15 December 2020

Independent Planning Commission
By email: ipcn@ipcn.nsw.gov.au

Submission: OBJECTION to the South32 Dendrobium Extension Project (SSD 8194)

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

Protect Our Water Alliance (POWA) was formed in early 2019 in response to growing community awareness and anger, at ongoing damaging mining beneath Sydney's water catchment. Located on unceded Dharawal Country in Wollongong, POWA is affiliated with grassroots groups and environmental organisations across the Illawarra, Southern Highlands, and Greater Sydney regions. **POWA advocates for protection of the Water Catchment, and calls for a ban on mining in it. We strongly object to this Dendrobium extension project. POWA considers that approving this mine expansion, under any circumstances, with any set of conditions would be very strongly against the public interest.**

The DPIE-Planning *Assessment Report*[1] is biased and unbalanced, favouring South32's interests over that of the wider community. It appalls POWA members that that report:

- disregards strong opposition or concerns about the project made by other NSW government agencies/panels (e.g. WaterNSW, OEH, BCD, IAMUP, etc) who make clear: the large-scale *permanent* damage to the Metropolitan Special Area; associated ongoing massive water losses and resulting water pollution; destruction of threatened coastal upland swamps; increased risks to threatened species; misapplication of biodiversity offsets; failures to follow relevant legal requirements; uncertainties around sealing mines post-operation; etc
- accepts and promotes the dishonest water 'offsets' proposed by South32 as somehow completely addressing or compensating for project-related water losses from the Sydney Water Catchment; and
- claims the project's large GHG emissions that will contribute to further destabilisation of our planet's climate system, are not key to the assessment of this project.

The Dendrobium extension proposal does not present or contribute towards a positive future for our region or country – rather it demands further subsidisation by the community of the business-as-usual status quo that is climate-wrecking, social-inequality-enhancing and economically-risky. Given that DPIE-Planning has not required South32 to go back and comprehensively reconsider how they might *avoid, minimise* or *mitigate* known certain damaging environmental impacts, **POWA calls on you, the IPC, to look at the bigger picture and <u>avoid</u> the certain long-term damages to our water catchment, biodiversity, climate, community and economy, by rejecting this proposal.**

[1] https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/10/dendrobium-extension-project-ssd-8194/referral-from-the-department-of-planning-industry-and-environment/dpie-assessment-report.pdf

Further Irreparable Damage to Sydney Water Catchment

The 2008 Southern Coalfield Inquiry report[2] concluded that "*The single most important land use in the Southern Coalfield is as water catchment.*" POWA agrees with this conclusion and wishes that DPIE-Planning, our government and decision-makers would make decisions reflecting this **reality**.

If DPIE-Planning were to truly appreciate and prioritise the value of the Southern Coalfields as water catchment then they would not assess as 'approvable' further massive irreparable damage to the water catchment, let alone in the Metropolitan Special Area – for the sake of coal extraction.

That this South32 Dendrobium extension proposal is going to cause massive irreparable damage to the water catchment is not in dispute. With no lack of reports on this topic, industry, DPIE-Planning, government, experts and community all know that underground coal mining – whether by immediately-damaging longwall methods or by more slowly damaging bord-and-pillar methods – damages the water catchment, primarily by breaking up geological strata, causing subsidences at the surface, surface deformations, fissures, cracks, fractures, shear planes, tilting, hogging, valley infills, cliff collapses, new hydraulic connectivities etc. Underground coal mining is intrinsically damaging, and the aggressive longwall mine design as proposed here is especially damaging. This is not disputed. Rather DPIE-Planning states:

> *[A]bove the two mining areas, subsidence impacts would be significant…*
> *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. This cracking would cause infiltration of surface water from both upland swamps, watercourses and the water table.*[3]

Nonetheless, DPIE-Planning recommends approval of this project! Even despite:

- this project's longwalls being setback only 1000 m from dam walls, instead of 1500 m as advised by WaterNSW[4];
- acknowledging further hydrogeological damages will occur in the Metropolitan *Special Area* (similar to what has already occurred at Dendrobium discussed in the first IEPMC report[5]) and that these will cause large water 'losses' from the water catchment;
- being made aware that hydrogeological damages very likely will not be and cannot be repaired, with water loss and pollution impacts that will continue in perpetuity, as made explicit by the IAPUM:
  The EIS appears to assume that the mine can be sealed successfully after the cessation of mining and so negate ongoing water loss from the catchment. It neither provides an explanation of how connections to the mine (including through neighbouring mines) can be sealed successfully nor an assessment of the long term effects, impacts and consequences of mine sealing on neighbouring mines, the environment, water quantity and quality in the catchment and public safety. If the mine cannot be sealed, then consideration has to be given to how to manage and offset groundwater and surface water inflow to the mine workings in perpetuity.[6]

Clearly DPIE-Planning thinks this 28-year-long coal extraction is now more important than the long-term protection of water and the water catchment. But has anything changed since the 2008 Southern Coalfield Inquiry that would make protecting water any less important now than it was 12 years ago? POWA thinks

---

[2] Department of Planning (2008) *Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield: Strategic Review*. https://trove.nla.gov.au/work/33850884?q&versionId=41652064
[3] DPIE-Planning *Assessment Report.* ix.
[4] 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
[5] IEPMC (14/10/2019) Review of specific mining activities at the Metropolitan and Dendrobium coal mines https://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0004/281731/IEPMC-Part-1-Report.pdf
[6] IAPUM report (Oct 2020) Advice Re: Dendrobium Extension Project SSD-8194. i. https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-8194%2120201102T055834.983%20GMT

not. We believe that expected population growth coupled with climate-change effects (including increased bushfire risk) only make it more important to safeguard water and the water catchment.

Population growth:
This project would impact the Avon and Cordeaux catchments. The Avon Dam is effectively the sole water supply for the Illawarra. (The Avon Dam can receive water from the Shoalhaven's Tallowa Dam, but only 7,500 ML at most is available for transfer, if available). The Cordeaux along with the Cataract supplies water to south-western Sydney and can contribute to supply for Southern Highland communities. Both the Avon and Cordeaux can contribute to the Greater Sydney water supply if required. NSW Government 2019 population forecasts for Greater Sydney and the Illawarra (Wollongong, Shellharbour, Kiama LGAs) to 2041 show the following:

Locality	2016 Population	2041 Forecast Population	Forecast Population Change	Population Change on 2016
Wollongong[7]	210,400	265,750	+ 55,350	+ 26 %
Shellharbour[8]	70,400	93,950	+ 23,550	+ 33 %
Kiama[9]	22,100	26,100	+ 4,000	+ 18 %
Illawarra Total	302,900	385,800	+ 82,900	+ 27 %
Greater Sydney[10]	4,688,255	7,103,091	+ 2,424,636	+ 52 %

NSW Government forecasts for the Illawarra and Greater Sydney show significant increases in people – all of whom will need water.

Climate-change impacts:
The Climate Council of Australia's report on the "Black Summer" bushfires points to just some reasons why water may become more scarce and more precious, and why the Sydney Water Catchment and its Special Areas are worth protecting as strongly as we can:[11]

- *Cool season rainfall has declined in southeast Australia over the last two to three decades.*
- *2019 was Australia's hottest, driest year on record. 2018-2019 was southeast Australia's driest two-year period on record.*
- *The bushfire season was the worst on record for New South Wales in terms of the scale of the bushfires, the number of properties lost and the amount of area burned.*
- *Nearly 80 percent of Australians were affected either directly or indirectly by the bushfires.*
- *For the first time ever catastrophic fire conditions were forecast for Greater Sydney.*
- *The bushfire smoke that blanketed Sydney is estimated to have cost the city $12-50 million per day.*
- *More than 23,000 bushfire related insurance claims were lodged across New South Wales, Queensland, South Australia and Victoria between November and February, totalling an estimated value of $1.9 billion.*
- *This season's fires were incredibly large in area, even compared to forests all around the world. Around 21 percent of Australian temperate broadleaf and mixed forests was burnt. The average annual area burnt for most continents, including Australia, is well below 5%, except for Africa and Asia, which have average annual areas burnt of 8-9%*

Unfortunately, with climate change, in our region in the future we can only expect: more *unprecedented* hot dry weather; more bushfires; more large-scale devastating bushfires; less cool season rainfall; more catastrophic fire conditions; more extreme droughts; more intense rainfall events.

---

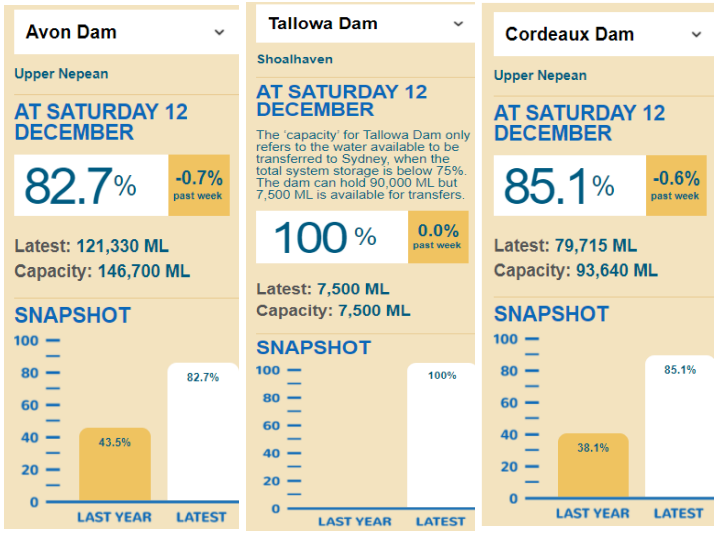
[7] https://www.planning.nsw.gov.au/-/media/Files/DPE/Factsheets-and-faqs/Research-and-demography/Population-projections/2019-Wollongong.pdf

[8] https://www.planning.nsw.gov.au/-/media/Files/DPE/Factsheets-and-faqs/Research-and-demography/Population-projections/2019-Shellharbour.pdf

[9] https://www.planning.nsw.gov.au/-/media/Files/DPE/Factsheets-and-faqs/Research-and-demography/Population-projections/2019-Kiama.pdf

[10] Population, Household and Implied Dwelling Projections by Greater Sydney Region and Regional NSW (Excel file) https://www.planning.nsw.gov.au/Research-and-Demography/Population-projections/Projections

[11] Climate Council of Australia (2020) Summer of Crisis. https://www.climatecouncil.org.au/wp-content/uploads/2020/03/Crisis-Summer-Report-200311.pdf



Last year, Avon Dam water levels dropped very low. The WaterNSW snapshots to the left[12] show that one year ago the Avon Dam was only 43.5 % full and Tallowa Dam had no capacity for water transfer to the Avon. The Cordeaux Dam was only at 38.1 % capacity.

The Black Summer bushfires highlight the need for some 'redundancy' within the Sydney Water Catchment: water from the Upper Nepean subcatchment was used for water supply to Sydney when the usual Warragamba Dam supply was affected by ash from the bushfires. Operating near the edge of capacity makes our systems more liable to collapse under pressure.

Increased bushfire risk:

The loss of water from surface and near surface waters from the water catchment, caused by geostructural damages from mining, makes the environment more bushfire prone. The presence of water and moisture limits bushfire intensity and spread. In a fire catastrophe, easy access to water becomes only more important.

Opposition and concerns by affected LGAs and WaterNSW:

We note that all councils whose LGAs this Dendrobium extension occupies either oppose the project outright or express serious concerns about the project:

- Wollongong City Council commented on the EIS proposal [13] expressing concern about damage to the water catchment, waters and swamps, and also mentioned the possible greater bushfire intensity for affected swamps. Then early this year, WCC in responding to South32's RTS[14], stated:
  Council maintains its previous position on the matter as per our letter dated 18 September 2019 since a number of issues in that letter remain largely unresolved. … Council is also specifically concerned about the cumulative loss of water to reservoirs, creeks and upland swamps in the Greater Sydney Water Catchment due to mining activities. …Further, one of the recommendations in the second report of the Independent Expert Panel for Mining in the Catchment was that an inter-agency working group be set up, in order to identify what the 'acceptable' level of surface water loss due to mining would be. … Therefore, in Council's view, the project should not be determined until such time as the NSW Government review occurs on the cumulative impacts of mining in the Greater Sydney Water Catchment and the NSW Government determines what the 'acceptable' level of surface water loss from mining projects to the catchment is.
  …The [RTS] report also does not adequately address the downstream greenhouse gas emissions relating to the end use of coal by third parties elsewhere in Australia and the rest of the world. This assessment should be undertaken given the NSW Land and Environment Court decision in Gloucester Resources Limited v Minister for Planning, Preston CJ [2019]. This is consistent with Council's resolution of 12 August 2019 which declared a climate emergency and required all levels of government to take urgent action.

[12] Snapshot at 12/12/220 https://www.waternsw.com.au/supply/Greater-Sydney/greater-sydneys-dam-levels
[13] Wollongong CC 18/09/2019 Submission on EIS https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-1523%2120200818T072451.490%20GMT
[14] Wollongong CC 02/03/2020 Response to RTS https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-8194%2120200427T000136.050%20GMT

In its communication on Additional Information[15], WCC further expressed concern that all 58 Aboriginal Heritage sites could be impacted and requested a redesign of the mine layout.

- Wollondilly Shire Council formally objected to the proposal EIS[16] until potential impacts on water sources and supplies were addressed to the satisfaction of WaterNSW. Recently in its meeting with the IPC,[17] WSC restated its opposition to the proposal, and support for WaterNSW's position. WSC additionally raised concerns about fires in the future.
- Wingecarribee Shire Council, although entering its submission on the proposal EIS[18] as a comment, makes it absolutely clear that it opposes all new longwall mining and coal exploration in the Shire. It would seem that DPIE-Planning did not even read their submission before writing their Assessment Report – or else disregarded it if it was read. DPIE-Planning merely noted the WSC submission as a comment.

Given all the evidence of damage to the water catchment to date, and the complex interrelated and very significant impacts on water quantity and quality, WaterNSW not surprisingly has strongly opposed this project from the start, and has been very clear about the impacts and risks involved. WaterNSW clearly takes its responsibilities very seriously and has consistently and thoroughly engaged throughout the assessment process, expressing strong opposition to this highly damaging proposal. DPIE-Planning has chosen to disregard WaterNSW expertise and responsibilities in their assessment of this project as approvable.

It is shameful enough that the opposition and expressed concerns of the three involved LGAs have been disregarded by DPIE-Planning in its assessment. But it is even more shameful and also very disturbing that the expertise and authority of WaterNSW has been disregarded as well. We consider an approval would put WaterNSW in the untenable position where they have responsibility for the management and operation of the state's water supply systems, but no power of veto to profoundly damaging projects. Nonetheless, WaterNSW would then have to somehow deal with and be accountable for the terrible consequences when such projects go ahead. **This situation truly is utterly inconsistent with object (i) of the EP&A Act which is *to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State.***

[15] Wollongong CC 05/06/2020 Avice on Additional Information https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-8194%2120200625T071515.772%20GMT

[16] Wollondilly SC 27/09/2019 Submission on EIS https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-1523%2120191003T063253.607%20GMT

[17] Wollondilly SC 16/11/2020 Meeting with IPC https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/transcripts-and-material/2020/dendrobium-extension-project/wollondilly-council-meeting-transcript.pdf

[18] Wingecarribee SC 11/09/2019 Submission on EIS https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-1523%2120200818T070928.858%20GMT

Water Losses and Pollution in Perpetuity: Water 'Offsets' Sham and Dishonest 'Net Gain' Claim

POWA considers the damage <u>already wrought</u> by the existing Dendrobium mine, and associated water losses/pollution to be unacceptable and reckless. DPIE-Planning's justifications of this extension proposal (such as below) demonstrate the utter falsity of "adaptive management" approaches that are recommended by various "independent" panels such as the IEPMC[19]:

> *While the Project involves two new mining domains (Areas 5 and 6), the nature and scale of its anticipated impacts on the overlying catchment are no different to those that have previously taken place in the existing mining areas.*[20]

Just because a project was allowed previously, that turned out to be highly damaging, this is not reason why it should be allowed again.

POWA demands that the NorBE requirement be applied to this proposal. Our Counsel Ms Lauren Sims indicates that the NorBE requirement in the SEPP (Sydney Drinking Water Catchment) is likely to apply given the SEPP's context when approved by the NSW government. This is in agreement with WaterNSW's strenuous objection who argue that NorBE is applicable especially given that the original approval to Dendrobium was granted on the basis of zero impacts![21] We refer you to Ms Sims's expertise and submission through EDO on this topic.

POWA considers that 'offsets' are NOT an acceptable mechanism for addressing water loss – this is a sham and South32's claim of a 'net gain' to the water catchment is dishonest. First and foremost we must protect the catchment. The catchment cannot be replaced by second-third-fourth-or-fifth desalination plants, a water treatment plant treating polluted mine outflows and then redirecting them, or by investment in water infrastructure (fixing the leaky pipes). **No amount of money can replace the catchment – and it is not for the NSW government to sell irreparable catchment damage to a wealthy private company.**

POWA 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 pointed out that the *Australian Drinking Water Guidelines*[22] mandate a multi-barrier approach to drinking water protection and that that starts at the catchment itself. In his presentation he was alarmed by the proposal's undermining of that safeguarding approach. We refer you to Prof Khan's submission through EDO on this topic.

POWA considers that there are many overlooked aspects of the water pollution associated with this project. Fresh water is so scarce and so precious in Australia, that we should not wantonly allow it to be polluted, causing further downstream social, environmental and economic problems. 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. We refer you to our expert Dr Ian Wright who will discuss water quality impacts of this project in his submission through EDO on this topic. We also refer you to Ms Julie Sheppard's (National Parks Association) submissions and presentations on this topic – Ms Sheppard has

---

[19] Such as in the IEPMC's (2019) Part-2 report. https://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0005/281732/IEPMC-Part-2-Report.pdf

[20] DPIE-Planning Assessment Report. x.

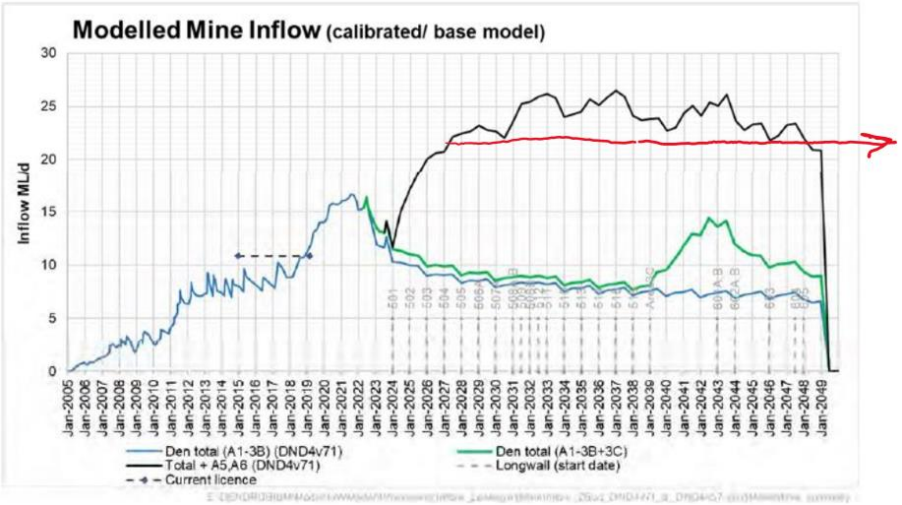
[21] WaterNSW IPC 30/11/2020 Meeting Presentation https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/transcripts-and-material/2020/dendrobium-extension-project/waternsw-meeting-presentation.pdf

[22] 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

photographed examples of iron-reducing bacterial flocs (appearing as orange floating masses) in once pristine waterways in Special Areas of the water catchment.
POWA considers that the water losses/pollution impacts alone are grounds for rejecting this mine extension, as this project would reduce the water supply benefits available to future generations and leave future generations to deal with polluted mine water problems. In doing so, it would be inconsistent with the ESD principle of intergenerational equity.

Water stolen in perpetuity:
POWA considers that the water losses already caused by this mine, since its approval in 2002, are significant and unacceptable. Further losses of similar magnitude are just as significant and even more unacceptable now because of our increased understanding of water loss/pollution and ecosystem damage.

The proposed extension of longwall coal mining into Areas 5 and 6 is estimated to contribute a further average 12 ML/day water inflow to the mine voids compared to the expected 10 ML/day inflow due to already-approved mining in Areas 1-3C; and maximum annualised mine inflows from the whole mine are estimated to be 26 ML/day (9,490 ML/year) in the years 2032, 2036 and 2043[23]. **Just because the proposed water loss impacts are similar to (slightly higher than) those already existing at this mine, does not justify allowing further water loss impacts. Please note that 26 ML/day is equivalent to the water use of 130,000 Sydney residents.[24]**



The long-term 22 ML/day loss of both surface water and ground waters is unacceptable. The additional **avoidable, as-yet-unapproved 12 ML/day water loss component of that 22 ML/day** equates to the water requirements of about 60,000 people – equivalent to about 25 % of the Illawarra population in 2016, and 16 % of the forecast Illawarra population in 2041.

12 ML/day is equal to 4,383 ML/year. On December 12 last year, the Avon Dam (at 43.5 %) and the Cordeaux Dam (at 38.1 %) together held only 99,491 ML of water. DPIE-Planning consider it approvable that an additional 4,383 ML is removed from the Avon-Cordeaux catchment as mine inflows – depleting both surface and ground waters – affecting both what makes its way to reservoirs and what remains in reservoirs. DPIE-Planning reports that surface water takes are predicted to be 25 % of total mine inflow at the end of mining.[25] In a dry year like 2019, that would be equivalent to more than 1 % of the combined dam storage! In a median rainfall year, estimated surface water losses total 3.89 ML/day.[26] With climate

[23] DPIE-Planning Assessment Report. Point 6.5.73-6.5.74. 108.
[24] The average Sydney resident uses about 200 litres of drinking quality water every day.
https://www.sydneywater.com.au/sw/education/drinking-water/water-use-conservation/index.htm
[25] DPIE-Planning Assessment Report. Point 6.3.17. 67.
[26] DPIE-Planning Assessment Report. Point 6.4.18. 67.

change favouring weather extremes, it is going to become more important that catchment water received during median and high rainfall years is not wasted and is captured for use during drier years. Add to this the expected water losses from the Avon and Cordeaux reservoirs due to extension into Areas 5 and 6, which are forecast to be about 0.46 ML/day (168 ML/year).[27]

The *real* ground and surface water systems are complex as are the natural weather and climate systems. The resulting modelling of these is complicated, based on limited data and very uncertain. The predicted catchment ground/surface water losses may well be underestimates, especially of worst-case scenarios.

One thing however is very clear, ground subsurfaces that are intact, retard water movement, resulting in a higher water table, and so less water infiltrates into the ground, more surface waters end up in reservoirs and less water in reservoirs seeps out. This is what communities to date have benefited from. **An approval of this mine extension would deny this benefit to future generations and so, would be inconsistent with the ESD principle of intergenerational equity. POWA urges you to reject this mine to preserve what is left of the hydrogeological integrity of the Metropolitan Special Area – any further damage that you allow to occur will likely continue in perpetuity.**

Water pollution in perpetuity:
This mine extension will cause extensive water pollution impacts (elevated levels of salts and metals such as iron, zinc, nickel, arsenic). Approval of this mine would:

- contribute to further pollution in catchment streams and in catchment reservoirs due to the expected extensive fracturing;
- result in a large daily flow (say 22 ML/day) of polluted water requiring treatment (if going to be beneficially used);
- result in higher pollutant loads in waters exiting approved mine environmental discharge points – with impacts on creeks and downstream Port Kembla Harbour;
- likely result in higher pollutant loads in unintended leaks from the water catchment to the surroundings.

Pollution impacts will be a significant ongoing problem after mining has ended as there is no sure way to seal off the mine, or to restore the original hydrological function to the catchment. Currently about 6.9 ML/day spills out of mine adits into Allan's Creek – by 2030 this polluted outflow will increase to 29 ML/day.

Expert Dr Ian Wright (Western Sydney University) who studies impacts of coal mining on watercourses water quality and aquatic ecosystems in the Sydney Basin considers that the South32 EIS inadequately assessed loads and concentrations of metals and their impacts on aquatic ecosystems – despite many kilometres of expected massive subsidence and other fracturing impacts. Dr Wright's previous (similar) studies demonstrate high salinity, elevated metal concentrations, low dissolved oxygen – all indicative of low water quality – in impacted streams. His research demonstrates that stream impacts are unlikely to be local and minor as expected by South32, and demonstrates losses of typical healthy-stream invertebrates that are replaced by problematic species such as mosquitos. Mosquito-related diseases such as dengue fever and malaria, are not spread in Australia as Australia is too cool, however, this situation could change as this country warms due to climate change.

Pollution of water reservoirs will also not suddenly disappear post-mining. Climate change will likely cause more droughts and extreme weather events which will exacerbate water movement within reservoirs, mixing deeper polluted waters with fresher upper waters, and so will make water treatment (especially to remove metals such as iron and aluminium) more costly over time.

[27] DPIE-Planning Assessment Report. Points 6.3.30 & 6.3.31 & 6.3.32. 68.

Water offsets sham and dishonest 'net gain' claim:

South32 proposes what POWA considers a sham offset scheme for lost water and then also makes dishonest claims about a 'net gain' for the water catchment – their proposed offset scheme is summarised in the table below: [28]

Table 2
South32 Commitments to Address Surface Water Losses

Timing	South32 Commitments to Address Surface Water Losses						
	1. Achieve "net gain" to metropolitan water supplies			AND	2. Compensate WaterNSW for lost revenue	AND	3. Hold appropriate licences
	1a. "Direct" offsets	OR	1b. "Indirect" offsets				
Already occurred							✓Groundwater licences (>$6 million)
Commencement of Project	✓Capital ($34 million)	OR		AND		AND	✓Surface water ($TBC by Govt)
During Project life	✓Annual operating costs	OR	✓ Annual funding contribution to NSW Govt based on $2.30/kilolitre (kL) ("base") or $3.12/kL ("drought")[1]	AND	✓ Annual funding contribution to WaterNSW based on $49.90/megalitre (ML) ("base") or $59.70/ML ("drought")	AND	✓Hold licences
Post-mining	✓Gift treatment facility (capital of $34 million already spent)	OR	✓Relinquish funds of $34 million to NSW Govt at the end of the mine life	AND		AND	✓Retire licences

[1] "Base" and "drought" scenarios as defined by the Independent Pricing and Regulatory Tribunal of NSW (IPART).

This is POWA's understanding: Under the direct offset, South32 would construct a water treatment plant (expected cost ~$34m) and use it to treat collected mine inflow water prior to supply to possible industrial users during the project life and then gift the treatment plant to the NSW government who would then continue water treatment thereafter. Else, under the indirect offset, during mining South32 would provide yearly payments to the NSW government paying $2300/ML (base) or $3120/ML (drought) and then provide $34m (the price South32 expects to outlay in 2021 to construct treatment plant) to the NSW government who would then have to construct the required pipelines and develop contractual arrangements etc. Under both direct and indirect offset approaches South32 would compensate WaterNSW with annual funding to the tune of $49.90/ML (base) or $59.70/ML (drought), during the project life only. South32 would purchase ground and surface water licences for the duration of the project and retire them afterwards.

POWA has multiple criticisms of this offset proposal:

1. **This offset scheme proposes sale of water catchment damage, by the NSW government, to someone with a fat purse, who nonetheless is not being required to cover the full longterm costs of the damages.**
2. **This offset scheme completely ignores groundwater losses and lowered water table impacts; and reliance of catchment flora/fauna on ground waters**.
3. **The offset scheme would cover only South32-predicted surface water losses – which might greatly underestimate real surface water losses from the catchment. In that likely eventuality, no doubt it is the NSW community would bear the hidden costs of contesting South32 under-estimates – just as it is the NSW community who bear the current costs of assessing and scrutinising this proposal.**
4. South32 indicates that the direct offset is their preferred option. Yet there are no plans or approvals for the proposed water treatment plan and related required pipelines. Similarly, no specified water quality criteria for the treated water are provided. There are also no commitments from potentially interested third-party users of the treated water.
5. The indirect offset is equally vague and unfavourable to the wider community. The proposed base and drought condition payments to the NSW government bear no relation to the real value of water lost. Moreover the water prices are fixed whereas water values are likely to increase very significantly over a 28-year period. Similarly, South32 proposes that postmining, it will simply donate $34m to the NSW government for them to construct their own water

[28] *Dendrobium Mine – Plan for the Future: Coal for Steelmaking*. Amendment Report August 2020. p 6-7. Accessed 31/08/2020 from: https://www.planningportal.nsw.gov.au/major-projects/project/9696

treatment plant – whereas the cost of such a facility will no doubt also have increased very greatly over the intervening time. This $34m value is completely arbitrary and favours South32. With such a sum, what water treatment could be provided and to what water quality?

6. Moreover, there is no provision of ongoing funds by South32 for maintaining and operating the water treatment plant indefinitely under both the direct and indirect offsets approaches.
7. Post-mining, polluted water that has received limited treatment (so suitable only for industrial use) may not be high enough value to cover operating costs. And, if industrial users cannot be found (which may well occur if South32 itself could not find such users), then the NSW government may end up either leaving polluted water travel through environment or have to construct pipelines to transfer water back to catchment storages. This arrangement favours South32 with NSW residents accepting all risks, damages and residual costs – associated with their water-wasting water-polluting proposal.
8. There is no discussion of the ultimate disposal of water treatment plant waste that will be generated.

South32's claim of a "net gain" to the Metropolitan drinking water supplies through their offsetting of surface water losses is misleading and dishonest. **Paying money as offsets and for licences does not result in the claimed "net gain".**

South32's plans and DPIE-Planning's report leave many questions unanswered:

- What exactly constitutes the Metropolitan drinking water supplies? Reservoirs? Rivers? Streams? Aquifers? If not all of these, aren't all of these interconnected, with surface waters slowly recharging groundwaters in aquifers?
- In the absence of underground coal mining impacts, the Metropolitan Special Area drinking water supplies provide high-quality drinking water. Water quality is a very important consideration in any drinking water supply system. South32's offset scheme does not adequately deal with long-term water treatment costs and water quality aspects – and mostly South32's proposed offset scheme skirts around water quality issues both short and long term.
- What is meant by surface water losses? Reservoir losses? Surface waterway losses? Which streams/rivers?
- How will surface water losses be calculated? Based on what data – measured and certified by whom? How accurate will surface water losses be? In reality we cannot truly compare to what would exist if the mining did not occur. How contested will water loss estimates during operation be?
- Why does South32 not guarantee no net change to groundwaters as well? Aren't these very important for ecosystems, especially upland swamps? Why are they not valued also?
- Why not consider impacts from water losses (surface or ground) from the Metropolitan water catchment as a whole? Assessment should be done on a much wider system perspective – valuing both human and environmental needs!

Once Destroyed, Indigenous Cultural Heritage, Ecosystems, Biodiversity, Species are Lost Forever

POWA strongly objects to the further ecological damage and destruction that this project will cause to threatened coastal upland swamps, threatened shale sandstone transition forests and other forest/vegetation types when they are undermined as proposed. We urge you to heed the serious and outstanding concerns voiced by OEH and BCD over the past two years[29]. We also refer you to the expertise of Dr Tanya Mason who was engaged by EDO on our behalf. We point out that object (e) of the EP&A Act is: *to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.* Approval of this mine would be inconsistent with this object, and also against ESD principles (that contribute to determination of the public interest):

- *conservation of biological diversity and ecological integrity*
- *intergenerational equity*
- *precautionary principle.*

POWA also strongly objects to the destruction to Indigenous cultural heritage sites; the disregard for Dharawal heritage within South32's EIS and DPIE-Planning's assessment; and that Indigenous Cultural Heritage protections are so poor in NSW. However, object (f) of the EP&A Act is: *to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).* Approval of this mine extension would be inconsistent with this object.

Ecological, Biodiversity, Species Losses:
The DPIE-Planning assessment of this proposal focuses on various SEPPs, legal requirements and plans but completely misses the bigger picture. Last year the UN declared a global extinction crisis, stating that 1,000,000 animal and plant species are facing extinction[30]. Australia has a special place in this crisis as we lead the world in the rate of extinctions of mammals. Moreover, the number of Australia's threatened species has increased by more than 30% over the past 20 years[31].

We note too that the Prof Samuel-led EPBC Act review Interim Report released in June 2020 begins with:

> *Australia's natural environment and iconic places are in an overall state of decline and are under increasing threat. The current environmental trajectory is unsustainable.* [highlight added]

Approval of this project would contribute further to that environmental decline and increase threat to iconic places – rather than to a change of course. **This project does not facilitate *ecologically sustainable development* as required under object (b) of the EP&A Act**. This project would directly destroy several Sydney Bioregion coastal upland swamps – these are listed as endangered (threatened ecological communities) in both Commonwealth and NSW laws. The project could likely lead to significant impacts on water-dependent threatened species to the population losses for other threatened species as well. The OEH/BCD communications indicate that South32 has not adequately demonstrated the "avoid" principle, or satisfactorily calculated impacts to swamps, and misapplies offset policy. **POWA considers that offsets**

---

[29] OEH on EIS 20/09/2019
https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-1523%2120200710T002617.406%20GMT
BCD on RTS 09/03/2020
https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PAE-2097%2120200309T220139.987%20GMT
BCD on Amendment report 09/09/2020
https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-8194%2120200910T003952.195%20GMT

[30] https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/

[31] https://www.wilderness.org.au/news-events/we-can-end-animal-and-wildlife-extinctions

are designed to benefit developers rather than to protect or conserve our natural environment, and that moreover, there is no like-for-like offset possible for these threatened ecological communities.
Now more than ever, in the context of climate change and following the catastrophic *Black Summer* bushfires of 2019/2020, we need to *learn* to take care of our natural environment. These bushfires destroyed 5.4 M hectares in NSW (6.2% of the state) and were the worst on record, killing 800 million animals in NSW. We have a duty of care towards nature as the most vulnerable and unprotected in our legal system. If we do not do this, we deny that we humans are products of this earth, part of nature rather than separate from it, and utterly dependent on it.

This coal mine extension proposal represents a **multiple whammy insult** to the coastal upland swamps on the Sydney Bioregion. The longwall mining will fracture the swamps so they lose their water – such systems are highly sensitive to water availability. Additionally, clearing of native vegetation, such as will also occur, could lead to sedimentation and weed invasions into the swamps. Less directly, the burning of the mined coal will contribute to further global heating, both further drying out of the swamps and threatening their continued existence. Also as the swamp dies, above-ground and below-ground carbon will be released into the atmosphere, further contributing to climate change. We note that anthropogenic climate change is listed as a key threatening process under the NSW TSC Act[32]. Shockingly we would do this to ecosystems that naturally provide water capture/storage/release and carbon capture/storage services (as well as other ecological services) which we humans benefit from? **POWA wants to see *Special Areas* of the Sydney Water Catchment properly protected from such insanity.**

Denial of Indigenous Cultural Heritage:
The EIS (Niche E&H) Aboriginal cultural heritage assessment,[33] through examination of records and a physical survey of 6.91 % of areas likely to be affected by longwall mining in Areas 5 and 6, identified 58 Aboriginal heritage sites, including six new sites. These were mostly rock shelters with or without art and deposits, and axe-groove sites located in creeks. These sites are around 2,000 years old and testify to the lives of Dharawal peoples. Prior mining experience suggests that one-in-ten rock-based sites are likely to be impacted, for example, rock shelters can collapse and axe grinding sites can be broken.

We note that all sites have cultural significance to Indigenous people regardless of assessed scientific archaeological value. We also note that even if they avoid being directly broken, axe-grinding sites (given widespread expected subsidence and seam-to-surface fracturing) might no longer receive surface water stream flow to work.

In 2019 the NSW OEH, commenting on the EIS[34], expressed concerns that South32 had not considered alternatives to avoid or limit harm to multiple Aboriginal cultural heritage sites. OEH expressed particular concern about harm to six sites having highest Aboriginal cultural and scientific significance. They also recommended development of a protocol to allow appropriate Indigenous community access to cultural heritage sites on WaterNSW special area as part of the project-required AHMP.

As a result, South32 reduced proposed longwall LW 516's length to avoid one of the six sites specially mentioned by OEH. However, the remaining five OEH-identified sites will not be provided any additional protections by South32, because they are inconveniently located quite centrally over proposed longwalls.

POWA considers that this project highlights the lack of protections for Indigenous cultural heritage in NSW. The DPIE-Planning assessment report spells out that the levels of expected impacts are permissible by law,

---

[32] Point 17. https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2011-2012/coastal-upland-swamp-in-the-sydney-basin-bioregion-endangered-ecological-community-listing
[33] EIS. Appendix F: Aboriginal Cultural Heritage Assessment. Niche Environment & Heritage (2019) *Aboriginal Cultural Heritage Assessment.* 26,33-34, 68, 71-72. https://www.planningportal.nsw.gov.au/major-projects/project/9696
[34] OEH 20/09/2019 Submission on EIS
https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=EXH-1523%2120200710T002617.406%20GMT

and merely says that the cultural sites over Areas 5 and 6 should be studied[35]. It seems that monitoring of Indigenous cultural sites is required, but there is no requirement to preserve or avoid sites, and no penalties for South32 when it destroys them. It concerns us that the NSW legislative framework legitimises and teaches *disrespect* towards Indigenous Australians. It concerns us 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 Indigenous Australians, evident in their shorter life expectancies, higher burden of disease, higher rates of incarceration and deaths in custody, compared to non-indigenous Australians. We modern Australians are the beneficiaries of more than 60,000 years of caring for country by Indigenous Australians. Allowing destruction of Indigenous cultural heritage seems a denial of that truth and our debt. It is profoundly unfair and we ask you, Commissioners, to expressly uphold object (f) in the EP&A Act *to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).*

[35] DPIE-Planning Assessment Report. 6.12.21-23. 170.

Contribution to Climate Disaster

POWA strongly objects to this proposal on the basis that it would contribute an additional and unnecessary total 259.6 Mt CO2e GHG emissions to our atmosphere (averaging 8.13 Mt CO2e/year), at a time when it could not be more urgent to cut emissions . The Paris Agreement requires countries to keep global heating below 2°C above pre-industrial levels (the level scientists consider to be the upper limit of safety), but with an aspiration to limit global heating to 1.5°C. However, commitments made at Paris in 2015 were insufficient in of themselves, and we are on track for catastrophic climate heating of more than 3°C[36].

The IPCC 2018 Special Report indicated that energy from coal needs to reduce by a minimum of 59 % on 2010 levels by 2030 (even allowing for intensive carbon capture and storage)[37]. Whereas this project proposes further coal mining for 28 more years! And DPIE-Planning recklessly endorses the proposal – against all the science around the need for urgent reductions in emissions, even beyond Paris Agreements. We consider that GHG emissions are a *key assessment issue* in contrast to DPIE-Planning who disregards them[38].

Project estimated GHG emissions are very significant:
All GHG emissions impact our climate system and this project's GHG emissions (scope 1 & 2 & 3) are very significant.

We present the estimated emissions below in different ways. The table below provides the total GHG emissions estimated in South32 documents for extraction of 34.7 Mt coal from Area 3 and 77.2 Mt coal from Area 5 and Area 6 (we note this table assumes 29 years though time has passed since the EIS):

Emissions Type	GHG Emissions Type Meaning	Estimated Total GHG Emissions (project life)	Estimated Average Annual GHG Emissions
SCOPE 1	Direct emissions from own operations (e.g. diesel machinery)	17 – 22 Mt CO2e	0.59 – 0.77 Mt CO2e / year
SCOPE 2	Indirect emissions from generation of purchased energy (e.g. purchased electricity from coal-fired station)	1.7 Mt CO2e	0.1 Mt CO2e / year
SCOPE 3	Indirect emissions other than SCOPE 2 (incl transport of product coal, combustion of product coal etc)	235.9 Mt CO2e	8.13 Mt CO2e / year

The total estimated greenhouse gas emissions are 259.6 Mt CO2e for the project (with slightly lower scope-3 emissions than in the EIS as advised based on the Amendment report[39]). Table 8.3 in the original EIS[40] provides a granular breakdown of estimated scope 1/2/3 emissions over time, but does not clearly differentiate the emissions expected from approved Area-3 compared to unapproved Areas 5&6. Given this, we assumed that mining, production and combustion of the already approved Area 3 coal will

[36] https://www.theguardian.com/environment/2020/dec/12/world-is-in-danger-of-missing-paris-climate-target-summit-is-warned?utm_term=3d27d7de77f5b277454341cdec4bb6a1&utm_campaign=GuardianTodayAUS&utm_source=esp&utm_medium=Email&CMP=GTAU_email; https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
[37] IPCC (2018) Special Report: Global Warming of 1.5°C. Summary for policymakers. 14. https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf
[38] DPIE-Planning Assessment Report. ix.
[39] South32 Amendment Report August 2020 https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-8194%2120200901T035457.531%20GMT
[40] Appendix I: - Air Quality and Greenhouse Gas Assessment. Ramboll (2019) *Air Quality and Greenhouse Gas Assessment.* 62-65. https://www.planningportal.nsw.gov.au/major-projects/project/9696

generate similar amounts of greenhouse gases on a per Mt ROM coal extracted basis as for coal from Areas 5 and 6. Doing this, we estimate that **the total already-approved emissions associated with the Area-3 would be about 80.5 Mt CO2e (which will occur even if this proposal is not approved) and about 179.1 Mt CO2e for the unapproved Area-5&6 extractions**.

We note that the 69 % of the expected GHG emissions are from yet-to-be-approved mining in Areas 5&6.

The following two tables show calculations for the purposes of considering the project Scope-1&2 GHG emissions in the context of Australian and NSW GHG emissions reductions targets (for emissions from mining in Areas 3,5,6):

TOTAL GHG EMISSIONS as Mt CO2e	Year 2005	Year 2016	Year 2018	TARGET 2030	Average annual reduction required every year to reach 2030 TARGET
NSW	161.9	131.6		105.2 (35 % reduction on 2005 level)	(131.6-105.2)/14 = **1.89**
Australia	617.216	526.149	537.446	444 – 457 (26-28 % reduced on 2005 level)	(537.446 – 457)/12 = **6.73** (26 % redn) (537.446 – 444)/12 = **7.75** (28 % redn)

	Estimated project average annual emissions **Mt CO2e**	Fraction of **NSW** 2016 annual emissions	Fraction of **NSW** TARGET 2030 annual emissions (105.2 Mt CO2e)	Fraction of average annual **NSW** emissions reduction required every year to 2030	Fraction of **Aust** 2018 annual emissions	Fraction of **Aust** 28%- reduction TARGET 2030 annual emissions (444 Mt CO2e)	Fraction of average annual **Aust** emissions 28%- reduction required every year to 2030
Scope-1	0.77	0.59 %	0.73 %	41 %	0.14 %	0.17 %	9.9 %
Scope-2	0.10	0.08 %	0.10 %	5 %	0.02 %	0.02 %	1.2 %
Scope 1 & 2 Total	0.87	0.66 %	0.83 %	46 %	0.16 %	0.20 %	11 %

The tables above consider only project scope-1/2 emissions in the NSW and Australian context, drawing on Australian/NSW emissions data[41].

- NSW context: If NSW achieves the goal of 35 % reduction on 2005 GHG emissions by 2030, then this single company's single operation scope-1&2 emissions will alone account for 0.83 % of NSW emissions in 2030. NSW needs to reduce its emissions by 1.89 Mt CO2e each year to reach this target, and the combined scope-1&2 emissions will account for 46 % of the required reduction. That means, every year, other parts of the NSW economy will have to remove these emissions. Of course, this project's massive scope-1&2 emissions will continue then for another 18 years after 2030!
- Australian context: If Australia meets its Paris commitment of 26-28% GHG emissions reductions on 2005 levels by 2030, then this project will contribute 0.16 % of Australia's total emissions in 2030. Again it is worth noting that the yearly scope-1&2 emissions from this project represent 11 % of the average year-on-year emissions reductions required at the national level. And again, we make the point that this project's emissions will not cease in 2030.
- **But what about the scope-3 emissions which are tenfold greater than the combined scope-1&2 emissions?** DPIE-Planning claims[42] that scope-3 emissions are not relevant for consideration under clause 14 of the Mining SEPP, however the referred-to government legislation that proposed the removal of the requirement to consider downstream GHG emissions did not pass. So DPIE-Planning's claim is not true and according to the Mining SEPP, **all emissions *impact* the climate system and must be considered.** Moreover, we refer you to the judgement by Justice Brian Preston (NSW L&E Court, Rocky Hill Mine)[43] who also argued that as both direct and indirect GHG emissions contribute to climate change they all needed to be considered, and furthermore that *producing coking coal not a justification for GHG emissions.* Furthermore, as our expert Prof James Goodwin noted, project EIS statements are meant to assess **impacts** which include scope-3

[41] http://ageis.climatechange.gov.au/; https://www.soe.epa.nsw.gov.au/all-themes/climate-andair/greenhouse-gas-emissions
[42] DPIE-Planning Assessment Report 6.9.14. 151
[43] From Gloucester Resources Limited v Minister for Planning [2019] NSWLEC 7.
https://www.caselaw.nsw.gov.au/decision/5c59012ce4b02a5a800be47f

emissions (in contrast to South32's EIS and DPIE-Planning assessment which disregarded scope-3 emissions).

- Australia as a developed wealthy country also needs to start behaving responsibly. According to The Australia Institute (2019)[44] in the year 2016, Australia had higher emissions than 90% of countries; the seventh highest emissions per capita in the world, and ranked third in the world, after Russia and Saudi Arabia for its export of fossil-fuel CO2e potential. Coal made up more than 80% of that export potential.

Again, we emphasise that even if the mine extension into Area 5 and Area 6 is not approved, then the already approved mining in Area 3 (representing 31 % of the values in the tables above) will still contribute significant emissions.

Even these estimated, already very large GHG emissions are not the full picture, Disregarded project GHG emissions should be estimated:

We note that the project's GHG emissions (scope 1 & 2 & 3) provided by South32 do not include/estimate:

- Scope-1 emissions associated with land-clearing; destruction of swamps; desiccation of other vegetated landscapes causing reduction in long-term biomass-carbon storage capacity.
- Scope-2 emissions related to forgone carbon-uptake and storage ecoservices provided by the existing vegetated landscapes affected by Areas 5 and 6.
- Scope-1/2 emissions associated with proposed surface water direct offsetting operations (or associated with any indirect offsetting operations).
- Scope-3 emissions associated with transport of coal product beyond Port Kembla.

It is very convenient for South32 to overlook these emissions related to vegetation and claim they are not significant. This helps South32 avoid discussion about what happens *long-term* to threatened coastal upland swamps and threatened shale sandstone transition forests and other forest/vegetation types when they are undermined as proposed. Most likely it is true: emissions arising from destroyed vegetation or forgone carbon-uptake/storage services are probably very small compared to the enormous Scope-3 emissions associated with combusting the coal products that is the intended result of South32's whole operation. However, for many other businesses in Australia, these unestimated GHG emissions from this project would be really significant. Moreover, all emissions contribute to global warming.

We undertook back-of-envelope calculations (table below) that showed lost vegetation carbon emissions could be 0.5 Mt CO2e over the project life. These emissions would not occur all at once, and as well, very likely would not later be reversed in the near decades following mine closure. A reduction in above-ground biomass is likely for forest systems experiencing water table lowering, even though these would hopefully be much less impacted than swamps. These natural systems are dynamic, but would experience an overall downwards shift in stored carbon. These Scope-1/2 emissions are significant in the context of the other 23.7 Mt CO2e scope-1&2 emissions acknowledged by South32. The Australian government DISER provides a tool *FullCAM* which should be used to undertake a more rigorous assessment of GHG emissions associated with landscape changes[45].

[44] T. Swann (2019) *High Carbon from a Land Down Under*. The Australia Institute. https://www.tai.org.au/sites/default/files/P667%20High%20Carbon%20from%20a%20Land%20Down%20Under%20%5BWEB%5D_0.pdf

[45] https://www.industry.gov.au/data-and-publications/full-carbon-accounting-model-fullcam#:~:text=FullCAM%20is%20used%20in%20Australia%E2%80%99s%20National%20Greenhouse%20Gas,found%20in%20the%20Australian%20Greenhouse%20Emissions%20Information%20System.

AREA (ha)	VEGETATION TYPE[46]	CLEARANCE/ DESTRUCTION Emissions Factor (t CO2e/ha)[47]	FORGONE ANNUAL CARBON SEQUESTRATION Rate (t CO2e/(ha.year))	EMISSIONS FROM DESTROYED VEGETATION (t CO2e)	FORGONE ANNUAL CARBON SEQUESTRATION (t CO2e/year)
Vegetation expected to be cleared (totals arising from surface infrastructure works, additional service boreholes & transmission lines) – clearance emissions associated with removal/decay of above-ground biomass					
25.8	PCT1083 Red Bloodwood – scribbly gum heathy woodland (HN566)	293 (100% loss)	0 (?)	7,559	0 (?)
6	PCT1395 Narrow-leaved Ironbark – Broad-leaved Ironbark – Grey Gum open forest (HN556)	293 (100% loss)	0 (?)	1,758	0 (?)
0.2	PCT1245 Sydney Blue Gum x Bangalay – Lilly Pilly moist forest (ME044)	293 (100% loss)	0 (?)	59	0 (?)
1	PCT1250 Sydney Peppermint - Smooth-barked Apple - Red Bloodwood shrubby open forest (HN651)	293 (100% loss)	0 (?)	293	0 (?)
Vegetation expected to be impacted by subsidence (Areas 5 & 6 totals) – destruction of swamps expected (90% stored carbon losses assumed); expecting lowered water table will impact on C-storage capacity expected for SSTF and unspecified vegetation types (~30% stored carbon losses assumed)					
37.9	Coastal upland swamps (threatened ecological community) – destroyed	2,676[48]	10.6[49]	101,432	402
173.5	Shale sandstone transition forests (threatened ecological community)	88 (30% loss)	0 (?)	15,268	0 (?)
3821.6	Other unspecified impacted vegetated areas within Areas 5 & 6	88 (30% loss)	0 (?)	336,301	0 (?)
TOTALS:					
4066	**Collated total area cleared or impacted**	n/a	n/a	**462,670 TOTAL emissions released**	**TOTAL forgone annual carbon sequestration**

We have not undertaken a similarly rough estimate of GHG emissions associated with the proposed in/direct water 'offsets' operations, or with coal sea transport, but this should also be done, and included.

[46] Vegetation amounts and types calculated from Niche-EH (2019) Appendix D Biodiversity Assessment Report and Biodiversity Offset Strategy

[47] If area was cleared then assumed 100% C release back to atmosphere as CO2. If area undermined causing groundwater table drawdown, then assumed longterm loss of 30% of stored C as CO2. Used 80 t C/ha as live aboveground C storage (2006, IPCC, subtropical dry vegetation landscape receiving 1000-1200 mm/year rainfall). Botkin, D.B., M.R. Ngugi & D. Doley (2014) *Estimates and forecasts of forest biomass and carbon sequestration in North America and Australia: a forty-five year quest.* Drewno 2014. 57(192): 7-28. DOI: 10.12841/wood.1644-3985.S05.01

[48] Calculated as 90% (C loss rate) of 811 t C/ha mean C density for Southern Highlands swamp. See data in: Cowley. K.L. & Fryirs, K.A. (2020) Forgotten peatlands of eastern Australia: An unaccounted carbon capture and storage system. Science of The Total Environment, Volume 730, 139067, ISSN 0048-9697, https://doi.org/10.1016/j.scitotenv.2020.139067

[49] Calculated from 289 g C/(m^2.year) sequestration rate, reported in Cowley & Fryirs (2020) article (as above).

Biased Economic Assessment and Flawed Review of Economic Assessment by DPIE

POWA considers that the project's economic assessment by Cadence Economics[50] is biased with benefits being overstated and some important costs ignored. As well, the economic assessment unevenly considers downstream economic benefits while ignoring downstream costs (including scope-3 emissions costs).

POWA considers that the DPIE-Planning review of the economic assessment is also flawed. According to DPIE-Planning's own assessment report[51], it sought *"expert advice on the downstream economic benefits of the existing Dendrobium Mine and the economic costs to the region should the Project not be approved"* (as the review of the economic case for the project). This is clearly a very biased brief to the reviewing economic consultant. The Department should have instead sought expert advice on the economic benefits and costs of the existing Dendrobium Mine, and the economic benefits and costs to the region should the Project not be approved. We are also concerned that DPIE-Planning engaged BAEconomics-Mr Brian Fisher to carry out the review of South32's EIS economic assessment. POWA has little confidence in the impartiality of BAEconomics, given that Australia's *RenewEconomy* has published a background document specifically highlighting Mr Fisher's pro-fossilfuel bias – which we urge you to read[52].

We refer you to the expert submissions of Dr Neil Perry, Prof James Goodwin and Prof John Quiggin who criticised different aspects of the project's economic assessment. You will receive their submissions separately through EDO who is acting on our behalf. It was very clear from listening to them during the public hearing, that the economic costs of the project, at the very least, should include costs associated with all of the project scope-1&2&3 GHG emissions.

Commissioners, we ask you to engage some other economic consultancy who are highly competent, ethical and impartial to undertake a more thorough economic assessment of this project, before you make your decision.

<u>Flawed economic assessment</u>:
We understand that the economic assessment should follow the NSW government *Guidelines for economic assessment of mining and coal seam gas proposals* (2015)[53] ('Guidelines') and related 'Technical Notes' (2018)[54] which in turn refer to the *NSW Government Guide to Cost-Benefit Analysis (TPP17-03)*[55] ('CBA-Guide'). We provide the following comments on the project's economic assessment and economic context to the project in context of these guiding documents:

1. The EIS Economic Assessment (EIS-EA) does not make clear what the *Base case* includes, or does or does not assume. The base case should be the current situation where Dendrobium is operating and has approvals to 2030 with parts of Area C already approved but yet to be mined, and that mining and rehabilitation occurs and then ceases by 2030. In the base case we do not expect the post-2030 period to be completely empty and valueless. Indeed, the refusal of this project could provide impetus for green steel development in this region. Even if that did not occur, most likely, many current coal-mine workers would likely shift to other employment. However, in the EIS-EA it seems that Area C mining is

[50] Cadence Economics (2019) Appendix L Economic Assessment https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-8194%2120190724T060901.866%20GMT
[51] DPIE-Planning Assessment Report. Point 3.1.3. 16.
[52] https://reneweconomy.com.au/wp-content/uploads/2019/05/190502-Brian-Fisher-Backgrounder.pdf
[53] https://www.planning.nsw.gov.au/Policy-and-Legislation/Mining-and-Resources/~/media/C34250AF72674275836541CD48CBEC49.ashx
[54] https://www.planning.nsw.gov.au/-/media/Files/DPE/Other/technical-notes-supporting-the-guidelines-for-the-economic-assessment-of-mining-and-coal-seam-gas-proposals-2018-04-27.pdf?la=en
[55] https://arp.nsw.gov.au/assets/ars/393b65f5e9/TPP17-03_NSW_Government_Guide_to_Cost-Benefit_Analysis_0.pdf

excluded from the *Base case* though partly omitted, partly included in the *Project* itself, and post-2030 assumes a nothingness which is unrealistic.

2. The Guidelines and Technical Notes make very clear that the GHG emissions cost associated with all scope-1&2 GHG emissions need to be attributed to the project and NSW. This is in contrast to what was done in the EIS-EA where the scope-1&2 emissions cost was proportioned to NSW as the fraction NSW population of the total global population. This is clearly unfair and inappropriate, and is not according to these guidance documents.

3. In relation to scope-3 GHG emissions, the Mining SEPP requires consideration of all GHG emissions (including downstream scope-3 emissions) whereas the Technical Notes state:
Proponents may also provide estimates of Scope 3 emission impacts. This additional information would be helpful in reducing residual uncertainty around total project emission impacts, and viewed favourably as emission levels and potential cost exposures. However, it is noted that the Scope 3 accounting framework is inconsistent with established national accounting rules established under the UN Framework Convention on Climate Change… [highlights added]So the treatment of scope-3 GHG emissions is unclear.

   TO be consistent with the Mining SEPP it is important that costs associated with scope-3 emissions should be estimated. This means that South32 who would benefit from selling the coal, at least acknowledges the environmental costs of its intended use. This would provide a sense of the true larger cost of the project to the world as a whole, but these scope-3 GHG emissions costs could not be attributed to NSW alone.

4. The Technical Notes require that a carbon market price needs to be used to estimate the cost of the project GHG emissions, and suggest that the European Union Emissions Trading System (EU ETS) based on futures derivatives published by the European Energy Exchange would be a helpful source of such information. However, we could not find the correct information when attempting to use the EU ETS weblink provided in the document. Instead we have sourced other carbon market price estimates which include:
   - $62.79/t CO2e (in $2019)[56], as suggested by *Transport for NSW Economic Parameter Values* (equivalent to $61.55 in $2018).
   - US$50/t CO2e (in US$2017)[57] as suggested in *Science,* a publication of the American Association for the Advancement of Science. This would equate to about AU $75/t CO2e (in $2019).

5. Clearly the Australian government ERF carbon abatement (auction) price[58] such as was used in the EIS-EA is not appropriate to be used as a carbon market price. Moreover, the EIS-EA assumed that the carbon abatement price would inflate consistently with the rest of the economy and so used a constant 2018 carbon abatement price. However, a perusal of recent-years' ERF carbon abatement auction results shows that carbon abatement is inflating well above the rest of the economy – this is likely because easier carbon-abatement opportunities a picked up earlier! So use of the ERF carbon abatement price would severely under-estimate the cost of project GHG emissions.

6. The EIS-EA (p 21) also seems to falsely claim that environmental management/mitigation costs to South32 (for biodiversity offsets, water rights, subsidence remediation, noise, Indigenous cultural heritage etc) compensate and cover the social/market costs for environmental losses to the community, but they do not. These non-quantified, qualitative social/environmental costs were then severely downplayed later within DPIE-Planning's assessment.

---

[56] NSW Government, TfNSW Economic Parameter Values (2020). 40. https://www.transport.nsw.gov.au/projects/project-delivery-requirements/evaluation-and-assurance/technical-guidance

[57] Revesv et al (2017) Best cost estimate of greenhouse gases. Science 357(6352): 655. https://science.sciencemag.org/content/357/6352/655/tab-article-info

[58] http://www.cleanenergyregulator.gov.au/ERF/Pages/Auctions%20results/September%202020/Auction-September-2020.aspx

Alternative economic assessment costing GHG emissions more appropriately:
We explore what the effect on the economic case for this project would be if just some of these abovementioned concerns are addressed – compared to the project CBA with all the same central case assumptions (Table 1 from the EIS-EA (p ix) copied below):

Table 1: CBA summary of the Project net benefits under central case assumptions ($ million)

Benefits	NPV*	Costs	NPV*
Direct benefits		**Direct costs**	
1. Net producer surplus attributed to NSW	74.9		
2. Royalties, payroll tax and Council rates	272.1		
3. Company income tax apportioned to NSW	150.8		
Total direct benefits	**497.8**	**Total direct costs**	**-**
Indirect benefits	**-**	**Indirect costs**	
1. Net economic benefit to landholders	-	1. Air quality	8.0
2. Net economic benefit to NSW workers	365.8	2. Greenhouse gas emissions	0.1
3. Net economic benefit to NSW suppliers	217.6	3. Visual amenity	-
	-	4. Transport impact	-
	-	5. Net public infrastructure cost	-
	-	6. Surface water impact	-
	-	8. Residual value of land	-
	-	7. Biodiversity impact^^	-
	-	8. Noise impact	-
	-	9. Loss of surplus to other industries	-
	-	10. Water ^^	-
	-	11. Aboriginal cultural and Historical heritage ^^	-
	-	12. Subsidence^^	-
Total indirect benefits	**583.4**	**Indirect Costs**	**102.4**
Total Project economic benefit	**1,081.2**	**Incremental Indirect Cost**	**8.1**
NPV of Project - ($m)	**1,073.2**		

Source: Cadence Economics estimated based on information from various sources. ^ Real 2018 Australian dollars. * NPV in 2018 Australian dollars based on a 7 per cent real discount rate. ^^ Incorporated into mitigation and management costs.

We recalculated the project CBA with all the same central case assumptions, but:

- Correctly attributing all scope-1&2 emissions (averaging 0.87 Mt CO2e/year) costs to NSW; and
- Applying the NSW Transport suggested price of $61.55 / t CO2e to GHG emissions.

In addition we also estimate the cost of scope-3 emissions (averaging 8.13 Mt CO2e / year) and note these costs as downstream impacts affecting our global climate system.

Unfortunately, given the way that these calculations were already performed, we are unable to readily separate Area 3 (already approved) from Areas 5&6 (unapproved extension) components in this analysis, so we left them together.

For ease, in our calculations we assumed that the average scope-1&2 and average scope-3 emissions were generated every year across the 29 years, rather than undertaking a more detailed calculations using GHG emissions values that varied over the 29 years as presented in Table 8.3 in the EIS GHG emissions inventory[59].

We calculated the cost of scope-1&2 GHG emissions as follows: 0.87 million t CO2e/year * $61.55/t CO2e (equals $53.55 million) applied over 29 years with a discount rate of 0.07. This gives a NPV of $657.5 million in AUD2018.

We calculated the cost of scope-3 GHG emissions as follows: 8.13 million t CO2e/year * $61.55/t CO2e (equals $500.4 million) applied over 29 years with a discount rate of 0.07. This gives a NPV of $6,144 million in AUD2018.

[59] Appendix I: - Air Quality and Greenhouse Gas Assessment. Ramboll (2019) *Air Quality and Greenhouse Gas Assessment.* 62-65. https://www.planningportal.nsw.gov.au/major-projects/project/9696

We can now put these values in context. **We amend the table for the NSW costs/benefits analysis as follows:**

Benefits	**NPV (million AUD2018)**	**Costs**	**NPV (million AUD2018)**
Direct benefits (total)	497.8	Direct costs (total)	-
		Indirect costs having some quantitative estimate	
		Various mitigation/management	102.4
		Air quality	8.0
		GHG emissions **scope 1&2**	**657.5**
Indirect benefits (total)	583.4	Indirect costs (excl qualitative)	767.9
Total Project Estimated Benefits	**1,081.2**	**Total Project Estimated Costs**	**767.9**
NPV of Project to NSW (excluding many undetermined costs)	**313.3**		
		Indirect costs excluded from calculation of NPV of Project because lacking quantitative estimate	
		Catchment damage (clearance, subsidence, cracking, fractures, tilting, hogging, valley closures/infills etc)	Value?
		Water losses (ground & surface)	Value?
		Water pollution (ground & surface; inside & outside catchment; & downstream)	Value?
		Ecosystem/biodiversity/species losses	Value?
		Aboriginal cultural/historical heritage	Value?
		Visual amenity	Value?
		Transport impact	Value?
		Net public infrastructure cost	Value?
		Neighbouring residential leisure amenity	Value?
		Loss of surplus to other industries	Value?
		Noise impacts	Value?
		NSW reputational impacts from Australia climate inaction	Value?
		NSW residents' social distress impacts at inaction on climate change and environmental vandalism	Value?

The table above shows that the project has a Net Present Value to the state of NSW of only $313.3 million, even when a long list of indirect costs are not quantified and included in this estimate. Without doubt, the value of the unquantified excluded indirect costs (to NSW) greatly exceeds this paltry calculated project NPV.

Then, in addition, you must consider that the estimated cost of the scope-3 GHG emissions is $6,144 million. This only further diminishes the perceived value of the project. These scope-3 emission costs will be attributable to wherever/whoever combusts the coal – but at least some of that will occur in NSW and so NSW will have to be accountable for that portion also. Even if all of the coal were to be exported, this is a global cost but one where the effects will be felt as much here in NSW as anywhere else.

What is important about this $6,144 million is that it is an estimate of the cost of the downstream climate damage that this project – one single project of one single mining company in NSW Australia – will enable to be inflicted on our world. Enabling, inflicting this magnitude of cost onto all others around the world, most of whom will derive no benefit from either the mining of the coal or the use of the coal, is both irresponsible and inequitable.

We consider that this is inconsistent with striking a good balance between social, economic and environmental factors as required for ESD by Object (b) in the EP&A Act:

> *to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.*

And certainly this economic assessment demonstrates that this is also inequitable towards future generations.

Global/local economic context ignored in the economic assessment:

We consider that the following provide economic context to this project, and some of these aspects should have been considered within the economic assessment of alternatives:

1. The world's largest steel producers South Korea, Japan and China have recently announced ambitious climate targets: net-zero by 2050 for South Korea and Japan, and net-zero by 2060 for China.
2. As of December 2020, the UK now has a target of 68% on 1990 levels by 2030[60]
3. China is now – since mid-October 2020 – no longer accepting Australian coal exports[61]. However, China is still accepting iron-ore from Australia.
4. Peabody energy is temporarily closing its Metropolitan Mine in the Woronora *Special Area* for 8 weeks starting in early 2021 (as reported on 2 December 2020)[62]. The company reported that the Covid19 pandemic had put "*intense pressure"* on demand and pricing for their coking coal, with a 39 % revenue decline in their 2020 third quarter result. Peabody had also recently paused and cut jobs at their Newcastle and USA-Shoal Creek mines.
5. Reducing emissions is becoming easier and cheaper. Renewable technologies are developing rapidly.
6. Australia has abundant wind and solar resources, as well as iron-ore. These provide it with an advantage towards making renewable energy, green hydrogen, and green steel onshore. The Grattan Institute's report *Start with Steel*[63] indicates that a transition to green steel, *capturing 6.5 % of the global steel market would generate about $65 billion in annual export revenue, and could create about 25,000 manufacturing jobs in Queensland and NSW*.

[60] https://www.theguardian.com/environment/2020/dec/03/uk-vows-outdo-other-major-economies-emissions-cuts-by-2030
[61] https://www.abc.net.au/news/2020-10-14/bhp-deferment-confirms-chinas-reduced-demand-for-australian-coal/12768004
[62] https://www.abc.net.au/news/rural/2020-12-02/peabody-to-pause-helensburgh-metropolitan-mine/12941532
[63] https://grattan.edu.au/report/start-with-steel/

This *Business-As-Usual* Project is Not Consistent with Ecologically Sustainable Development Nor with EP&A Act Objects, and is against the Public Interest

POWA asks you to carefully consider the expert evidence and submissions of Dr John Pye and Mr Tony Wood (Grattan Institute) who discuss different aspects of the challenges and opportunities posed by the necessary transition to *green* steel. Importantly we note that a global transition from fossil-fuel steel to green steel is necessary to protect the Earth's climate system from further emissions and warming, 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. Our area needs to take part in this green steel transition for our region's future economic wellbeing as well as social and environmental wellbeings, if we are going to retain steel making in the Illawarra and have good employment in the future.

POWA wants you the IPC to think beyond *business-as-usual* and consider the following *alternative* positive future for the Illawarra region (with wider benefits for NSW and more broadly as well). Our region could have a future like this:

- Our water catchment acts as a water catchment and Special Areas are both *special* and *truly protected*.
- We respect our mining heritage, but we no longer mine coal. Instead, many people are being trained and employed in *long-term* renewable energy (solar, wind, green-hydrogen, storage systems) working futures. Many other people are working in exciting biodiversity restoration or carbon-capture projects, perhaps even in large-scale algal cultivation off the coast.
- BlueScope is engaged in the challenging but necessary transition to fossil-fuel-free steel-making; and Port Kembla terminal is being reconfigured to support local renewable energy developments and renewable-energy-based manufacturing such as commercial green-hydrogen vehicles or family-sized electric vehicles. And Australia is on track, with assistance from government, to value-add, combining some of its plentiful resources of iron ore and renewable energy to make more steel, onshore. Down the track, Australia will no longer be importing steel from China or elsewhere.
- Our economy is diversifying gradually enabling greater reuse and recycling of all sorts of materials, including scrap iron. We make use of the many talents of all people in our region for the public good, and no-one is left behind. There is a future in tourism created by local Dharawal peoples who celebrate and teach their culture to others, and we are learning to better care for country. There is a future for young people with a liveable climate, cleaner air, and sufficient water to live but not to waste. We are careful and cautious, but also hopeful.
- We live knowing we have not destroyed our natural world or shifted our climate system beyond tipping points. Our development path and decision-making are firmly aligned with ecologically sustainability.

We assert that an approval of this Dendrobium coal mine extension project is **inconsistent** with ESD principles and against the public interest:

> **The Principles of ecologically sustainable development**, as set out in the *Protection of the Environment Administration Act*:
> the precautionary principle,
> intergenerational equity,
> conservation of biological diversity and ecological integrity,
> improved valuation, pricing & incentive mechanisms, (*polluter pays, the users of goods and services should pay prices based on the full life cycle costs of those goods and services, environmental goals having been established pursued in most cost-effective way)*.
>
> https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1979-203#sec.1.3

We also assert that an approval of this Dendrobium extension is inconsistent with the relevant objects of the EP&A Act

Objects of Act(cf previous s 5)

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.

https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1979-203#sec.1.3

Conclusion

POWA urges you the IPC to reject this damaging Dendrobium coal mine extension proposal. We object to this process whereby the NSW DPIE-Planning exhibits and then recommends for approval a proposal so utterly against the public interest, and so out of touch with the current economic, social and environmental realities.

Indigenous Australians and then earlier NSW governments 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, a liveable climate and nature. In line with ESD principles, we need to consider both residents of the Greater Sydney/Illawarra region and others more geographically distant from us.

We ask you, when you make your decision on this project, to keep uppermost in your mind the value choices that you will make and who benefits compared to who pays, and the need to protect the most vulnerable. We ask you to make your decision for the long-term public-wide interest, rather than for short-term narrow vested interests or conveniences. POWA 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.

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. Thank you for considering this submission.

Deidre Stuart
(for POWA).