as sediment in Port Kembla Harbour and Allans Creek are known to be historically contaminated with hazardous concentrations of metals." (p 1).

BIODIVERSITY AND UPLAND SWAMPS: This project would lead to biodiversity losses and damage/destruction of Upland Swamps ecosystems – this is utterly unacceptable and would be inconsistent with ESD principles and especially inconsistent with Objects (a), (b) and (e) of the EP&A Act.

60. The IPC considered Biodiversity and Upland Swamps to be a *key issue* in their SoR for refusing consent to the Dendrobium SSD-8194 project and they made the following findings related to Biodiversity and Upland Swamps[43]:

> 247. The IESC noted that the Project would increase the area at Dendrobium Mine affected by subsidence, including undermining Upland Swamps and first, second and third order streams and that this would result in considerable changes to surface water flows and water regimes within the impacted stream reaches and swamps. The IESC concluded that "*the primary impacts from the proposed project will be to water-dependent ecosystems on-site*" (paragraphs 188 and 189). The Commission agrees that the subsidence effects of longwall mining would impact on the hydrological regime and hence result in drier conditions for up to 46 Upland Swamps and 25 watercourses in or near Area 5 and Area 6.
>
> 248. The Commission agrees with the IESC at paragraph 244 that drier conditions for Upland Swamps would increase risks associated with bushfire and impacts upon their integrity and continuity.
>
> 249. The Commission acknowledges that the Applicant has placed particular limits on impacts in the case of four named watercourses and 57 key stream features, to provide for some degree of mitigation and remediation of impacts on these features as stated in paragraphs 97 and 195. However, the Commission notes the IAPUM's comments that the ecosystem values of these streams are unlikely to be protected by the setbacks around 'key stream features' (as stated in paragraph 245).
>
> 250. The Commission agrees with the IESC's view that remediation is confined to partially re-establishing the site-specific functionality of individual features and that there is limited confidence in the ability to effectively remediate site specific individual stream features. To the IESC's knowledge there are no peer-reviewed publicly available reports to indicate that any such remediation attempts (for swamps and streams) have been successful. The Commission also agrees with the Department's conclusion in the report into *Mining Impacts at Dendrobium Coal Mine Area 3B (2015)* that "*remediation of swamps damaged by subsidence has not yet been proven to be viable*".
>
> 251. The Commission accepts BCS's findings as presented in paragraph 221 that the amended layout does not materially reduce the impact upon Coastal Upland Swamps and that in its current form the proposed mine layout remains likely to have a significant impact on threatened species and ecological communities. The Commission agrees with BCS's opinion that the proposed mine layout does not satisfactorily demonstrate the "avoid" principle has been met.
>
> 252. For the reasons set out above, the Commission is of the view that the significant and long-term impacts on biodiversity, including Upland Swamps, are unacceptable and not capable of being addressed by conditions. The impacts are moreover not consistent with the principles of ESD and the Objects of Act contained in Section 1.3 of the EP&A Act, particularly objects (a), (b), (c) and (e).
>
> 253. Consequently, the impacts of the Project on biodiversity, including Upland Swamps, are a reason for the Commission's refusal of the present Application.

<u>Our biodiversity relies on water</u>

61. Plants and animals depend on water for life. Longwall mining cracks the landscape above, robbing clean water from the surface and returning contaminated water downstream. The draining of water above and the contamination of groundwater below, each has ecological consequences.

62. Before agreeing to destruction it should be necessary to know what is being sacrificed; it should be accepted that sufficient research be conducted to describe the assets at stake. It would also seem sensible that those who seek to profit from destruction are not in charge of that research. Reports commissioned by miners into the impacts of mining on the overlying ecology might be read with a view

[43] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. pp 63-64 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

to the underlying need to return maximum value to the shareholder, perhaps betraying the natural values that are consumed in making profits. Despite the prohibition of independent research into the ecology of the mining leases, which take up 80 percent of the Illawarra Special Areas and is accessible only to mining companies, there is no shortage of past reports detailing the natural values of the land in question. Such material was considered by the IPC who included biodiversity impacts in their Statement of Reasons for refusing consent (IPC SoR, para 247-253 above).

63. Clean water that sluices through mined material is no longer fit to enter the drinking supply; mining water will continue to leave the Dendrobium project via a pipeline out AllansCreek through Port Kembla and then out to sea. Water that flows through rock cracked by subsidence damage may also flow out into the streams that feed the reservoirs, such water will carry elevated levels of mineral contamination that will adversely affect stream life. The alteration to runoff patterns will lead to increased dry periods between rainfall events that will also adversely affect stream life.[44]

64. The surface water is firstly lost to the Upland Swamps that are the glittering jewels in the catchment; holding the highest biodiversity values, as described by Ann Young in her book *Upland Swamps of the Sydney Region*.[45] "The swamps are species rich, partly because the mosaic of plant habitats. In O'Hares Creek catchment over 240 species were identified within the swamps.[46] Dr Tanya Mason who conducts research on this topic states in her Expert Submission (see **Attachment 3**) that "statistically robust and peer-reviewed research indicates that longwall mining represents an unambiguous hydrological disruption with short and long-term physical change (Mason et al. 2021).[[47]] It is intuitive that groundwater-dependent ecosystems such as swamps will experience fundamental change to vegetation communities."

65. The loss of surface and groundwater from mining in the water catchment may be measured against the drinking water supply, but **before water is collected it serves an environmental role in the catchment that is not accounted for in the proposed water offset arrangements**. As water is lost to subsidence cracking the environment becomes more arid. Increasing aridity will reduce the vigour of vegetation that may in turn affect water quality as the ground becomes more prone to erosion. Increasing water stress will adversely affect the plants and animals adapted to survive on a minimum base load water supply. Local extinctions will inevitably occur for plants adapted to growing in a wet environment. Amphibians are particularly vulnerable to local extinction when previously reliable wet periods fail to produce standing water. The threatened Giant Burrowing Frog has tadpoles that need up to 11 months in a pool of water before emerging onto land. The threatened Giant Dragonfly spends years of its life underwater in larval form and though the adult may have wings the larvae has no capacity to find other water bodies. Of the 22 recognised species of threatened fauna found on Area 5, beside the iconic Giant Dragonfly, four species are frogs, entirely dependent on surface water. In addition there are eight species of bats and four species of small birds that feed on insects that proliferate in the productive riparian zones. Three species of possums and gliders would depend on finding local drinking water. The Grey-headed Flying-fox and the White Bellied Sea Eagle both need to drink but would be least affected by losing surface water given a superior ability to fly. Despite a common misconception that Koalas obtain all their water needs from eating gum leaves, they too need to drink from local water sources in heatwaves and droughts.

66. Besides the direct impact on threatened species the drying of surface water and soil moisture decreases the plant productivity at the base of the broader food web and fewer insects that convert

[44] Cunningham, 2017. The effect of subsidence from long wall coal mining on the ecology and water quality of streams. B. App. Sc (Honours) thesis, Canberra University.
[45] Young, Ann (2017) Upland Swamps of the Sydney Region, ISBN 9780-0-9943814-1-5
[46] Young, Ann (2017) Upland Swamps of the Sydney Region, ISBN 9780-0-9943814-1-5. P 8.
[47] Mason, T. J., M. Krogh, G. C. Popovic, W. Glamore and D. A. Keith (2021). "Persistent effects of underground longwall coal mining on freshwater wetland hydrology." Science of the Total Environment **772**: 144772.

plant material into animal protein. The swamps are only part of the bigger picture; consistent water supply runs out of the swamps into areas below, and animals are able to migrate to swamps and streams to find water in times of need. It is impossible to quantify the full range of impacts of increasing aridity; desertification is synonymous with land mismanagement and leads to inevitable loss of biodiversity. There are some species that may benefit from the loss of water, by inhabiting inhospitable space, but these are the exceptions that prove the rule: **water is essential to life**.

Expert Submission related to Upland Swamps

67. POWC Inc considers that the IPC's reasons for refusing the Dendrobium SSD-8194 project on the basis of unacceptable impacts on biodiversity including on Upland Swamps, are reasons again for refusing this current Project. We refer you to Dr Mason's Expert Submission related to the likely impact of this Project on Upland Swamps as **Attachment 3**.

Apparent lack of environmental management and abatement plans for *Phytophthora cinnamomi*: a key threatening process

68. Infection of native plants by the plant pathogen *Phytophthora cinnamomi* is a listed *key threatening process* under the NSW Threatened Species Conservation Act (TSC Act), 1995 in Schedule 3 of the Act with listing of key threatening processes provided for within Part 2 of the TSC Act[48].

69. Dieback caused by the root-rot fungus *Phytophthora cinnamomi* is also listed key threatening process under the Commonwealth EPBC Act, 1999.[49]

70. This Project will involve entry of South32 employees and contractors onto the surface of the Metropolitan Special Area, an area that has very high native flora and ecological values, and an area where ordinary citizens are not allowed. POWC Inc questions whether the adverse environmental and biodiversity impacts of *Phytophthora cinnamomi* have been fully considered by South32. We find no evidence within the current SSI-33143123 EIS for area 5 and previous SSD-8194 EIS for Areas 5 and 6, that soil testing has been carried out to establish quantifiable baseline data sets for the presence of this invasive plant pathogen. Collection of this baseline data is critical to the implementation of effective abatement plans if required.

71. We ask you, Minister, to make testing and subsequent prevention/abatement practices requirements on all land surface activities that form any part of South32's continued mining activities in the water catchment. As land-users South32 have a responsibility to carry out their work in accordance with the NSW and Commonwealth Acts in relation to stopping the spread of *Phytophthora cinnamomi*.

72. The presence of *Phytophthora cinnamomi* has been known to cause profound flora die-back and ecosystem collapse. Once it is established in an area, there are no known ways to successfully eradicate it without risking profound and whole-system ecological damage from use of chemical toxins - so prevention and abatement are critical.

[48] https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2000-2003/infection-of-native-plants-by-phytophthora-cinnamomi-key-threatening-process-listing

[49] https://www.awe.gov.au/biosecurity-trade/invasive-species/diseases-fungi-and-parasites/phytophthora-cinnamomi-disease

FIRST NATIONS CULTURAL HERITAGE: If approved, this project will sanction disrespect towards Australia's First Nations Peoples and lead to loss of First Nations Cultural Heritage. Instead, as a State and as a Country we need to learn and demonstrate respect. This Project is inconsistent with Object (f) of the EP&A Act.

73. The IPC considered **Aboriginal Cultural Heritage** to be a *key issue* in their SoR for refusing consent to the Dendrobium SSD-8194 project and they made the following findings related to Aboriginal Cultural Heritage[50]:

> 273. As stated in paragraph 140 the Commission finds that the likelihood of significant subsidence (cracking) impacts from the proposed longwall mining in Area 5 and Area 6 is high. The Commission acknowledges BCS's concerns raised in paragraph 260 relating to the proposed longwall layout and that it is likely to harm multiple Aboriginal cultural heritage sites, including a number of sites of high Aboriginal cultural and scientific significance, due to subsidence from undermining. The Commission notes that the BCS is of the view that vertical subsidence of 1 to 2 m "would" impact key sites and that such sites were "unlikely to survive" as referenced in paragraph 267 above.
>
> 274. The Commission also acknowledges that the ILALC is of the view that the Project's subsidence impacts in Area 5 and Area 6 upon Aboriginal cultural heritage values and the landscape have not been adequately considered.
>
> 275. At the Commission's Site Inspection on 24 November 2020, a representative of the ILALC highlighted the importance of the understanding of Area 5 and Area 6 in the context of its place in a wider cultural landscape where Aboriginal people had camped, hunted, fished and held ceremonies, and pointed out that physical presence of artefacts was only one aspect of a long connection to, use and responsibility for that wider landscape. The Commission respects and acknowledges the importance of Aboriginal Cultural Heritage and its greater significance than the presence of artefacts might indicate.
>
> 276. The Commission agrees with BCS that the Project is likely to harm multiple Aboriginal cultural heritage sites, including a number of sites of high Aboriginal cultural and scientific significance.
>
> 277. For the reasons set out above, the Commission is of the view that the Project is likely to have unacceptable impacts on items/areas of Aboriginal Cultural Heritage. The Commission is therefore of the view that the significant, long-term and uncertain impacts upon Aboriginal Cultural Heritage are not consistent with the ESD principles (precautionary principle and inter-generational equity) and the Objects of Act contained in Section 1.3 of the EP&A Act, particularly object (f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).
>
> 278. Consequently, the Commission finds that the impact on Aboriginal Cultural Heritage is, taken with the other findings of the Commission, a reason for refusal of the present Application.

74. POWC Inc applauds the IPC whose considerations and whose findings above, demonstrate respect for and acknowledgement of First Nations Cultural Heritage. We ask you Minister, to also demonstrate respect for our First Nations Cultural Heritage. Below we discuss the findings from the two Aboriginal Cultural Heritage Assessments (ACHA) undertaken by Niche on behalf of South32, as summarised in the table below[51]:

	SSD-8194 (IPC-refused) Dendrobium project	**SSI-33143123 (current) Dendrobium project**
Year Assessment Began	2017	2021
Number of First Nations Individuals/Groups Invited to Become Involved at RAPs	75	75
Number of RAPs	17	30
Number of Heritage Sites Identified in Records and in Field Surveys	58 (28 in Area 5; 30 in Area 6)	31 (28 already known; 3 more identified during revisit of Subject Area).

RAP means "Registered Aboriginal Party".

[50] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. pp 68-69 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

[51] Information summarised from EIS. Appendix F – Aboriginal Cultural Heritage Assessment Report. Niche (2022).

75. POWC Inc wishes to show respect towards Australia's First Nations Peoples. In the Niche (2022) ACHA document we read that some RAPs find that being referred to as "Aboriginal" is offensive. This is consistent also with feedback that some of us have received in person. So, where we are not referring to the document itself or to RAPs as referred to in the report, we use "First Nations Peoples" in this submission.

76. POWC Inc notes that: More First Nations people responded and involved themselves as RAPs during Niche's second ACHA process for this current Project. Also, despite very limited time allocated to field surveying, nonetheless three additional cultural heritage sites were identified. Given real time and real opportunity and a seriousness of intent to respect our First Nations people, how many more people might come forward to be involved and how many more "sites" might be identified? Given this backdrop, POWC Inc considers the Niche-reported estimates of cultural heritage and potential damage to be necessarily lower-bound estimates.

77. Two further things become very clear from reading the EIS Appendix F which is Niche's (2022) ACHA:
    - First Nations peoples (Dharawal or others) have lived in the proposed 1,980 ha impact area for thousands of years.
    - None of the 30 involved RAPs want this Project to go ahead.

78. The Niche (2022) ACHA report discusses the 31 cultural heritage "sites" and classifies them according to their scientific significance even while acknowledging that the consulted First Nations people considered all sites to have high cultural significance. POWC Inc draws to your attention, a point made many times by RAPs involved in the recent ACHA, that First Nations Cultural Heritage is not about "sites" per se, but rather that the sites are part of rich complex cultural landscapes where meaning occurs through connections of sites to each other and to the natural environment, and form part of the stories about people on country and connections between people and country over time. The landscape and flora and fauna themselves together are sacred and part of the story. When we read some RAPs' written comments on Niche's draft report, their distress is palpable, for example[52]:
    - *I would like to say that we do not agree with this project that will damage our mother and in return will have affects on us as people if it were to go ahead.*
    - *The water ways are of high significant to our people, as they provide a source of fresh water and natural resources. We use water ways for birthing, bathing, stone tool manufacturing and many other actives, without water we would not be here. Aboriginal people would perform ceremonies and dance in hope of rain or water to be flowing regularly. Water ways are used to guide us, marking tribal boundaries, but was shared with all owned by none.*
    - *From our perspective the country is our mother we come from mother and we have the responsibility to look after her and everything on her so it is able to sustain everything and intern us. If we fail in this we will no long exist. So everything you see hear smell touch has purpose, meaning in our culture and is part of complex system. As the oldest culture on mother we are not separate or above anything we are a part of this complex system this is why we are the oldest. Our cultural lore holds the stories of our people and our country it gives us our identity, responsibilities and purpose.*
    - *To indicate the potential cumulative impacts is only across the proposed subject area and those areas that directly adjoin we believe fails to appreciate, respect and understand our culture. Through colonisation and to present FNP across this nation have been impacted from stealing of country, destroying culture and destroying of physical places and objects. This report fails to even consider what these effects have had on just the dharawal family never the lese our connection across this nation.*

[52] EIS, Appendix F – Aboriginal Cultural Heritage Assessment. Niche(2022). Selected written comments from Wori Wooilywa and Kamilaroi Yankuntjara Working Group, pp 46-49.

- *Are you able to pretend that projects that are proposing to damage mother do not have an effect on FNP and are against our cultural values. Would it be ok to know about or me to go to your mother and remove an internal organ, contaminate her blood profit from it then walk away and whatever happens after hold no accountability, regret or remorse I would think not. When is the taking from our culture and FNP going to stop so our children can have their respect dignity and purpose back?*

79. POWC Inc notes that the predicted subsidence for this project of 2,000 mm, is very similar to the predicted subsidence of 2,050 mm over Area 5 for the previous SSD-8194 project. And we refer to the IPC's finding at paragraph 273 (copied in above) which noted that BCS considered that "*vertical subsidence of 1 to 2 m "would" impact key sites and that such sites were "unlikely to survive".* Therefore POWC Inc is concerned that many First Nations Cultural Heritage "sites" will be damaged or destroyed.

80. Object (f) of the NSW EP&A Act[53] is: *to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).* Approval of this project would be inconsistent with this object.

81. Nonetheless, POWC Inc feels concerned that NSW laws do not provide stronger protections for and recognition of our First Nations Cultural Heritage. POWC Inc strongly objects to the proposed destruction of First Nations Cultural Heritage sites and of the wider cultural landscape. We object to the disregard for Dharawal heritage within the EIS. We object to the fact that First Nations Cultural Heritage protections are so poor in NSW – where it seems that monitoring of First Nations Cultural Heritage is required, but there is no requirement to preserve cultural landscapes and facilitate First Nations Peoples' connections to country. And that there are no penalties for South32 when it damages or destroys First Nations Culture. It must feel so much like insult added to injury that RAPs are required to be "consulted" as part of the process by which damaging projects like this one are assessed. Further, we note that the NSW Planning Department recommended approval of the earlier, even more damaging, larger Dendrobium SSD-8194 project. That was appalling. POWC Inc does not want another further Juukan Gorge[54] experiences on our doorstep.

82. It concerns POWC Inc members that such disrespect continues the disinheritance, dispossession and disconnection from country begun 250 years ago. It does nothing positive towards overcoming disadvantage and discrimination faced by First Nations Australians, evident in their shorter life expectancies, higher burden of disease, higher rates of incarceration and deaths in custody, compared to other Australians. Modern Australians are the beneficiaries of more than 60,000 years of caring for country by Indigenous Australians. Allowing destruction of First Nations Cultural Heritage seems a denial of that truth and our debt. It is profoundly unfair and we ask you, to let damages to First Nations Cultural Heritage be one of your reasons, Minister, for denying approval to this Project.

[53] http://classic.austlii.edu.au/au/legis/nsw/consol_act/epaaa1979389/s1.3.html
[54] https://www.abc.net.au/news/2021-10-18/juukan-gorge-report-tabled-in-parliament-canberra/100542640

GREENHOUSE GAS EMISSIONS (GHGE): Approval of this project is inconsistent with real action to limit climate heating. We need to commit to rapidly reducing GHGE and very rapidly transition away from coal, even for steel-making, to avoid disastrous climate heating.

IPC Findings related to GHGE for Dendrobium SSD-8194

83. The IPC listed Greenhouse Gas Emissions as a *key issue* in their SoR for refusing consent to the Dendrobium SSD-8194 project. They made the following findings related to Greenhouse Gas Emissions[55]:

> 298. Clause 14(1)(c) of the Mining SEPP requires the Commission, "before granting [any] consent" to "consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure… that greenhouse gases are minimised to the greatest extent practicable".
>
> 299. Given that the Commission has determined on other grounds to refuse the Application, no conditions of consent regarding GHGE are required.
>
> 300. Clause 14(2) of the Mining SEPP requires the Commission, "in determining a development application" to "consider an assessment of the greenhouse gas emissions (including downstream emissions) of the [Project], and to do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions".
>
> 301. The Commission has considered the Applicant's and Department's assessment of GHGE and agree with Lock the Gate's submission (see paragraph 283) that predicted Scope 1, Scope 2 and Scope 3 GHGEs from the Project would be significant.
>
> 302. The Commission notes that the Applicant is yet to install flaring infrastructure in any of the mine's current five mining areas as stated by the Department in paragraph 297 above.
>
> 303. In applying clause 14(2) of the Mining SEPP is the CCPF, the aim of which is to achieve net-zero emissions by 2050 and to ensure that NSW is more resilient to a changing climate. The Commission notes that the CCPF does not set prescriptive emission reduction standards but does set policy directions for government actions. The Commission also notes that in March 2020 the NSW Government released the Net Zero Plan, which builds on the CCPF and sets out a number of initiatives to deliver a 35% cut in emissions by 2030, compared to 2005 levels. The Net Zero Plan provides that *'Mining will continue to be an important part of the economy into the future and it is important that the State's actions on climate change does not undermine those businesses and the jobs and communities they support'.*
>
> 304. The CCPF is not directive as to whether a mining project must or must not be refused by reason of GHGE. The Commission considers that in order to reduce emissions, the Project could be conditioned in a manner to ensure methane emissions are flared or that offsets are provided accordingly which in the Commission's view could address the objectives of the CCPF.
>
> 305. The Commission has had regard to the predicted extent of the GHGE resulting from the Project, and the matters raised by the Department in its assessment referred to in paragraphs 290 - 297 above.
>
> 306. The Commission finds that, on balance, and when weighed against clause 14(1)(c) and clause 14(2) of the Mining SEPP, the relevant climate change policy framework, the objects of the EP&A Act, ESD principles and the socio-economic benefits of the Project, the impacts associated with the GHGE of the Project would be capable of being appropriately addressed if consent were to be granted to the present Application.

Note: CCPF means NSW Climate Change Policy Framework

84. POWC Inc finds the IPC's findings in relation to the previous Dendrobium SSD-8194 project are not explicit in terms of how they would consider the GHGE for the current SSI-33143123 Project. The IPC did not refuse the earlier project on the basis of the Scope-1, 2 & 3 GHGE although they acknowledged these emissions were significant (IPC #299 & #301, above). Rather, the IPC implied that if they had approved the earlier project then they would have conditioned the project to ensure that (the project's Scope-1) methane emissions were flared or appropriately offset (IPC #304, above) in order to address the CCPF objectives (IPC #304, #306, above). They also noted that at the time of their determination

[55] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. p 73 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

(February, 2021) South32 was not flaring their methane emissions at any of the existing mine's areas (IPC #302, above).

85. POWC Inc is aware that since then, South32 has received $15 million from the NSW government for a *trial* emissions abatement demonstration facility to which South32 contributes only $4.5 million[56]. In the related media release, NSW Deputy Premier Paul Toole acknowledged that fugitive emissions from NSW coal mines account for 8.9 % of NSW's GHGE – with most of those emissions coming in the form of ventilation air methane.

86. POWC Inc is not clear whether or not all methane emissions from all Dendrobium-mined Areas will or will not be flared, given the trial nature of the not-yet-built abatement facility. Also, the EIS is unclear on fugitive methane emissions post-mining – what will their quantities be?

87. Additionally, we are not at all confident that GHGE offsets – the alternative indicated by the IPC – purchased in Australia are credible or effective, given recent (March 2022) reports of ANU Law Professor Andrew Macintosh's questioning of the integrity of carbon offset schemes under Australia's Emissions Reduction Fund[57].

88. POWC Inc interprets the IPC's findings in relation to the previous project that such significant GHGE would need to be "appropriately addressed" (IPC, #306) to be consistent with CCPF objectives. But very likely this will happen only to a limited extent in the context of this revised current Project, given the current no-flaring situation and the timeframes involved. The EIS indicates that South32 proposes gas drainage and then flaring at Dendrobium, but only for future mining (including this Project)[58]. But South32 itself seems unclear about the extent to which Scope-1 GHGE will be able to be flared or not – we copy in Table 2 from the EIS's Appendix R Greenhouse Gas Report below[59].

Table 2
Summary of Greenhouse Gas Emissions Estimates

Component	Estimated Greenhouse Emissions (Mt CO_2-e)			
	Scope 1		Scope 2	Scope 3
	No Flaring	Flaring		
Annual Average (during longwall mining in Area 5)	1.4	1.0	0.07	9.2
Maximum Annual Value	1.7	1.2	0.09	12.5
Total for Project Life	14.3	11.0	1.2	75.8

After: Ramboll (2022).
Note: Mt CO_2-e = Million tonnes of carbon dioxide equivalent.

89. In any case, if flared, every methane molecule (CH_4) leads to a carbon dioxide molecule (CO_2), and those carbon dioxides would need to be offset too. It seems the IPC's intent was that all Scope- 1&2 GHGE should be offset if the SSD-8194 project had been otherwise approvable – to address the need for NSW to achieve its stated climate targets.

[56] NSW govt. Deputy Premier. Media Release: *$15 million for South32 emissions abatement demonstration facility*. 26 April 2022. https://www.nsw.gov.au/media-releases/south32-emissions-facility
[57] ABC News. Insider blows whistle on greenhouse gas reduction schemes. 24 March 2022. https://www.abc.net.au/news/2022-03-24/insider-blows-whistle-on-greenhouse-gas-reduction-schemes/100933186
[58] EIS. Appendix R – Greenhouse Gas Assessment. P 20.
[59] EIS. Appendix R – Greenhouse Gas Report. South32 (2022). P 18.

Significance of predicted GHGE

90. POWC Inc considers that the predicted *total* GHGE from this Project **are significant and all contribute to global heating.**

91. However, POWC Inc also considers that **even with flaring,** the predicted Scope- 1 & 2 GHGE from this Project are significant in the contexts of: the NSW Government's (2021) *Net Zero Plan Stage 1: 2020-2030* GHGE reduction objective of 50% reduction below 2005 levels[60]; and Australia's Paris Climate Commitment of a 26-28 % reduction below 2005 levels[61].

92. The following two tables show calculations for the purposes of considering the project's Scope-1&2 GHGE in the context of NSW and Australian GHGE reductions targets (assuming GHGE at NSW/Australian level have not increased since 2019):

TOTAL GHG EMISSIONS as Mt CO2e	Year 2005	Year 2016	Year 2019 (Latest data year)	TARGET 2030	Average annual reduction required every year to reach **2030 TARGET**	TARGET 2050	Average annual reduction required every year to reach **2050 TARGET** Assuming meet 2030 target
NSW	161.9	131.6	136.6	81.0 (50 % reduction on 2005)	(136.6 – 81.0)/11 = **5.05**	Net zero	81.0/20 = **4.05**
Australia	617.216	526.149	529.3	444 – 457 (26-28 % reduced on 2005 level)	(529.3 – 457)/11 = **6.57** (26 % redn) (529.3 – 444)/11 = **7.75** (28 % redn)	Net zero	444/20 = **22.2** 457/20 = **22.9**

	Estimated project average annual emissions **Mt CO2e assuming flaring**	Fraction of **NSW** 2019 annual emissions	Fraction of **NSW** TARGET 2030 annual emissions (81.0 Mt CO2e)	Fraction of average annual **NSW** emissions reductions required every year to 2030	Fraction of **Aust** 2019 annual emissions	Fraction of **Aust** 28%-reduction TARGET 2030 annual emissions (444 Mt CO2e)	Fraction of average annual **Aust** emissions 28%-reduction required eery year to 2030
Scope-1	1.0	0.73 %	1.24 %	19.8 %	0.19 %	0.23 %	13 %
Scope-2	0.07	0.05 %	0.09 %	1.39 %	0.01 %	0.02 %	0.9 %
Scope 1 & 2 total	1.07	0.78 %	1.32 %	21.2 %	0.20 %	0.24 %	14 %

The tables above consider only project scope-1/2 emissions, assuming flaring, in the NSW and Australian context, drawing on Australian/NSW emissions data[62].

93. NSW context: This analysis shows that, if NSW achieves the 50 % reduction on 2005 GHGE by 2030, even assuming flaring, this single-company's Area-5-only predicted Scope- 1&2 GHGE would equate to 1.32 % of NSW's total target emissions in 2030. NSW needs to reduce its emissions by 5.05 Mt CO2e each year to reach this target, and the combined scope-1&2 emissions will account for more than 21 % of the required annual reduction. From 2030 to 2050, NSW needs to reduce its emissions by 4.05 Mt CO2e each year to achieve net-zero by 2050. Area-5 is proposed by South32 partly as a stop-gap measure allowing mining of Area-3 to be postponed, and will be mined from 2027 to 2034. **This project's proposed emissions are very significant in the NSW context, even assuming flaring, across that time period.** And the Dendrobium coal mine, will in addition be contributing ongoing GHGE associated with fugitive methane from already mined Areas, then later further GHGE associated with mining Area-3 if approved.

94. Australian context: The project's proposed GHGE are significant also in the context of Australia's emissions. If Australia meets its Paris commitment of 26-28% GHGE reductions on 2005 levels by 2030, then this project will contribute 0.25 % of Australia's total emissions in 2030. Furthermore, the yearly scope-1&2 emissions from this project represent 14 % of the average year-on-year emissions reductions required at the national level to 2030.

Under-Estimation of the Real GHGE Amounts and of the Real GHGE Impacts

95. POWC Inc is very concerned that the EIS-predicted GHGE, already large and significant though they are, under-estimate the real emissions and the real impacts that will result from this project.

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[60] NSW Government Dept Environment (2021). *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?la=en&hash=D65AA226F83B8113382956470EF649A31C74AAA7

[61] https://www.industry.gov.au/policies-and-initiatives/international-climate-change-commitments

[62] http://ageis.climatechange.gov.au/; https://www.soe.epa.nsw.gov.au/all-themes/climate-andair/greenhouse-gas-emissions

96. We are concerned that the predicted Scope-1 GHGE significantly under-estimate methane emissions, given a report by EMBER published only earlier this month (June 2022), that explores the scale of the problem of Australia's coal mine methane emissions. That report concluded that "Methane leaking from coal mines will blow Australia's already weak 2030 climate targets"[63] and presents evidence that coal mine methane emissions are under-reported in Australia. EMBER reports that "The IEA estimated that Australian coal mines emitted 1.8 million tonnes of methane in 2021, double the officially reported figures"[64].

97. This is of particular concern because methane's global warming potential (GWP)[65] over 20 years is 82.5 whereas the Australian government guidelines require the use of a GWP of 28 which is closer to its 100-year impact. Therefore the *real impacts* of any unflared methane from this project are likely to be much more significant over the next 20 years than suggested by the predicted Scope-1 GHGE estimated in CO2e on the 100-year timeframe. This is very concerning to POWC Inc, as it is now that we need to most urgently rein in climate heating.

98. The EIS acknowledges that both Area-5 and the remaining Area-3C at Dendrobium are very gassy areas. We note that based on the average predicted Scope-1 GHGE of 1.0 Mt CO2e per annum (**assuming flaring**), this Project (Area-5 only) would shift Dendrobium from being one of the lower emitting coal mines to being the 4th highest emitting coal mine in NSW (based on 2019-2020 data captured in the EMBER Figure 7 below)[66]:

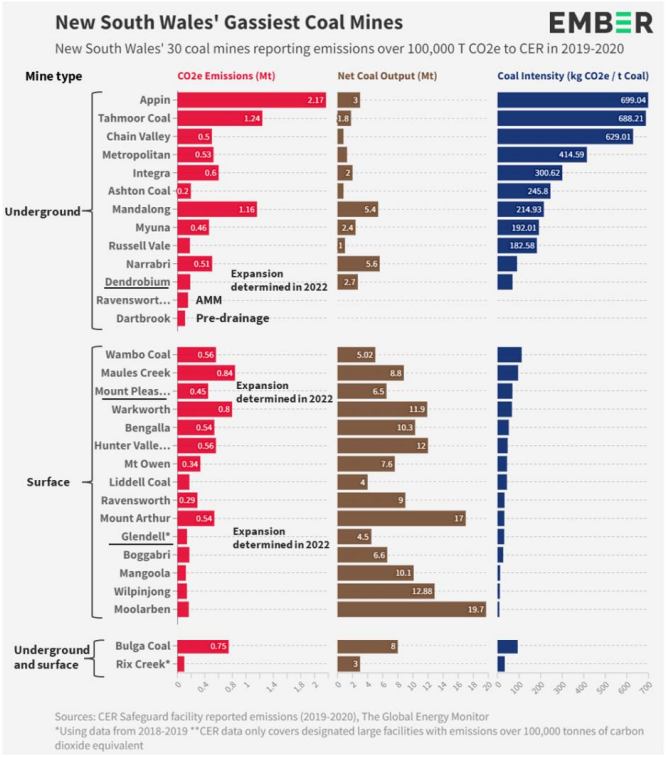


Figure 7: New South Wales mines that reported emissions over 100 kT in 2019-2020, ordered by gassiness of coal.

[63] EMBER (2022) Tackling Australia's Coal Mine Methane Problem. 8 June 2022. https://ember-climate.org/app/uploads/2022/06/Ember-Tackling-Australias-Coal-Mine-Methane-Problem-2.pdf

[64] EMBER (2022) Tackling Australia's Coal Mine Methane Problem. 8 June 2022. P 4. https://ember-climate.org/app/uploads/2022/06/Ember-Tackling-Australias-Coal-Mine-Methane-Problem-2.pdf

[65] See p 13. EMBER (2022) report above. GWP is the measure used to relate different GHGs to CO2e in terms of their atmospheric warming potential. At 20 years, 1 kg methane ≅ 82.5 kg CO2e and at 100 years, 1 kg methane ≅ 29.8 kg CO2e. Australian Government reporting guidelines use a GWP of 28 for methane (ie. 1 kg methane ≅ 28 kg CO2e).

[66] See p 22. EMBER (2022) report above.

99. A perusal of Safeguard facility reported emissions[67] for the last five years ending in 2020/21 shows that Dendrobium's reported GHGE were under or around 200,000 t CO2e each year. Clearly, this expansion into Area-5 will cause a **five-fold increase in Dendrobium's Scope-1 GHGE even assuming flaring.** Then on top of that, there will be legacy Scope-1 emissions post-mining of Area-5. Approving this would be reckless!

100. On top of this, the EIS-predicted GHG emissions do not include all of the emissions from this project. Tables 8-1 and 8-2 in the EIS[68] copied in below itemise some GHGE that were or were not included in estimates:

Table 8-1 Scope 1, 2 and 3 emission sources

Scope	Source	Site/Location
Scope 1	Direct emissions from fuel combustion (diesel) by onsite plant and equipment	KVCLF, Pit Top and CPP
	Direct emissions from the flaring of gas for pre- and post-drainage	Ventilation shaft sites
	Direct emissions from the venting of gas (via MVA)	Ventilation shaft sites
	Residual (post mining) fugitive emissions from stockpiled coal	KVCLF and CPP
	Direct emissions from the combustion of gas in the coal dryer	CPP
	ROM coal transportation – rail transport from KVCLF to CPP	Kemira Valley Rail Line
	Product coal transportation – road transport from CPP to export terminal [1]	CPP
	Coal wash transportation – road transport from CPP to West Cliff Coal Wash Emplacement Area [2]	CPP
Scope 2	Indirect emissions from the use of electricity purchased from the grid	KVCLF, Pit Top [3] and CPP
Scope 3	Downstream emissions generated from the end use of product coal	Port Kembla Steelworks and export markets
	Balance of fuel cycle for grid electricity, diesel and natural gas	All

Notes:
[1] GHG emissions associated with this activity are estimated based on a return travel distance of 14 km on internal sealed roads. Fugitive dust emissions associated with this source are also assessed, but for a shorter travel distance (i.e. distance to exit point of the CPP only). This is conservative as some product coal would be transported a shorter distance to the Steelworks.
[2] GHG emissions associated with this activity are also considered in the Bulli Seam Operations EIS as Scope 3.

Table 8-2 Minor emission sources not included

Source	Justification
Employee travel	Similar numbers of operational personnel proposed due to project
Waste disposal	Additional waste is not expected as a part of the project
Vegetation clearing	Existing infrastructure proposed to be suitable for the majority of the project works. Some minor clearing may be necessary for Project surface infrastructure during the expansion phase.

101. It is clear that the Project's predicted GHGE estimates therefore do not include potentially harder-to-estimate, but nonetheless substantial GHGE, namely:

- Scope-3 emissions associated with transport of product coal from the export terminal to eventual international locations. Most coking coal produced at Dendrobium is exported outside of the Illawarra, either to Whyalla or to international destinations – so these Scope-3 coal transport GHGE will be significant. The IPC SoR found that in the 2019 financial year, 0.505 Mt coking coal from

[67] http://www.cleanenergyregulator.gov.au/NGER/National%20greenhouse%20and%20energy%20reporting%20data/safeguard-facility-reported-emissions
[68] See EIS Appendix I – Air Quality & GHG Assessment. Ramboll (2022). p 70

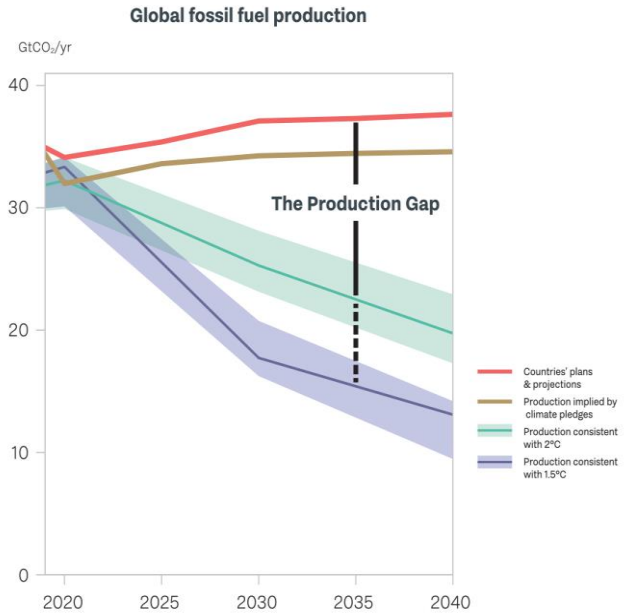
Dendrobium was used by BlueScope Steel (out of a total of 2.5 Mt coking coal used by BlueScope Steel that financial year); and that 77 % of Dendrobium coking coal left the Illawarra region[69].

- Scope-1 emissions associated with the damage/destruction to 16 upland swamps through undermining that will result in desiccation of the surface landscape, with subsequent loss of stored above-ground and below-ground carbon. Exposed peat will likely burn fiercely next time a bushfire comes through, releasing even more GHGs. The swamps will also lose their capacity for carbon sequestration. As swamps cannot be restored, this carbon sequestration capacity is lost permanently – beyond the life of the project.
- Scope-1 emissions associated with land clearing associated with surface infrastructure will also lead to release of GHGs.
- Scope-1 emissions associated with energy used to treat or pump polluted water and/or for remediation.
- Finally, oddly, GHGE to this project (due to *Employee travel* or *Waste disposal* as itemised in Table 8-2) were not included because they were assessed to cause the same level of emissions as existing operations at Dendrobium. This is an error in principle, as Project emissions estimates should not be relative to existing project emissions but relative to no-project emissions.

102. We conclude that predicted project GHGE likely significantly under-estimate real project GHGE.

The Bigger Context

103. The IPCC in 2019 concluded that "Coal use in OECD nations should cease completely by 2030. Coal production should have peaked in 2020"[70] to limit global heating to 1.5°C. It seems accepted by many now, that the world will exceed 1.5°C heating and likely even 2°C. The figure below, taken from *The Production Gap Report 2021*[71] demonstrates how far away the world is from containing global heating.



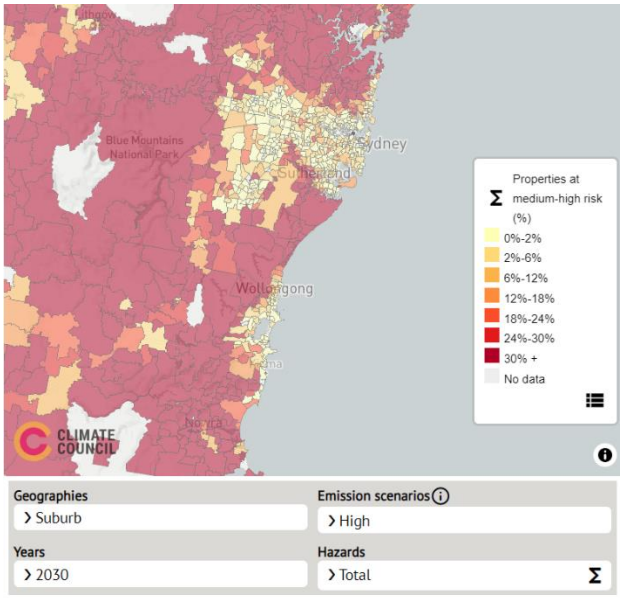
[69] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. Para # 370-371 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

[70] IPCC (2019) as cited in Climate Analystics (2019) *Global and regional coal phase-out requirements of the Paris Agreement: Insights from the IPCC Special Report on 1.5°C*. 23 September 2019. https://climateanalytics.org/publications/2019/coal-phase-out-insights-from-the-ipcc-special-report-on-15c-and-global-trends-since-2015/

[71] SEI, IISD, ODI, E3G, and UNE (2021) The Production Gap Report 2021. http://productiongap.org/2021report

104. Australia is already suffering as a result, and already Australians are losing their lives in heatwaves, bushfires and floods. In NSW some people are still without a home since the Black Summer (2019/2020) bushfires and since the catastrophic flooding events in Lismore this year. Already, many Australians cannot insure their homes because the risks of climate-related events are too great. As we write, ordinary Australians are complaining about rising food prices, and the cost of an iceberg lettuce being over $10.

105. Across NSW, by 2030, according to the Climate Council Risk Map[72], much of property in the area encompassing the Sydney Water Catchment will have more than 30 % of its area as being at medium-to-high risk of climate-mediated hazards (riverine flooding, bushfire, surface water flooding, coastal inundation, extreme wind) – as shown in the image below. Note that this map only considers property risk, and ignores the morbidity/mortality risks to humans, plants and animals associated with climate heating.



106. Recently the NSW Planning Department conceded that it lacks clear policies that would enable it to assess individual fossil-fuel projects' GHGE consistent with NSW Government CCPF objectives[73]. This seems to be a problem not only for the NSW Planning Department but also for various IPCs who have determined fossil-fuel projects over the past few years – mostly in favour of the proponents. This policy gap problem needs to be fixed urgently. We refer you to **Attachment 9** which collates significant reports related to Climate Change and its likely impacts. Many Australians are now already experiencing first-hand the devastating effects of Climate Change.

107. We also submit that BlueScope Steel needs to transition its steel-making operations at the earliest possible moment from coking coal to renewable energy based. So long as BlueScope Steel uses coking coal from NSW/Australian coal mines, then the mines' Scope-3 GHGE associated with the combustion of that coal will become BlueScope Steel's Scope-1 GHGE and then be firmly NSW's/Australia's responsibility.

[72] https://www.climatecouncil.org.au/resources/climate-risk-map/
[73] Mazengarb (2022). 20 January 2022. https://reneweconomy.com.au/policy-gaps-on-climate-impact-of-fossil-fuels-nsw-planning-authorities-concede/

Expert Submission

108. We refer you, Minister, to the Expert Submission by Distinguished Honorary Professor Dr Penny D Sackett (from ANU) provided as **Attachment 5**. Prof Sackett's submission makes for grim reading. Prof Sackett's submission emphasises that NSW cannot afford to put off reductions in GHGE to a later date. She makes the following compelling points:

- "About 90% of the CO_2 emitted by humans each year is from the burning of fossil fuels: coal, gas, and oil." (para #15, p 5)
- "The short-term NSW health costs associated with smoke exposure alone is estimated to be $1.07 billion, more than any other state." (para #20, p 6)
- "The trajectory of human emissions, particularly between now and 2030, is the most important determinant of how much more climate change is in store. Already, human choices have essentially ensured that 1.5°C of warming will happen in the next two decades. If the current trend of rising emissions continues, in just 80 years, global warming could be 3°C – 4°C above pre-industrial temperatures." (para #21, p 6)
- "NSW could play a major role in limiting climate change by quickly reducing its production of fossil fuels, particularly those which are exported. The emissions caused by combusting the black coal NSW produces are three times more damaging to the NSW environment than its own direct emissions." (para #29, p 9)

109. Minister, you must refuse this project, at the very least, on the basis of its GHGE and highly damaging climate impacts which will be borne mostly by younger and future generations. We urge you to read and reflect on Prof Sackett's expert submission very carefully.

NorBE TEST: POWC Inc accepts that the IPC would consider this Project as 'continuing development' under the SDWC SEPP given the IPC's findings in relation to the SSD-8194 project, but finds unacceptable all the water pollution that would be caused by this Project.

110. The IPC considered the SDWC SEPP[74] requirement that mining activities in the Sydney Water Catchment should have a Neutral or Beneficial Effect on Water Quality (NorBE) to be a *key issue* in their SoR for refusing consent to the Dendrobium SSD-8194 project and they made the following findings related to the NorBE Test[75]:

328. The Commission has given consideration to the Drinking Water SEPP and whether the Project can be considered to be 'continuing development' under clause 11A(2).

329. The Commission notes that 'continuing development' under the clause 11A(2) of the SDWC SEPP is "*any development (such as mining) for which development consent was limited to the carrying out of the development for a particular time or to a particular area or intensity, but which was likely to be the subject of future applications for consent for its extension or expansion*".

330. The Commission accepts that the Project is an extension or expansion of the development the subject of the Development Consent under DA 60-03-2001 approved 20 November 2001 (July 2018 modification (MOD 8)) (**Existing Approval**).

331. In the Commission's view, the appropriate time in which to test the "likelihood" of the Project was as at the grant of the Existing Approval.

332. The Commission notes that Section 5.5 of the Applicant's EIS dated March 2001 stated that:

- *For the area covered by this application, pre-mining gas drainage is most unlikely to be required. Beyond this current area, **future mining will occur** in areas where gas drainage will be required unless technologies, which make it unnecessary, are developed. [Emphasis added]*

333. The Commission finds that this reference in the March 2001 EIS indicates that the extension or expansion of the development the subject of the Existing Approval was 'likely' for the purposes of clause 11A(2) of the SDWC SEPP.

334. Given the Commission's findings that the Project was "likely", the Project meets the definition of 'continuing development' under clause 11A(2) of the Drinking Water SEPP.

335. Consequently, the applicable test under the Drinking Water SEPP is that at clause 11A(3), which requires the Commission to be satisfied that the carrying out of the Project will have the same or lesser adverse impact on water quality when compared to the adverse impact that the Project would have if extended or expanded under similar conditions as the Existing Approval.

336. In practical terms, the Commission's interpretation of clause 11A(3) of the Drinking Water SEPP applies this test by comparing how:

- the Project would impact water quality if it formed part of the development the subject of the Existing Approval and was subject to similar conditions to those in the Existing Approval (**Base Case**); and
- the water quality impacts if the Project were to be approved subject to conditions lawfully imposed by the Panel on the present Application mitigating and managing such impacts.

337. The Commission considers that given the broad scope of its conditioning power under the EP&A Act, if it had determined to grant consent to the Project, the Commission would be able to condition the Project in such a manner that it would not have any greater adverse effect on water quality than the "Base Case".

338. It is unnecessary to provide detailed hypothetical conditions on a hypothetical consent, but such conditions could include, inter alia, requiring the works the subject of the Applicant's terms of offer for the VPA to be carried out by the Applicant as a condition of consent.

339. Accordingly, the Commission finds that the NorBE test in the Drinking Water SEPP is satisfied with respect to the Project, notwithstanding the Commission's determination, on other grounds, to refuse consent.

[74] SDWC SEPP is the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*

[75] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. pp 77-78 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

111. The Neutral or Beneficial Test (NorBE Test) is a planning instrument that WaterNSW is able to use to regulate land use in the Special Areas and mitigate damage to the catchment. At the lower threat level, trespassers entering the Special Areas may face a fine of $44000 given the possibility of surface erosion and water contamination. At the other end of threat to the catchment, coal mining clearly breaches the NorBE test resulting in cracking, subsidence, surface water losses, permanent damage and water pollution. Given the prohibition to entry by the public such damage inflicted by miners is hidden from public view; the selective application of the NorBE test might currently be working to facilitate damage to the catchment.

112. WaterNSW has made comment that the SSI declaration manages to bypass the findings of the IPC refusal of consent to the SSD-8194 project as well as the need to comply with Environmental Planning Instruments. Illawarra Coal Holdings is reminded that WaterNSW holds the final barrier to approval, potentially refusing to license further surface water losses:

> "The proposed mining area is wholly located within the Declared Catchment area (the Sydney Drinking Water Catchment) and land jointly managed by WaterNSW and National Parks and Wildlife Services (NPWS) as Schedule 1 Special Area (Metropolitan Special Area). WaterNSW recommends that the EIS consider the 'Special Area' designation of the land under the Water NSW Act and the provisions of the Special Areas Strategic Plan of Management (SASPOM) be considered when preparing the EIS. WaterNSW has an important statutory role "to protect and enhance the quality and quantity of water in declared catchment areas". It also has a set of 'Mining Principles', which underpin WaterNSW's decision-making in relation to managing mining impacts in the declared Sydney catchment area and on catchment infrastructure. WaterNSW notes that Illawarra Coal Holdings (ICH) have stated in the Scoping Report provided to consider the Mining Principles in preparing the EIS. WaterNSW has reviewed the Scoping Report and other information including documents from the previous Dendrobium Area 5 & 6 Project, which was refused by the Independent Planning Commission (IPC) in February 2021. WaterNSW considers that the redesigned Area 5 Project mine design presented in the Scoping Report is an important first step in the assessment process towards preparing a detailed EIS. WaterNSW supports the approach indicated by IMC in the Scoping Report to consider the requirements of the Environmental Planning Instruments (EPIs) that would have applied to the project had it not otherwise been declared as SSI. WaterNSW recommends that the EIS consider the provisions of the Sydney Drinking Water (SDWC) SEPP. WaterNSW requires that IMC will need to obtain a new, or extend the current, access consent from WaterNSW to access the Metropolitan Special Area. This is separate to any approval that is required for the SSI under the EP&A Act."[76]

Expert Submissions

113. The NorBE Test is concerned with the quality of water in the water catchment. POWC Inc considers that there are many overlooked aspects of the water pollution associated with this Project. Our expert Dr Ian Wright has identified that catchment water becomes polluted with high concentrations of salts, heavy metals and carbonates when the catchment is undermined. Polluted waters will spread far and wide – within the catchment with resurfacing waters; in deeper waters in the reservoirs; in waters leaking elsewhere to the catchment surroundings; in mine water discharges to the environment; in local creeks; ultimately in Port Kembla Harbour.

[76] WaterNSW Input into Secretary's Environmental Assessment requirements (SEARs) for Dendrobium MineArea 5 Extension Project D2021/130215, p 4. https://pp.planningportal.nsw.gov.au/major-projects/projects/dendrobium-mine-extension-project-0

114. We refer you to the full Expert Submission of water quality/water ecology expert Dr Wright who discusses water quality impacts of this Project (see **Attachment 7**). Notably, Dr Wright considers that water quality and ecological impacts are under-estimated in the Project's EIS. He disputes EIS claims that impacts to downstream aquatic ecology resulting from subsidence-induced stream damages are merely "localised" or "minor", based on his several years of experience investigating and reporting (in peer-reviewed literature) water pollution triggered by subsidence and fracturing impacts associated with the nearby Tahmoor Colliery.

115. Moreover, Dr Wright's Expert Submission states:

> "With the revised Project proposal indicating that increased flow of wastewater would be released from LDP 5, the approval of the revised Dendrobium extension would very likely increase the magnitude of the pollution in Allans Creek. This is potentially serious environmental impact from the current Dendrobium Colliery operation that is inadequately addressed in the revised Dendrobium assessment. The EIS documents for the revised Project claim that the increased flows of wastewater that are anticipated to be generated by the Project will not exceed the EPL 3241 discharge limits. This is not surprising to me. See extract from page 10 of EPL 3241 below. In my opinion these 100 percent concentrations limits are far too large, well above ANZECC (2000) trigger values for protection of aquatic species and probably allow the Project to add to the historic contamination reported in Allans Creek and Port Kembla Harbour by Jones et al.(2019)." (p 11)

This leaves POWC Inc wondering why were these EPL limits set well above ANZECC trigger values for aquatic species?

116. POWC Inc recognises and appreciates that the supply of fresh drinking water is one of our greatest assets, and that maintenance of a drinking water supply for our Greater Sydney Region relies on protection of the water catchment. Our expert Prof Stuart Khan made a detailed submission to the IPC in 2020 in which he pointed out that the *Australian Drinking Water Guidelines*[77] mandate a multi-barrier approach to drinking water protection and that that starts at the catchment itself. Prof Khan is alarmed by this Project's intent yet again to undermine that safeguarding approach. We refer you to Prof Khan's submission for this Project (see **Attachment 2**).

117. Minister, the water quality impacts of this Project are unacceptable and are an additional reason why you should refuse consent to this Project.

[77] Commonwealth of Australia (2011) Australian Drinking Water Guidelines 2011 Version 3.5, updated 2018 file:///C:/Users/ADMIN/Downloads/australian-drinking-water-guidelines-may19.pdf

ECONOMIC CONSIDERATIONS: The Project's Economic Assessment ignores the growing costs of inaction on climate change, and the real costs of ground and surface water losses, water pollution, biodiversity impacts and ecosystem losses, and continuance of Business-As-Usual. Our non-comprehensive analysis shows that the costs of this Project far outweigh the benefits. Some costs are incalculable and need to be avoided consistent with application of the ESD precautionary principle.

118. We note that the IPC when assessing the earlier Dendrobium SSD-8194 project considered Economic Considerations be a *key issue* in their SoR for refusing consent. They made the following findings related to Economic Considerations[78]:

> 366. The approach taken by the Applicant's consultant Cadence Economics in preparing Economic Analysis is described in the EIS and summarised above. The Department commissioned BAEconomics to undertake an independent review. Overall, BAEconomics concluded that the EA "*is comprehensive and the analysis is of high quality*" (ARP 6.10.6). The Commission accepts this conclusion.
>
> 367. The Commission notes the Project's significant economic benefits identified in the Cadence Economics report and summarised in paragraph 354 above.
>
> 368. As stated by the Department in paragraph 359 above, the Project's potential downstream economic costs and benefits on BlueScope Steel and PKCT were not assessed in the EIS or the EA in any degree of detail because such specific impacts are outside the scope of the Guidelines. The Department considered that the potential implications of the Project on other key economic entities in the Illawarra Region should be examined carefully as part of the Project's assessment in the event of the Dendrobium Mine not being extended to 2048 and therefore commissioned BAEconomics to investigate this issue.
>
> 369. The Commission notes the BAEconomics report had a very specific scenario to assess for the Department, which was beyond the requirements of the Guidelines. The Commission also notes the economic benefits of the water supply catchment to the Illawarra and Greater Sydney regions and the costs of scope 3 GHGE are equally important considerations.
>
> 370. The Commission notes that Dendrobium Mine supplied 0.505 Mt of coking coal to BlueScope Steelworks in Financial Year 2019 and that this represented approximately 20% of the 2.5 Mt required by BlueScope Steelworks in Financial Year 2019 as stated by the Department in paragraph 19 above.
>
> 371. The Commission notes that in Financial Year 2019 Dendrobium Mine trucked 1.7 Mt of coking coal from Dendrobium CPP to PKCT for export and supplied BlueScope Steel with 0.505 Mt of coking coal (as stated by the Department in Paragraphs 21 and 22 above). This indicates that, based on the combined coking coal volume of 2.205Mt from Dendrobium Mine, approximately 77% was exported for use outside the Illawarra Region.
>
> 372. The Commission found the coking coal volumes to be consistent with statements in the ACCC document titled 'Statement of Issues – South32 proposed acquisition of Metropolitan' dated 23 February 2017, which is referenced in the EIS, as follows:
>
> - Paragraph 16 of the document states that in Financial Year 2015-2016 "*approximately 70-80 per cent of the coking coal produced by South32 is exported*" (Paragraph 16)
> - "*Australia accounts for approximately 60 per cent of global coking coal exports and produced an estimated 188 million tonnes in the 2015-16 financial year*" (Paragraph 32).
> - "*A vast majority (95 per cent) of the coking coal produced in Australia is exported to international customers, including to China, Japan, South Korea, Europe and India*" (Paragraph 33).
>
> 373. The Commission agrees with the statements in paragraphs 370 and 371 that the coal from Dendrobium Mine does contribute to steel making at Bluescope Steelworks but is primarily destined for other markets beyond the Illawarra Region.
>
> 374. Based on Figure 3-4 Indicative Project Schedule contained in the Applicant's Amendment Report dated August 2020, development of the Wongawilli Seam (Area 6) is scheduled to commence in 2037 and longwall mining of the Wongawilli Seam (Area 6) is scheduled to commence in 2043. The Applicant's Project Schedule does not correlate with the significance of Wongawilli Seam coal as suggested in ARP 6.10.71 and ARP 6.10.72.
>
> 375. The extract of the BAEconomics report *Review of the Key Economic Interactions between the Dendrobium Mine and Related Entities in the Wollongong Region* (Page 8) prepared for DPIE and referred to in the Lock the Gate Submission in paragraph 347 above also indicates that the Applicant would cease extraction from the Wongawilli Seam sometime "around 2024".

[78] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. pp 83-84 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

376. The Commission is of the view that the dependence of Bluescope on Wongawilli seam coal from the Dendrobium Mine is unclear given that an alternative source of Wongawilli seam coal would need to be found after the proposed cessation of longwall mining at Dendrobium Mine in 2024 even if the Project was approved. This is based on the Applicant's mining schedule of Area 5 (Bulli seam) from 2024, followed some 19 years later by Area 6 (Wongawilli seam).

377. For the reasons set out above, the Commission does not accept the Applicant's characterisation of the ongoing economic contribution of Wongawilli Seam coal from the Dendrobium Mine.

378. The Commission finds that the Project will have beneficial economic impacts, but that these beneficial impacts do not sufficiently outweigh the adverse environmental and other impacts of the Project if approved, as set out in the Commission's other findings in these reasons. Consequently, the Commission has determined to refuse the present Application before it.

119. POWC Inc asserts that the IPC's findings above related to the Dendrobium SSD-8194 project apply similarly to this current SSI-33143123 project. While there may be some economic benefits for a few in the short term from this Project, if approved, the economic benefits will be very much outweighed by the adverse environmental and other impacts of the Project, impacting many and future generations.

Expert Submissions

120. We refer you to the statements of three experts who provide perspectives relevant to the economic considerations for this Project. Dr Liam Phelan is a Senior Lecturer and sustainability/finance expert from the University of Newcastle and he has provided an Expert Submission related to this SSI 33143123 Project (see **Attachment 4**). Mr Tony Wood is the Energy and Climate Change Program Director at Grattan Institute, and we refer to his Expert Submission to the IPC related to the SSD-8194 Project (see **Attachment 6**). Dr Neil Perry is an Associate Professor and expert in corporate social responsibility and sustainability; economics; and finance and property matters, from Western Sydney University. A/Prof Perry was going to provide an Expert Submission on this Project's EIS, however, he recently became ill and was unable to provide a review of this SSI-33142123 Project. Instead we include A/Prof Perry's SSD-8194 Expert Submission (see **Attachment 8**) which remains highly pertinent.

121. Dr Phelan's Expert Submission (**Attachment 4**) makes several important points relevant to economic considerations, which we highlight for your attention:

- "There is little prospect of the proposed Project creating any jobs of any longevity. Instead, approval of the Project is highly risky to job creation – locally and further afield – and would likely have the perverse outcome of limiting the Illawarra's prospects for a just and orderly transition away from coal mining to sustainable local employment." (p 1)
- "The NSW government notes that climate change is making extreme weather events more severe (Adapt NSW, 2022). And extreme weather events come at financial cost. Nationally, the costs of extreme weather events are expected to increase markedly, from $38b annually in 2021 to between $74-94 billion by 2060 (reflecting low and high emissions scenarios, Deloitte, 2021)." (p 2)
- In relation to Australia's Paris Agreement: "One way or another, coal mining in Australia will be wound down rapidly; there is no realistic scenario in which Australia increases rather than winds down its capacity to mine coal, whether for use in Australia or elsewhere." (p 3)
- "My considered opinion is that while the Project proposes to extend production at Dendrobium through 2041, this will not materialise in practice because the climate governance context in which the mine operates, through both the formal policy context and the actions of key private sector players, is highly unlikely to remain conducive for coal mining through the proposed life span of continued operations at the mine. As such, and despite the Project's assessment claiming otherwise, there is no real prospect of the mine offering continuing employment opportunities. As discussed below, extending the coal mining at Dendrobium will instead have the perverse

outcome of inhibiting the achievement of desirable employment outcomes through the transition away from fossil fuels in the Illawarra." (p 4)

- He also points to "the paucity of the analysis provided by the Project's assessment documentation in relation to employment futures in the Illawarra." And then continues: "The assessment documentation does not engage meaningfully with the wider changing policy context, proceeding instead with only passing reference to the profound socioeconomic shifts climate change is driving, particularly in emissions-intensive industries, such as coal mining and steelmaking. This limitation is unfortunate, because the impending impacts of climate change on employment in the Illawarra are significant." (p 5)
- "The focus on the proposal's impact on jobs (an estimated 100 jobs in the construction phase, and 50 additional 'ongoing' jobs) is unhelpfully limited, and is in fact one-sided: the assessment focusses only on the limited number of jobs the proposal would create, without reference to the limiting impact of climate change on employment. … In a very real sense, proposed jobs in coal mining in the Illawarra would undermine existing and future jobs in other industries across New South Wales and other states." (p 7)
- "[P]artial, conservative calculations found today's children will forego between A$125,000 and A$245,000 each due to the climate impacts noted above, with the most likely cost at around A$170,000 for each child. However, the Project's assessment makes no mention of the wider loss of earnings to which the Project will contribute. My considered opinion is that the value of the small number of time-limited jobs the Project would create is far outweighed by the ongoing drag on future earnings in Australia attributable to climate change." (p 8)

122. EDO contacted Mr Wood about making an Expert Submission related to this Project. In response, Mr Wood informed EDO that his statements in his earlier SSD-8194 Expert Submission (**Attachment 6**) were still valid and he agreed for us to refer to that submission. That submission highlights that greening steel manufacture not only addresses a significant source of global GHGE (7.0 % share) but provides enormous opportunities for Australia to both reap the benefits of our renewable energy resource endowment and to create economic value in terms of both jobs and export revenue. In responding to EDO's recent request, Mr Wood added this perspective:

> "Since December 2020, the global outlook for coal demand and the domestic outlook for coal demand have both moved downwards. If anything, these developments have only reinforced the assessment contained in my presentation to the IPC regarding the challenge for coal and the opportunity for green steel in Australia and the Illawarra in particular."

123. We also refer you to A/Prof Perry's SSD-8194 Expert Submission (**Attachment 8**) because it is clear from reading this Project's Economic Assessment[79] that the concerns he expressed about it still remain. We highlight some of them here in the context of errors in this Project's Economic Assessment, but we refer you to his full report for more detailed and technical commentary.

<u>Errors in the Economic Assessment</u>

124. The Project's EIS contains an Economic Assessment carried out by Ernst & Young (EY)[80] which begins with a disclaimer which includes the following statement:

> "Modelling work performed as part of our scope inherently requires assumptions about future behaviours and market interactions, which may result in forecasts that deviate from future conditions. There will usually be differences between estimated and actual outcomes, because

[79] EIS. Appendix L – Economic Assessment. Ernst & Young (EY). (2022) *Economic Impact Assessment of the Dendrobium Mine Extension Project – Illawarra Metallurgical Coal.* 6 April 2022.

[80] Ernst & Young (EY). (2022) EIS Appendix L Economic Assessment. *Economic Impact Assessment of the Dendrobium Mine Extension Project – Illawarra Metallurgical Coal.* 6 April 2022.

events and circumstances frequently do not occur as expected, and those differences may be material."[81]

125. POWC Inc considers the EY Economic Assessment is very flawed containing several errors. We provide our main criticisms related to this Project's Economic Assessment, below.

No longer business as usual

126. The EY (2022) economic assessment of the Project includes a Cost-Benefit Analysis (CBA) and a Local Effects Analysis (LEA), which appear to assume business-as-usual into a future relatively undisrupted by either climate heating or by concerted actions to protect our global climate system. This fundamentally ignores reality and the already all-to-real experiences of everyday residents of NSW and Australia. We consider that this is a fundamental flaw in the economic assessment. Rather, POWC Inc heeds Deloitte's (2020) warning:

> "Climate change is not an economic scenario, it is the baseline. And economic modelling is part of this wicked problem. Most current economic models and their trajectories of trend growth assume unconstrained emissions. This is economic baseline on which most decisions are made – government and business alike. But this baseline does not account for the economic consequences of unmitigated climate change or the world's response to it – both due to damages, and/or inevitable policy responses to mitigate the impacts"[82].

Inconsistent/Incorrect value for total project GHGE

127. We notice that EY uses 15.2 Mt CO2e as the total GHG emissions from the project in their economic assessment[83] (when that number should be 15.5 Mt CO2e)[84] assuming no flaring. This is a relatively small error here, but we note this, because below in our calculations, we will use the 15.5 Mt CO2e value as the total predicted GHGE assuming no flaring (and ignoring that this value itself under-estimates the real total GHGE as discussed earlier).

Use of a falsely low cost price for GHGE

128. The EIS Economic Assessment for the earlier SSD-8194 project and the EIS Economic Assessment for this SSI-33143123 Project both use a carbon cost price that does not relate to the social costs of GHGE. A/Prof Perry made the following comments related to carbon emissions costs (see **Attachment 8**):

> "The pricing of greenhouse emissions in the cost benefit analysis that forms part of the economic assessment is not correct. In a perfectly functioning carbon emission reduction market, the price of carbon emission reductions would be equal to the marginal social cost of carbon emissions, or the marginal damages (MD) of carbon emissions, and the marginal abatement cost (MAC). Environmental economic theory indicates that a limit be placed on a pollutant, or damaging carbon emissions, at the efficient level where MD=MAC for the economy as a whole. When this limit on emissions is applied in a carbon market, emitters abate and use their carbon permits such that the price in the market is equal to their individual MACs. As such, all firm's MACs are equated and equal to the MAC for the economy as a whole. Thus, the price in the perfectly functioning market equals the MD of emissions and the marginal social cost of carbon emissions.
>
> Unfortunately, every carbon market in the world is compromised and the number of permits,

[81] EIS. Appendix L. Economic Assessment. EY. 6 April 2022. P i.
[82] Deloitte. 2020. *A new choice: Australia's climate for growth.* November 2020. P 28. https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-dae-new-choice-climate-growth-051120.pdf?nc=1
[83] See Table 23. EIS. Appendix L. Economic Assessment. EY (2022). 6 April 2022. P 44.
[84] See Table 2. EIS. Appendix R – Greenhouse Gas Report. South32 (2022). P 18.

or the cap on emissions, has little relationship to the efficient amount of carbon emissions. Instead, the cap and subsequent price of carbon is driven by pragmatic considerations such as the competitiveness of a country's export industry. Thus, the price does not equal the marginal social cost of emissions. This is particularly the case in Australia's emission reduction fund market which was used to establish the social cost of carbon emissions in the economic assessment (Cadence Economics 2019, p. 23). The emission reduction fund uses a reverse auction mechanism to distribute the available funds to the lowest-cost emission reductions. Firms who would like to install emission reduction technology propose a price (subsidy) per tonne of emission reductions and the lowest-priced projects win government support. The price therefore reflects the cost of the new technology, the amount of abatement that it can produce and the available funds in the market. Due to the reverse auction process, and assuming many participants seeking funds, the price is, in theory, reduced to the marginal abatement cost of the new technology, or slightly above this level so that firms benefit from receiving the funding and installing the technology. However, the market can be compromised by a lack of participants who can then "game the system"; that is, they can attempt to use their market power to increase the subsidy they receive well above the actual marginal abatement cost of the new technology. More importantly, even if the resulting price is equal to the marginal abatement cost, the price and marginal abatement cost has no relationship to the marginal damages or marginal social cost of carbon emissions. This is because a limit on the amount of emissions in the economy has never been set at the efficient level of carbon emissions. Thus, using the price in the emission reduction fund as a measure of the social cost of carbon emissions is inaccurate."

129. We find that this Project's Economic Assessment priced carbon at **$16.94 (AUD) per tonne CO2e (2021 price)** which was the Australian Emissions Reduction Fund (ERF) price from October 2021[85]. This ERF price is a market price as recommended for use by the NSW Government guidelines[86] but this price cannot be argued to be a true market price for GHGE given A/Prof Perry's comments above. We note that the *NSW Government Guide to Cost benefit Analysis* (2017) states[87]:

> *"*Market prices should be used as a basis for valuing the costs of carbon emissions, where reliable evidence can demonstrate that those market prices are not significantly biased as a direct consequence of scheme design. Where market prices are not deemed to reflect the true cost of carbon emissions, estimates of damages or damage mitigation costs may be used".

130. EY's (2022) Economic Assessment for this Project fails to provide any evidence to demonstrate that the ERF "market prices are not significantly biased as a direct consequence of scheme design".

131. Given that the most obvious estimate of market price cannot be used because it is so biased, POWC Inc sought out damage mitigation costs. Damage mitigation costs are estimated by the *social cost of carbon (SCC)* calculated as a cost per tonne of CO2 emitted. The Australian and NSW governments have not formally adopted any SCC. However, the USA government undertakes rigorous modelling to derive their SSC which currently has a value of $51 (USD) per ton CO2 as defined by the Biden

[85] http://www.cleanenergyregulator.gov.au/ERF/auctions-results/october-2021
[86] NSW Treasury (2017) *NSW Government Guide to Cost benefit Analysis*, *TPP 17-03*. March 2017. https://arp.nsw.gov.au/assets/ars/393b65f5e9/TPP17-03_NSW_Government_Guide_to_Cost-Benefit_Analysis_0.pdf
[87] NSW Treasury (2017) *NSW Government Guide to Cost benefit Analysis*, *TPP 17-03*. March 2017. P 61.

Administration[88]. In 2019, Hutley[89] provided a review of SSC in the context of Australia for the ACT government. Her review showed: (1) that SCC modelling is complex and that SCC values are much higher in some countries than others; (2) that mainstream SCC values under-estimate rather than over-estimate the true costs to society of GHGE; and (3) that IPCC experts recommend using discount rates lower than 5 % in climate change analyses[90]. Recent estimates for the SCC range from approximately US$10 (AUD $12.90) per tonne CO2 to as much as US$1,000 (AUD $1,290) per tonne CO2[91]. Hutley's advice to the ACT government was to calculate an Australian-context SSC based on the rigorously modelled USA Government SCC values, calculated with a 3 % discount rate and based on the five-year average exchange rate to February 2021. Based on this, Hutley recommended a SCC of **$72 (AUD) per tonne of CO2 for the year 2021**, with a 3 % discount rate[92]. Hutley's approach is consistent with that of the ACT Climate Change Council who provided earlier similar advice to the ACT in 2018[93].

Inappropriately scaled-down cost of total Scope- 1&2 GHGE

132. The EIS Economic Assessment for the earlier SSD-8194 project and the EIS Economic Assessment for this SSI-33143123 Project both inaccurately calculated total Scope- 1&2 GHGE costs (as described above) and then both scaled them down according to the fraction that the NSW population is of the global populations. This was a second error according to Dr Perry in relation to the SSD-8194 project:

> "the entire amount of scope 1 and scope 2 emissions should be included in the analysis. In the economic assessment, the total cost of carbon … is multiplied by the NSW percent of the global population to reduce the costs to $122,000. The global costs should be included because under the NSW Guidelines they are all attributable to the project."

133. A/Prof Perry's comment applies similarly to the 2020 Economic Assessment done for the current Project. The NSW community bears the entirety of the responsibility for the damages costs for these emissions. Moreover, this approach not consistent with the NSW *Guidelines for the Economic Assessment of Mining and Coal Seam Gas* which state: "In general the total net environmental, social and transport costs will be attributable to NSW"[94]. It is true that GHGE affect everyone and every ecosystem across the world. Therefore the impacts of this Project's Scope-1 and Scope-2 emissions are distributed, rather than confined to NSW. But so are the impacts of the Project's massive Scope-3 (coal combustion and un-estimated transport) emissions which are not required to be attributed to NSW at all. If approved by the NSW government, the NSW community bears the entirety of the responsibility for the Project's Scope- 1&2 GHGE impacts.

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[88] AES. 2022. *Energy Matters.* January 10, 2022. https://www.energysociety.org/uploads/1/1/8/4/118465110/energy_matters_2022_01_10.pdf#:~:text=January%2010%2C%202022%20-%20The%20Power%20Read%20-,current%20social%20cost%20of%20carbon%20is%20%2451%2Fton%20%28USD%29

[89] Hutley, N. (2021) *A Social Cost of Carbon for the ACT.* 18 March 2021. https://www.environment.act.gov.au/__data/assets/pdf_file/0006/1864896/a-social-cost-of-carbon-in-the-act.pdf

[90] Kolstad, C., Urama, K., Broome, J., Bruvoll, A., Olvera, M.C., Fullerton, D., Gollier, C., Hanemann, W.M., Hassan, R., Jotzo, F. and Khan, M.R., 2014. *Social, economic and ethical concepts and methods*. IPCC 5th Assessment report, Working Group III, Chapter 3. https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter3.pdf

[91] Ricke, K. et al. 2018. *Country-level social cost of carbon.* Nature Climate Change. October 2018. 8: 895–900. https://doi.org/10.1038/s41558-018-0282-y

[92] P 36. Hutley, N. (2021) *A Social Cost of Carbon for the ACT.* 18 March 2021. https://www.environment.act.gov.au/__data/assets/pdf_file/0006/1864896/a-social-cost-of-carbon-in-the-act.pdf

[93] ACT Climate Change Council (2018) *The Social Cost of Carbon and public investment to reduce ACT greenhouse gas emissions.* Briefing paper prepared for ACT Government. July 2018. https://www.environment.act.gov.au/__data/assets/pdf_file/0010/1389097/act-climate-change-council-social-cost-of-carbon-briefing-paper.pdf

[94] NSW Government (2015) *Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals*. P 15. https://www.planning.nsw.gov.au/Policy-and-Legislation/Mining-and-Resources/~/media/C34250AF72674275836541CD48CBEC49.ashx

EY's Economic Assessment mistakes the pittance one-off costs to South32 associated with offsetting water impacts and environmental/biodiversity damages, for the ongoing enduring real costs to society – but they are not the same

134. The EIS Economic Assessment considers that South32's proposed operating/mitigation costs associated with offsetting predicted surface water losses and biodiversity losses completely reimburses society for those impacts. But they do not. There is no indication that any proposed water losses and biodiversity damages are anything other than irreversible, irreparable and permanent. South32 proposes complicated water offsets to compensate for surface water losses (but not for groundwater losses).[95] These proposed water offset costs are a finite amount of money, when in fact the water losses (both surface and ground) and water pollution impacts will continue well beyond the life of the Project with ongoing impacts and associated costs.

135. Similarly, South32 will have to purchase biodiversity credits to offset their impacts to numerous species, and the economic assessment falsely considers these one-off costs to South32 cover the permanent real costs to our society as a result (see Table below)[96].

Table 24: Biodiversity credit requirements

	Credits
Species credit requirements	
Gang-gang Cockatoo	399
Eastern Pygmy-possum	472
Large-eared Pied Bat	3
Southern Myotis	126
Koala	456
Giant Dragonfly	186
Giant Burrowing Frog	257
Broad-headed Snake	5
Littlejohn's Tree Frog	343
Southern Myotis	126
Red-crowned Toadlet	68
Ecosystem credit requirements	
Red Bloodwood - scribbly gum heathy woodland on sandstone plateaux of the Sydney Basin Bioregion	346
Illawarra Escarpment Blue Gum wet forest	2
Coastal sandstone gully forest	17
Needlebush - banksia wet heath on sandstone plateaux of the Sydney Basin Bioregion	106
Coastal upland wet heath swamp	1

Source: Niche Environment and Heritage (2022c)

To generate these biodiversity credits, IMC would implement a biodiversity offset strategy. As outlined previously in this assessment, these costs are included in the mitigation and management costs of the Project.

[95] EIS. Section 7 – Environmental Assessment. South32 (2022). pp 7-18 – 7-50.

[96] Table 24, copied from EIS. Appendix L. Economic Assessment. EY (2022). 6 April 2022. P 44.

136. South32 proposes to pay only $15.4 million (NPV) to cover all of the following across the life of the Project:

"Subsidence remediation works;
Rail noise investigation and reduction measures;
Purchasing requisite water rights;
Surface water offsets;
Implementing a biodiversity offset strategy;
Other environmental management and mitigation costs".[97]

137. This $15.4 million (NPV) is integrated into the larger $20.7 million (NPV) that appears in their table below[98]. There is not much transparency around in the EIS documents. Writing this, POWC Inc cannot help but wonder what is the going price for a live koala or a dead koala? What is the going price for an endangered coastal upland swamp that collects and stores rainfall and releases it slowly into reservoirs and also helps protect local NSW communities against bushfire threat? What is the value that NSW residents would place on each of these things?

Table 13: Summary of indirect costs impacts ($ million^)

Scope of environmental costs	Assessment type	NPV*
Indirect costs		
Greenhouse gas emissions	Quantitative	0.148
Air quality impacts	Quantitative	8.0
Loss of surplus to other industries	Quantitative	0.0
Net public infrastructure costs	Quantitative	0.0
Residual value of land	Quantitative	0.0
Transport/ traffic impacts	Quantitative	0.0
Visual amenity	Quantitative	0.0
Mitigation and management cost		
Aboriginal cultural heritage and historical heritage	Quantitative	^^
Ambient noise impacts	Quantitative	^^
Biodiversity impacts	Quantitative	^^
Greenhouse gas emissions	Quantitative	^^
Subsidence impacts	Quantitative	^^
Water impact (offsets) - including surface and ground water	Quantitative	^^
Total mitigation and management costs		20.7
Indirect costs		8.1

*Source: EY estimates based on information provided from IMC and relevant environmental assessments for the Project. * NPV in 2021 Australian dollars based on a 7 per cent real discount rate. ^^ Confidential, included in the total internalised costs.*

138. In relation to the earlier SSD-8194 Project (see **Attachment 8**), A/Prof Perry noted that WaterNSW submissions indicated potential irreversible impacts on drinking water supply and on endangered upland swamps, then stated:

"This suggests that cost benefit analysis is not the appropriate decision making tool and that the precautionary principle should instead be used. The precautionary principle is part of the definition of Ecologically Sustainable Development under Federal and NSW State government legislation and, if applied, would lead to the rejection of the Project."

139. It is impossible to estimate the cost of lost ecosystems, biodiversity, species and ongoing indefinite water losses and water pollution. We take note of A/Prof Perry's expert advice that costing such things and incorporating them within a CBA is not appropriate. We urge you Minister to apply the precautionary principle to avoid these profound impacts in the first place.

[97] EIS. Appendix L. Economic Assessment. EY (2022). 6 April 2022. P 21.
[98] EIS. Appendix L. Economic Assessment. EY (2022). 6 April 2022. P 22.

Re-calculated CBA incorporating corrections to only Scope-1&2 GHGE costs shows that this Project does not stack up economically

140. EY (2022)'s Economic Assessment calculated that Scope-1&2 GHGE costs were $0.148 million (NPV 2021 AUD). Based on that, their central-case CBA estimated a net benefit to NSW of $649.2 million (NPV) as shown below[99]:

Table 3: Central case - estimated net benefits of the proposed development ($ million^)

Benefits	NPV*	Costs	NPV*
Direct benefits		Direct costs	
Net producer surplus attributed to NSW	$35.1		
Royalties, payroll tax and Council rates	$176.6		
Company income tax apportioned to NSW	$81.6		
Total direct benefits	$293.3	Total direct costs	-
Indirect benefits		Indirect costs	
Net economic benefit to landholders	-	Air quality	$8.0
Net economic benefit to NSW workers	$231.1	Greenhouse gas emissions^^	$0.148
Net economic benefit to NSW suppliers	$132.9	Noise impact^^	-
		Transport impact	-
		Net public infrastructure cost	-
		Surface water impact^^	-
		Groundwater^^	-
		Biodiversity impact^^	-
		Loss of surplus to other industries	-
		Visual amenity	-
		Aboriginal cultural heritage^^	-
		Historical heritage^^	-
		Other	-
Total indirect benefits	$364.1	Indirect costs	$23.6
Total economic benefit of Project	$657.3	Total incremental cost of Project	$8.1
NPV of Project - ($m)	$649.2		

*Source: EY estimated based on information from various sources. ^ Real 2021 Australian dollars. * NPV in 2021 Australian dollars based on a 7 per cent real discount rate. ^^ Management and mitigation costs are included in the operating and capital costs.*

141. However, POWC Inc estimates Scope- 1&2 GHGE costs to be $1,116 million (NPV 2021 AUD)[100] (at least!). When that cost is considered against the total economic benefits of the Project ($657.3 Million NPV 2021 AUD) as reported in the table above, our corrected CBA estimates a net COST to NSW of $466.8 million (NPV 2021 AUD) rather than a net benefit. We note that our revised CBA does not even try to incorporate real costs associated with surface/ground water losses and pollution, or biodiversity/ecosystem losses, or First Nations Peoples Cultural Heritage losses as these should be avoided by application of the Precautionary Principle.

Moving forward responsibly

142. POWC Inc accepts the IPC's conclusion that Dendrobium coal was not necessary for steel production by BlueScope Steel at Port Kembla. There are other coal mines in NSW that supply coking coal and with approvals long enough to supply BlueScope Steel till it shifts to Green Steel (made from entirely renewable energy sources). Also, since the IPC's refusal of the SSD-8194 project, BlueScope Steel has upgraded their berths at PKCT to allow faster handling of imported coking coal from

[99] Table 3 copied from EIS. Appendix L. Economic Assessment. EY (2022). 6 April 2022. P 11.

[100] NPV (cost of 15.5 Mt Scope-1&2 GHGEs, based on SCC of $72/ t CO_2e at 3 % discount rate for 2021) = 15.5 x 10^6 t CO_2e x $72 (AUD) / t = $1,116 million.

Queensland if required[101]. Clearly, BlueScope Steel has options, even if it would prefer not to have to change anything at all.

143. POWC Inc seeks a prosperous future for the Illawarra region and also for NSW and Australia. We will not enjoy prosperity into the future if we continue to recklessly undermine the environment that has provided for and enabled our prosperity in the first place. We need to *plan* our transition towards the NSW 50 % GHGE reduction goal rather than just hope for it. And we need to plan for and properly support workforce transition too.

144. Deloitte published a report in November 2020 called *A New Choice: Australia's Climate for Growth*[102]: their analysis suggests that if Australia fails to address climate change then, by 2070, Australia will lose 3.4 trillion dollars economic value and over 880,000 jobs will be lost, but that if Australia takes appropriate action on climate change, then, by 2070, Australia will by $680 billion better off and with over 250,000 jobs added to our economy:

image[103]

145. Further we note that that Prof Sackett in her Expert Submission (**Attachment 5**), also points out that:

> "Taken together with the evidence supplied … of the enormous risks posed by global warming surpassing 2°C, including irreversible consequences, and the contribution of the Dendrobium SSI Extension in increasing that likelihood, it is my view that any benefits from the Project are far outweighed by costs borne by the majority of NSW inhabitants, particularly its youngest." (Dr Sackett, para #37, p 11)

146. Minister, we urge you to refuse this Project also because it simply does not stack up economically. We also urge you to read the Expert Submission of A/Prof Perry in full (**Attachment 8**) because the comments he provided in relation to the SSD-8194 (IPC-refused) project are relevant here also in the context of the current Project.

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[101] Bluescope Presentation on the Future of Steel Making, October 2021
https://services.choruscall.com/mediaframe/webcast.html?webcastid=7AjLhNKm&securityString=I5w7eCBwormYJvEtgs4KtY8j

[102] Deloitte. 2020. A new choice: Australia's climate for growth. November 2020.
https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-dae-new-choice-climate-growth-051120.pdf?nc=1

[103] Image constructed from images in Deloitte. 2020. A new choice: Australia's climate for growth. November 2020.
https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-dae-new-choice-climate-growth-051120.pdf?nc=1

BUSHFIRE: Mining subsidence damages coupled with climate change means that the landscape will become drier and more bushfire prone. Approving this Project would be inconsistent with ESD principles and inconsistent with EP&A Act Objects (a), (b), (c), and (e).

147. Recent survey works done after the black summer bushfires illustrate the link between mining subsidence, water loss and fire risk.[104] Experiments done by Dr Tanya Mason demonstrate that fire is also a key threatening process driving down species diversity, "even under partial dewatering, swamp species richness was disproportionately diminished by fire disturbance".[105] Damage done to upland swamps is perhaps the most obvious example of vegetation shifting to a more combustible state, but drying of soil will lead to wider floristic changes, plants with soft leaves will give way to those with relatively dry sclerophyllous leaves. Increased flammability will lead to increased fire frequency and increased selection for fire-adapted plants.[106]

148. Such adaptations may include low tissue moisture and an ability to recolonise quickly after fire. Wet gullies will become dry gullies, and areas that previously presented buffers for fire and refugia for wildlife will increasingly succumb to broad-scale fire.

149. Fire ecology is a global issue increasingly studied through the prism of climate change; there is growing acceptance that climate change will drive droughts and increasingly severe fire weather. Mining fossil fuels to drive climate change while simultaneously dewatering the landscape above the coal reserves is akin to planning more severe fires. "The Bushfire Royal Commission has laid out the facts in no uncertain terms: climate change drove the Black Summer bushfires, and climate change is pushing us into a future of unprecedented bushfire severity," said Greg Mullins, founder of Emergency Leaders for Climate Action and former Commissioner, Fire and Rescue NSW.[107]

150. The IPC considered Bushfire to be a *key issue* in their SoR for refusing consent to the Dendrobium SSD-8194 project, and they made the following findings related to Bushfire[108]:

[104] Baird, I.R.C. & Benson, D. (2020) Serious impacts of longwall coalmining on endangered Newnes Plateau Shrub Swamps, exposed by the December 2019 bushfires. *Australasian Plant Conservation: Journal of the Australian Network for Plant Conservation*, 29 (1), 12-15.

[105] Mason, T. J., G. C. Popovic, M.McGillycuddy, D.A. Keith (in review) "Effects of hydrological change in fire-prone wetland vegetation: an empirical simulation." Journal of Ecology.

[106] Bowman, D. M. J. S., Murphy, B. P., Burrows, G., & Crisp, M. D. (2012). Fire regimes and the evolution of the Australian biota. In R. A. Bradstock, A. M. Gill, & R. J. Williams (Eds.), *Flammable Australia: Fire regimes, biodiversity and ecosystems in a changing world.* (pp. 43-67). CSIRO Publishing.

[107] Greg Mullins (2020) https://emergencyleadersforclimateaction.org.au/former-fire-chiefs-bushfire-royal-commission-clear-on-need-for-climate-action/

[108] IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. p 86 https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

388. The Commission understands that the Applicant's approach towards bushfire risk for the Project would be the same as the approach for its existing operations.

389. The Commission finds that insufficient consideration has been given to long term climatic predictions using sources such as the NSW and ACT Regional Climate Modelling (NARCliM) project and how this can impact the risks of bushfire.

390. The Commission also finds that insufficient consideration has been given to comparable scientific research regarding the impacts of bushfire on Upland Swamps impacted by mining subsidence.

391. The Commission therefore finds that the Applicant's and the Department's assessment of bushfire risk is inadequate. The Commission acknowledges that as a result of potential changes in climate, bushfires are likely to be more severe and more frequent.

392. The Commission is therefore of the view that the assessment of bushfire risk does not sufficiently address the potential bushfire impacts of the Project on the Metropolitan Special Area. Moreover, the assessment of bushfire risk is not consistent with the principles of ESD and the Objects of Act contained in Section 1.3 of the EP&A Act, particularly objects (a), (b), (c) and (e).

151. POWC Inc considers that increased risk of bushfire is an additional reason for refusing this Project.

KOALAS: Koalas are endangered in NSW. Koalas are known to inhabit the area that will be impacted by this Project, but their koala numbers have not been adequately assessed. As well, this Project's EIS grossly under-estimates likely impacts on koalas by a factor of at least 100. The EIS ignores impacts to koalas via subsidence impacts on undermined Area 5 and only considers direct land-clearing impacts. The proposed offsets will do nothing to help prevent extinction of koalas in NSW or more widely. This project should be refused consent because of its impacts on this iconic threatened species, which would be completely against ESD principles and against Objects (a), (b), (c) and (e) of the EP&A Act.

152. In the last year Mr Steve Anyon-Smith and POWC Inc President, Mr Tom Kristensen, searched Heathcote National Park, and beyond into the Woronora River catchment, looking for koalas. They identified 94 individual koalas and recorded double that number of sightings into the BioNet Atlas database.[109] The land they searched is of similar terrain and contains similar plant species to the Dendrobium lease area. Some of the effort spent finding koalas in the publicly accessible land of Heathcote NP might be useful in evaluating work done on koalas in the inaccessible Special Areas.

153. There are important questions to be answered about the impact that longwall coal mining on the Dendrobium lease will have on the water supply, the condition of vegetation, and the fire risk facing resident koalas. Given that koalas are now listed as an animal endangered by extinction, such questions will need proper study and resourcing beyond the promise of environmental offsets. This mining project is due to begin delivering coal from 2027 up until 2035, with continued land use till 2041; decisions made now will have impacts in decades to come as we seek to prevent a looming koala extinction.

154. Regarding the recent change in the protection status of koalas; the Australian government receives advice from the Federal Threatened Species Scientific Committee, comprising 12 eminent ecologists. Following expert advice from the Committee, the koala was declared endangered in NSW by the Australian government on Feb 12th 2022.[110]

155. Similarly, the NSW government receives advice from the NSW Threatened Species Scientific Committee, comprising another 10 eminent ecologists. Following expert advice from this second committee, the koala was declared endangered by the NSW government on May 20th 2022.

156. The endangered listing by both levels of government followed findings in 2020 by a NSW Parliamentary Committee that "without urgent government intervention to protect habitat and address all other threats, the koala will become extinct in NSW before 2050". In response, the NSW Environment Minister announced a commitment to double koala numbers in the wild by 2050.

157. The clear intent of both levels of government is to strengthen protective action for koalas and apply the EPBC Act 1999 and the BC Act 2016 accordingly.

158. This Project's EIS for the extension of mining into Area 5 on the Dendrobium coal lease acknowledges the endangered status of koalas but seeks exemption from the EPBC Act by way of section 158A. Specific reference to the timing of the "controlled action" decision of January 12th 2022 is

[109] Anyon-Smith, S., & Kristensen, T. (2021) *Observed Distribution and Numbers of Koala (Phascolarctos cinereus) in a Habitat Survey of Heathcote National Park*, July to September 2021. https://npansw.org.au/wp-content/uploads/2021/11/HNP_Koala-Report_FINAL_14Oct2021_PRINT-220ppi.pdf, Accessed 08.06.2022.

[110] Australian Department of Agriculture, Water and the Environment Conservation (2022) Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (in effect under the Environment Protection and Biodiversity Conservation Act 1999 from 12 February 2022) https://www.environment.gov.au/biodiversity/threatened/species/pubs/85104-conservation-advice-12022022.pdf, Accessed 08.06.2022.

offered to avoid the responsibility of considering koalas as an endangered species.[111] This reading of the Act would seek to invoke ministerial discretion as to whether the timing of the endangered listing applies to a longer running planning process and whether allowing an exemption could be justified in the national interest. The EIS proceeds by treating koalas as only *vulnerable* to extinction, a lesser threat status than the *endangered* listing, and seeks only to offset direct impacts of land clearing in the lease area, ignoring long term impacts of subsidence on koala habitat. Direct impacts acknowledged in the EIS affect an area of land to be directly cleared for mining infrastructure - this is a 20 hectare patch which constitutes approximately only one percent of the area to be affected by subsidence.[112]

159. Area 5 lies in the Cordeaux and Avon catchments; the koala population in this area has been described by DPE as follows:

> "The koala population in the Avon/Upper Nepean catchments is probably the best protected colony in NSW, as elsewhere most koala habitat occurs on private land. Population estimates may prove it to be the largest population remaining south of Sydney. It is a high conservation priority for these reasons."[113]

160. The EIS acknowledges koalas are recorded inside Area 5 on the NSW BioNet Atlas and for the purpose of assessing koala ecology the site is treated as a patchwork of different Plant Community Types.[114] Mapping of Plant Community Types is a broad breakdown of vegetation that does not reveal the distribution of koala feed trees. The EIS Appendix D contains maps of threatened flora species but there are no maps of *Eucalyptus punctata* or *E. agglomerata,* the stated preferred feed tree species of local koalas.[115] The EIS refers to the scientific literature in making assumptions about whether these Plant Community Types constitute preferred koala habitat.

161. However, this broad-scale approach is contested, as koalas are very fussy in their choice of individual trees of a particular favoured species that may occur across different Plant Community Types.[116]

162. Further, the favoured species will vary in different localities along with variation in the tree species present. The EIS assumes that koalas in Area 5 prefer the areas containing a shale transition soil, because such soil is associated with other local koala populations studied in Campbelltown in 2000.[117] This assumption is not supported by a recent intensive field study in Heathcote National Park that revealed a high density of koalas living in *E. punctata* forest growing in sandstone gullies on sub-optimal soil.[118] It may be that available moisture, soil nutrition or other factors determine the distribution of feed trees in this area and others, but such ideas are speculative so long as the distribution of koalas, feed trees and soil conditions have not been surveyed. It is necessary to survey koala density, preferred trees, and soil conditions for each koala population before making assumptions about preferred habitat.

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[111] EIS Appendix D – Biodiversity. p 115.
[112] EIS Appendix D – Biodiversity. Table 31, p 134.
[113] NSW Department of Environment and Climate Change, Terrestrial Vertebrate Fauna of the Greater Sydney Region, Volume 4 (2007) https://www.environment.nsw.gov.au/research-and-publications/publications-search/terrestrial-vertebrate-fauna-of-the-greater-southern-sydney-region-volume-4, Accessed 08.06.2022.
[114] EIS. Section 7, Figure 7-14.
[115] EIS. Appendix D – Biodiversity. Pp 134-135.
[116] Dique, D.S., Preece, H.J., Thompson, J. & Villiers, D.L.D (2004) Determining the distribution and abundance of a regional koala population in south-east Queensland for conservation management. *Wildlife Research*, 31, 109-117.
[117] EIS. Appendix D – Biodiversity. p 134.
[118] Anyon-Smith, S., & Kristensen, T. (2021) Observed Distribution and Numbers of Koala (Phascolarctos cinereus) in a Habitat Survey of Heathcote National Park, July to September 2021. https://npansw.org.au/wp-content/uploads/2021/11/HNP_Koala-Report_FINAL_14Oct2021_PRINT-220ppi.pdf, Accessed 08.06.2022.

163. A key assumption made throughout the EIS is that all forest Plant Community Types, preferred or not, are unlikely to be impacted by mining subsidence. Upland swamps are mapped and flagged for offsets as a Threatened Ecological Community.[119] An admission is made that drying will impact upland swamp vegetation, and resident fauna, but there is no suggestion as to how changes in this Plant Community Type may have further impacts by reducing water availability to the broader ecosystem. There is no effective remediation for drying swamps.[120] Cracking of the rock basin that forms an upland swamp cannot be repaired; the only safe course is to avoid damage in the first place by prohibiting long-wall mining under upland swamps.

164. The feed trees favoured by koalas are commonly associated with riparian zones that hold water in drought. Trees growing along creek lines and near sources of permanent water hold higher leaf moisture and denser foliage for shade, thereby creating valuable kola habitat during droughts and heat waves. Mass koala mortality due to dehydration is a well-documented outcome of drought.[121] Koalas like other animals depend on long lasting water storage in times of drought. Provision of water can make the difference between survival and local extinction.[122]

165. The link between available water and survival of koala populations has been widely studied.[123] Damage to the capacity for surface water and groundwater storage within the landscape also increases the risk of fire. It has been proven that upland swamps in Newnes have lost resilience to fire damage as a consequence of mining subsidence.[124]

166. Following years of drought the black summer fires of 2019-2020, were widely acknowledged as a key threat driving koala extinction. "Across the fifteen bioregions in NSW containing koalas, nine were impacted by the 2019-20 bushfires fires with a total of 34,666 km^2 burnt."[125]

167. This is the most recent in a series of mine extensions where the EIS has failed to survey koalas and track long-term changes linked to subsidence damage. The way is open to conduct a retrospective study on previously mined areas and compare these with un-mined areas, including Area 5. The lack of

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[119] EIS, Section 7, Figure 7-12.

[120] Commonwealth of Australia (2014) Temperate highland peat swamps on sandstone: evaluation of mitigation and remediation techniques, knowledge report, prepared by the Water Research Laboratory, University of New South Wales, for the Department of the Environment. Canberra, Commonwealth of Australia: 106.

[121] Lunney, D., Lemon, J., Crowther, M.S., Stalenberg, E., Ross, K., & Wheeler, R. An Ecological Approach to Koala Conservation in a Mined Landscape (2018) https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2018/11/vickery-extension-project/comments-and-presentations-received-before-12th-february-2019/edo-nsw-on-behalf-of-clients-below/lunney-et-al.pdf, Accessed 08.06.2022.

[122] Mella, V.S.A., McArthur, C., Krockenberger, M.B., Frend, R., & Crowther, M.S. (2019) Needing a drink: Rainfall and temperature drive the use of free water by a threatened arboreal folivore. *PLoS One*, 14, e0216964.

[123] See for example: (1) Davies, N., Gramotnev, G., McAlpine, C., Seabrook, L., Baxter, G., Lunney, D., *et al*. (2013) Physiological stress in koala populations near the arid edge of their distribution. *PLoS One*, 8, e79136.
(2) Gordon, G., Brown, A. S., & Pulsford, T. (1988) A koala (Phascolarctos cinereus Goldfuss) population crash during drought and heatwave conditions in south-western Queensland. *Australian Journal of Ecology*, 13, 451–461.
(3) Munks, S., Corkrey, R., & Foley, W. (1996) Characteristics of arboreal marsupial habitat in the semi-arid woodlands of northern Queensland. *Wildlife Research*, 23, 185–195.
(4) Smith, A. G., McAlpine, C., Rhodes, J., Seabrook, L., Lunney, D., & Baxter, G. (2013) Are there habitat thresholds in koala occupancy in the semiarid landscapes of the Mulgalands Bioregion? *Wildlife Research*, 40, 413–426.

[124] Baird, I.R.C. & Benson, D. (2020) Serious impacts of longwall coalmining on endangered Newnes Plateau Shrub Swamps, exposed by the December 2019 bushfires. *Australasian Plant Conservation: Journal of the Australian Network for Plant Conservation*, 29 (1), 12-15.

[125] Australian Department of Agriculture, Water and the Environment Conservation (2022) Advice for *Phascolarctos cinereus* (Koala) combined populations of Queensland, New South Wales and the Australian Capital Territory (in effect under the Environment Protection and Biodiversity Conservation Act 1999 from 12 February 2022) https://www.environment.gov.au/biodiversity/threatened/species/pubs/85104-conservation-advice-12022022.pdf, Accessed 08.06.2022.

baseline data collected from previous mined areas is to be lamented, as evidenced by a lack of records on the BioNet Atlas.

168. The limited assessments of this site were sufficient to meet the Biodiversity Assessment Methodology requirements, used to draw up offset arrangements for vulnerable fauna. However this work was a broad survey not targeted to finding koalas. Spotlight survey work done on site was limited to general roadside transect studies.[126] Some work was done with koala playback calls and locating koala scat in one area.[127] Although this work confirmed the presence of a koala, it did nothing to establish numbers. No method of identifying individual koalas is mentioned. In order to make conclusions about population density it is necessary to identify individual koalas, and this is best done in the daytime. The full extent of koala survey work is mapped onto Figure 14.01 of the Biodiversity Appendix D, this map reveals that while the entire site directly over the proposed mine is considered koala habitat, there has been no attempt to provide an estimate of how many koalas there are in the area.

169. There is a consistent pattern in BioNet data in the Illawarra of concentrated koala records along roadways, a substantial portion of these records are roadkill. BioNet Atlas reveals a recent finding of a dead koala on the roadway within Area 5, indicating road kill. Interestingly, mention is made of a mother and joey koala sighted on a roadway.[128] Despite the paucity of this recent data, records reported from the ridgeline fire trails suggest that the deeper riparian lease area does indeed contain a large population of koalas. Koalas are more commonly found downslope than on ridgelines. The koala plan of management suggests that speed limits may need to be imposed and that koala injuries should be monitored.[129] The only admission in the EIS that koala numbers could be impacted by mining activity is by vehicle strike.

170. The EIS offers up a range of offset measures to compensate for direct impacts on the one percent of land that is to be cleared for electricity transmission lines, construction of a vent shaft and car parking. A species polygon is mapped out to include canopy trees within the transmission line footprint but excludes lower vegetation.[130] The purpose of this polygon is to calculate an area of land requiring an offset through application of "koala species credits". "The biodiversity credit obligation can be retired through the purchasing of credits available on the market, establishing a Biodiversity Stewardship Site(s), or Payment into the Biodiversity Conservation Fund".[131] The calculated offset liability runs to 456 species credits, which can be purchased for about $700 on the spot market or retired for a fee of $1590 each. Offsets measures are manifestly inadequate to deal with the threat of extinction. Where koalas on this lease area remain hidden and are not treated as endangered, the calculation of credits is doubly inadequate.

171. There should be an acceptance that this wilderness area is prime habitat for an iconic Australian animal endangered by extinction. In 2022, there is no social license to proceed with a plan that ignores koalas; this was made clear by both governments with the recent endangered listing status. It now remains for government representatives to make good on the promise of that listing by refusing to accept this proposal.

[126] EIS. Appendix D – Biodiversity. Figure 12a.
[127] EIS. Section 7. Fauna Survey Effort, Figure 7-16.
[128] EIS. Appendix D – Biodiversity. p 136.
[129] EIS. Appendix D – Biodiversity. Section 5.2.2, p 203.
[130] EIS. Appendix D – Biodiversity. Figures 14o.1 -14o.7, unnumbered pages (located at 342/672 – 248/672 in PDF)
[131] EIS. Appendix D – Biodiversity. p xi.

GOVERNANCE: The reclassification of the Dendrobium Coal Mine Extension from SSD to SSI, thereby sidelining the IPC, is an assault on good governance.

Concerns about governance

172. The reclassification of the Dendrobium Coal Mine Extension project from its original *State Significant Development* (SSD) status to SSI status following the IPC refusal decision of the SSD-8194 project – because members of the NSW Government would not accept the refusal decision – is extremely objectionable in of itself to POWC Inc. Even those who supported the previous SSD-8194 project might also object to this assault on good governance. What is the purpose of having an IPC as consent authority in any NSW Planning assessment process if their role and their findings can be so readily put aside? Why should the community waste their time and energy engaging in IPC-led processes in the future? This was a retrograde action on the part of the NSW Government severely undermining public confidence in the NSW planning/assessment processes.

173. We are very concerned that when former Planning Minister Rob Stokes declared Dendrobium as SSI in December 2021, he simply accepted claims from South32, various involved politicians, and possibly BlueScope Steel, that the steelworks relied on South32's Dendrobium coal mine's continuance – despite the IPC concluding otherwise in February 2021. There has been no finding contrary to the IPC's conclusions by any independent expert to support the Government claim. The NSW Government appear to be doing the bidding of South32 and/or BlueScope Steel for whom it would be profitable for this Project to be approved, rather than working in the best interests of all NSW residents.

174. The NSW Government in their pitch to the community on this matter, want to have it both ways at the same time. On the one hand, the Government wants to make it look like they respect the IPC and the IPC's findings (hence Deputy Premier Toole's media release statements claiming IPC concerns about the project will be addressed), while on the other hand, messaging that the Dendrobium coal mine is a "critical source of coking coal for the Port Kembla Steelworks…"[132] which discounts the IPC findings.

175. Community members have contacted POWC Inc and asked us:

- *How can the NSW Government grant SSI status to a private coal mine for the benefit of a private steel manufacturer? Isn't SSI status reserved for infrastructure that serves the wider public interest?*
- *Why not declare the local McDonalds restaurant SSI as well?*
- *Isn't the Sydney Drinking Water Catchment the real SSI in this situation?*
- *What – a coal mine expansion is SSI in the middle of a climate crisis?*

No confidence in the impartiality of NSW Planning

176. POWC Inc has little confidence in the capacity of the NSW Planning Department to assess this project impartially. DPE recommended approval for the earlier larger SSD-8194 project, so why would they not again recommend approval for this revised Project that is smaller though the same in character? In 2020 DPE commissioned Dr Brian Fisher of BAEconomics[133] to carry out the review of South32's SSD-8194 EIS economic assessment. The IPC[134] in their findings, noted that "the BAEconomics report had a very specific scenario to assess for the Department, which was beyond the

[132] NSW govt media release of 4 December 2021. https://www.nsw.gov.au/media-releases/coal-certainty-delivers-job-security

[133] Renew Economy *Brian Fisher Backgrounder* https://reneweconomy.com.au/wp-content/uploads/2019/05/190502-Brian-Fisher-Backgrounder.pdf

[134] Para #269 IPC Dendrobium Extension Project SSD-8194. Statement of Reasons. 5 Feb 2021. https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/determination/210205_ssd-8194-dendrobium-extension-project_statement-of-reasons.pdf

requirements of the Guidelines. The Commission also notes the economic benefits of the water supply catchment to the Illawarra and Greater Sydney regions and the costs of scope 3 GHGE are equally important considerations". It might be assumed that Dr Fisher was employed to deliver a review that aligned with the DPE bias towards approval of fossil fuel projects.

177. Furthermore, our requests under Freedom of Information reveal that following the Dendrobium SSI declaration, Planning staff were requested by a Ministerial Office to provide information "to be provided to Electorate Offices to pass on to constituents who are writing to their local MPs in opposition to the [Dendrobium SSI] decision."[135] Released documents show that in response, Planning staff compiled requested high level dot-points to highlight the revised Project's supposed improvements in terms of reduced environmental impacts.[136] Constituents would prefer their elected MPs to have access to all relevant facts in any given situation. rather just refer to pre-framed talking points.

178. From GIPA documents received, in earlier email exchanges during October 2021, a Planning officer wrote to South32 regarding a letter in support of South32's request that Dendrobium be declared SSI:

> "One area where the letter would benefit is some additional information in relation to the IPCs commentary around Wongawilli Seam coal being the main supply source for Bluescope. The IPC contended South32's justification for the project (i.e. as a supply source for Bluescope, with related economic / employment implications) because Wongawilli Seam coal wasn't going to be available until many years in the future. ... The letter could better address this point, confirming that the Bulli Seam coal targeted by the revised project is of a suitable quality to supply Bluescope."[137]

179. We assert that these behaviours lacks impartiality and show Planning staff acting in ways to provide support to *political* decisions, rather than acting in disinterested ways to facilitate good planning outcomes for NSW as a whole.

<u>POWC Inc requests related to the assessment *process* for this Project</u>

180. As pointed out earlier in our Introduction, the Dendrobium SSI Motion itself, statements from then Planning Minister Stokes to Mr Field MLC, and Deputy Premier Toole's media release all promised that this current SSI-33143123 Project would address the IPC's concerns that led to its refusal of the SSD-8194. If this revised SSI Project's EIS really does address all of the IPC's concerns (contrary to our assessments), then surely the IPC itself is far better placed to determine whether its concerns are adequately addressed or not, than the NSW DPE.

181. So we ask you, Minister Roberts, to exercise power that you already have, under Section 2.9 (1)(c) of NSW's EP&A Act[138] to ask the NSW IPC:

- To undertake a review of all public submissions and all agency and organisational submissions, including those from WaterNSW, BCD, the IAPUM and IESC;
- To commission further promised independent expert reports as promised by your colleague Minister Stokes to Mr Field MLC, namely related to (1) assessing the economic costs and

[135] Email correspondence (13 Dec 2021) One DPE officer to two other DPE staff. DPE GIPA Request (ref 22-2122) to POWC Inc. *11. RELEASE.pdf*

[136] See further emails (16 & 17 December 2021) between other Planning Staff who action Ministerial Office request. DPE GIPA Request (ref 22-2122) to POWC Inc. *11. RELEASE.pdf*

[137] Email (6 October 2021) from DPE officer to South32 person in relation to draft letter related to the Project being declared SSI. DPE GIPA Request (ref 22-2122) to POWC Inc. *18. PARTIAL RELEASE.pdf*

[138] See http://classic.austlii.edu.au/au/legis/nsw/consol_act/epaaa1979389/s2.9.html

benefits of the project and (2) assessing the importance of a local coal supply to BlueScope Steel;

- To provide a statement to you related to whether this Project does or does not address their concerns from the earlier SSD-8194 refused project; and
- To provide advice to you as to whether you should approve or reject this Project.

182. Our further requests to you Minister Roberts, are that your terms of reference to the IPC and all associated reports and IPC discussions are made transparent and available on the IPC website; and that you heed the advice of the IPC.

183. POWC Inc considers that this is the only way that you will be able to restore any level of public confidence in the planning assessment processes related to this Project.

EP&A ACT OBJECTS, ESD PRINCIPLES & PUBLIC INTEREST: This business-as-usual Project is not consistent with principles of ecologically sustainable development, nor with the objects of the NSW EP&A Act and is utterly against the public interest.

184. POWC Inc asks you to carefully consider the submissions of our experts Mr Wood, Dr Phelan and A/Prof Perry, who discuss the need for the necessary transition to green steel, and the challenges and opportunities that that poses. Our expert Prof Sackett points out that the costs of this project's GHGE and climate impacts will far outweigh the purported benefits. Our experts Mr Dupen, Prof Khan, Dr Wright, and Dr Mason point out the uncertainties and risks posed by this project to the water and biodiversity/ecological values of the Metropolitan Special Area – the very values which caused these areas to be declared Special Areas under NSW law in the first place!

185. A global transition from fossil-fuel steel to green steel is absolutely necessary to protect the Earth's climate system from further destabilisation, and is underway. Traditional fossil-fuel steel manufacture contributes about 6-8 % of global GHG emissions, so global climate efforts will fail unless these emissions are addressed. We note that in Australia, BlueScope Steel's Port Kembla operations reported baseline GHGE of over 11 million tonnes CO2e via the Safeguard Mechanism[139] in 2020/2021, having the largest baseline emissions of all reporting entities, for that reporting year.

186. We accept that dealing with climate change is inconvenient, but that does not make dealing with climate change any less necessary or urgent. Dealing with the consequences of runaway climate change will be much more inconvenient and even much more devastating.

187. POWC Inc asserts that an approval of this Dendrobium Project would be **inconsistent** with ESD principles and against the public interest. Section 6(2) of the NSW *Protection of the Environment Administration Act 1991 No 60*[140] defines ecologically sustainable development (ESD) as follows (and this definition is referred to within the NSW EP&A Act):

> "[E]cologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs—
>
> (a) the **precautionary principle**—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
>
> In the application of the precautionary principle, public and private decisions should be guided by—
>
> (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
>
> (ii) an assessment of the risk-weighted consequences of various options,
>
> (b) **inter-generational equity**—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,
>
> (c) **conservation of biological diversity and ecological integrity**—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,
>
> (d) **improved valuation, pricing and incentive mechanisms**—namely, that environmental factors should be included in the valuation of assets and services, such as—

[139] 2020/2021 Safeguard Facilities Data. http://www.cleanenergyregulator.gov.au/NGER/National%20greenhouse%20and%20energy%20reporting%20data/safeguard-facility-reported-emissions/safeguard-facility-reported-emissions-2020-21?SortField=Baseline%5fx0020%5fnumber&SortDir=Desc&View=%7bBB176EF4%2d368C%2d459F%2dB054%2d088DD8323B53%7d

[140] Part 3, Section 6 (2), Ecologically Sustainable Development. *Protection of the Environment Administration Act 1991 No 60.* https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-1991-060#sec.6

(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,
(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,
(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems." [emphasis added]

188. Through its subsidence and its massive surface fracturing impacts, this Project would damage water systems in the water catchment, leading to permanent water losses and water pollution problems. This project would fail to conserve biological diversity and ecological integrity through its impacts on threatened species (such as koala) and its destruction of endangered coastal upland swamps. It would contribute significantly to GHGE thereby contributing towards further climate instability, which in turn itself further threatens biodiversity and ecological integrity, and undermines water supply. All of these impacts will be borne by the current generation but most by younger and future generations, and so this project utterly fails the intragenerational equity and intergenerational equity principle. This Project's EIS also ignores real climate costs, real costs related to water quantity and quality losses, and real costs associated with biodiversity/ecosystem damages and losses, and the associated ongoing costs to society, so it is not consistent with the polluter pays principle. Moreover it fails to incorporate improved valuation, pricing and incentive mechanisms, for example, by requiring that the Project be fully carbon neutral.

189. POWC Inc also asserts that an approval of this Dendrobium extension is inconsistent with the relevant objects of the EP&A Act[141] highlighted by us below:

"The objects of this Act are as follows—
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,
(c) to promote the orderly and economic use and development of land,
(d) to promote the delivery and maintenance of affordable housing,
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),
(g) to promote good design and amenity of the built environment,
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,
(j) to provide increased opportunity for community participation in environmental planning and assessment."[142]

190. For reasons outlined earlier throughout this Submission, POWC Inc contends that this Project is in particular inconsistent with Objects (a); (b); (c); (e); and (f). Furthermore, POWC Inc notes that the reclassification of the Dendrobium Coal Mine Extension to SSI, to some extents, removes opportunity for community participation in environmental planning and assessment, compared to the process by which the IPC was the consent authority. Thus, we consider that the SSI Declaration itself is against object (j).

[141] Section 1.3 Objects of Act. NSW *Environmental Planning and Assessment Act 1979 No 203.* https://legislation.nsw.gov.au/view/html/inforce/current/act-1979-203#sec.1.4
[142] https://legislation.nsw.gov.au/view/html/inforce/current/act-1979-203#sec.1.3

CONCLUSION

191. Minister, POWC Inc urges you to reject this highly damaging Dendrobium coal mine extension Project.

192. Indigenous Australians and then earlier NSW governments have recognised the importance of water and water protections in this country – the driest country on Earth. They thought about their responsibilities and obligations long term. Our generation has benefited from the water catchment and its associated ecoservices, and also from a liveable climate. Now is it our turn to think long term about our responsibilities and obligations. We need to ensure that we do not take away future generations' access to water, to a liveable climate and to nature. Our gift to future generations should not be a crippled economy and an unliveable environment.

193. POWC Inc seeks a safer future for people, for koalas, for biodiversity, for the threatened coastal upland swamps and for the forests in the Metropolitan Special Area in the Avon and Cordeaux catchments. We would like: for Australia to continue to feed itself; for Australians to have homes that don't burn down or get destroyed in floods; for fewer Australian heatwave-related deaths in the future; for NSW residents in our region to continue to have access to clean drinkable water.

194. Minister, we ask you to make your decision for the long-term public-wide interest, rather than for very short-term narrow vested interests or conveniences. POWC Inc calls for a transition for our region from one dominated by coal/coal-steel to one focused on changing to a renewable-energy driven economy and restoration of our environment with long-term sustainable jobs. According to Mr Wood's Expert Submission (**Attachment 6**), green steel could deliver tens of billions of dollars in export revenue and thousands of jobs; he noted that the Illawarra is well placed to take advantage of this opportunity.

195. Moreover, POWC Inc calls on you, Minister, to prioritise actions that would enable a just and fair transition to occur in our area. These priority actions (as outlined by Dr Phelan, **Attachment 4**, p 5) are: (1) Develop a local just-transition coordinating authority; (2) Fund a "flagship" job-creation project, and (3) Provide more resources for technical and vocational education."

196. POWC Inc thanks the Environmental Defenders Office for its very generous support and for briefing and engaging experts related to this SSI-33143123 Project, and for previously briefing and engaging experts related to the earlier SSD-8194 Project. We thank these experts for their work considering the proposals and their willingness to provide Expert Advice, even if circumstances prevented two experts (A/Prof Perry and Mr Wood) from providing updated advice for this current Project. We refer you to eight Expert Submissions provided as attachments:

Attachment 1: Hydrogeology – Mr Peter Dupen
Attachment 2: Drinking Water Management – Prof Stuart Khan
Attachment 3: Upland Swamps Ecology — Dr Tanya Mason
Attachment 4: Workforce Transition, Sustainability – Dr Liam Phelan
Attachment 5: GHGE, Climate Change – Prof Penny D Sackett
Attachment 6: Green Steel – Mr Tony Wood (re Project SSD-8194)
Attachment 7: Water Pollution, Aquatic Ecology – Dr Ian Wright
Attachment 8: Economic Assessment – Assoc Prof Neil Perry (re Project SSD-8194).

197. We also refer you to **Attachment 9** which collates important Climate Change information for your consideration.

198. Thank you for considering this submission and all the attached Expert Submissions. Minister, we ask you to make a decision that is fully aligned with ESD principles and the objects of the EP&A Act and **reject** this proposal. We submit that it would be legally unreasonable, irrational or illogical for you to make findings contrary to POWC Inc's submissions above. Furthermore, we submit that it would be

legally unreasonable, irrational or illogical for you to approve the Project. We ask you instead to actively plan and prepare for the permanent closure and remediation of Dendrobium Colliery over the next decade; and prioritise a just and fair transition for our region.

ATTACHMENTS

Attachment 1: Hydrogeology – Mr Peter Dupen's EXPERT SUBMISSION

Attachment 2: Drinking water management – Prof Stuart Khan's EXPERT SUBMISSION

Attachment 3: Upland swamps ecology — Dr Tanya Mason's EXPERT SUBMISSION

Attachment 4: Workforce transition; Sustainability – Dr Liam Phelan's EXPERT SUBMISSION

Attachment 5: GHGE, climate change – Prof Penny D Sackett's EXPERT SUBMISSION

Attachment 6: Green steel – Mr Tony Wood's EXPERT SUBMISSION related to Dendrobium Coal Mine Extension SSD-8194.

Attachment 7: Aquatic ecology and subsidence impacts – Dr Ian Wright's EXPERT SUBMISSION

Attachment 8: Economic assessment – Assoc Prof Neil Perry's EXPERT SUBMISSION related to Dendrobium Coal Mine Extension SSD-8194.

Attachment 9.1: Climate Change Documents for Consideration (documents 1 – 6)

Attachment 9.2: Climate Change Documents for Consideration (documents 7 – 12)

Attachment 9.3: Climate Change Documents for Consideration (documents 13 – 18)

Attachment 9.4: Climate Change Documents for Consideration (documents 19 – 24)