

Objection to the Dendrobium Mine Extension Project: SSD-8194

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Introduction

The Georges River Environmental Alliance¹ (GREA) objects to this project because it will have serious and irreversible impacts on the drinking water supply of Wollongong and Wollondilly, part of the greater Sydney Region, and thus place pressure on the whole integrated system.

In the past drought, the Drinking Water Catchments (DWC) (Cataract and Cordeaux) struggled to supply the current population of the Macarthur, and yet between 2020 and 2040 the estimated population of that region will grow exponentially with an additional 40,000 new dwellings planned between Campbelltown to Appin alone². During the IPART hearing into Sydney Water pricing in November 2019, David Harris, the CEO of Water NSW said, that in a prolonged drought the water supply of Wollongong would be the “first to fail”.³

No project that openly admits it will cause drinking water loss is acceptable in that context.

This submission includes **Appendix One**; which is the Public Inquiry Hearing presentation made by Sharyn Cullis, Secretary of GREA and a member of the Appin Mines Community

¹ The organisation is a network of individuals and groups, that has advocated for environmental health, sustainability and liveability of the Georges River, and other river catchments, since 1992.

² <https://www.planning.nsw.gov.au/-/media/Files/DPE/Brochures/Greater-Macarthur-2040-interim-plan-2018-11-19.ashx?la=en>

³ Hearing transcript : <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/pricing-reviews-water-services-metro-water-prices-for-sydney-water-corporation-from-1-july-2020/legislative-requirements-prices-for-sydney-water-corporation-from-1-july-2020/transcript-review-of-sydney-waters-maximum-prices-for-water-sewerage-and-related-services-and-waternsws-bulk-water-services-public-hearing-26-november-2019.pdf>

Because Water NSW recognise that the Wollongong water supply from Avon dam is so vulnerable, they propose a deep water access project for Avon Dam. Water NSW have alarmingly indicated that this project may be at risk should the Dendrobium Extension go ahead.

Consultation Committee. It is important, for the IPC to review that because it is footnoted with references and further evidence.

What is in this written submission, prior to the Appendix, is **further elaboration** of the brief base case of GREA already presented at the inquiry, and **other reasons** for the GREA objection.

Also note, GREA has limited its submission largely to matters of a critique of the economic case that justifies the proposal, and the failure of either the DPIE and South 32 to consider feasible alternatives to the mine extension. We defer to the excellent other submissions, broader in their scope, with respect to the critique of the hydrological modelling, technical science, and the matters of significance of natural features and biodiversity, and the unacceptability of impacts upon them.⁴

Further elaboration of the GREA ‘base case’ (see Appendix One)

Alternatives

GREA outlined a range of unconsidered alternatives, including mining outside the extensive deposits of metallurgical coal outside, rather than inside the DWC. That is particularly feasible for access to the coal quality provided by the Bulli coal seam. It also canvassed the possibility of only a partial approval, of Area 6, the source of Wongawilli Coal, amongst other options.

The recent IPC approval of the Russell Vale UEP for bord and pillar extraction only, within the DWC of the Cataract, of the Wongawilli seam, illustrates 2 vital things. Firstly the Bluescope Steel can rely on this source, as an alternative to that of Dendrobium. Secondly, bord and pillar extraction has been deemed by the IPC as economically viable, and of less damaging impact. This IPC should follow that significant lead. It is also arguably in the long term interests of the economy to allow for an ‘equal playing field’ between the different coal producers of the Southern coalfield. **An approval for South 32 to do longwalling, when Wollongong Coal can only do bord and pillar, would deliver South 32 an unfair competitive advantage in the marketplace. There should not be such an outcome delivered by what should be a fair and impartial IPC inquiry process.**

The over-estimated economic benefits

GREA made a case that the economic case of the proponent supported by the DPIE was based on a flimsy and biased representation from a consultant, and that it was not peer reviewed. Economics more than any other area of expertise, is fraught, and can be flawed at the basic assumption level by ideological bias. The BA Economics Report, is authored by a consultancy that routinely represents the cases presented by the Minerals Council of Australia and the Menzies Institute, a conservative think tank.⁵ **It is the role of the DPIE**

⁴ Those include, Dr Peter Turner, Julie Sheppard, Deb Andrew, NPA (Southern Sydney) POWA and Lock the Gate.

⁵ http://www.baeconomics.com.au/wp-content/uploads/2020/11/Gas-Report_Final-2.pdf A report done by Dr Brian Fisher, principal of the BA Economics for the Menzies Institute
<http://www.baeconomics.com.au/wp-content/uploads/2017/02/MCA-renewables-subsidies-8Jan2017-2.pdf> Report by BA Economics for the Minerals Council of Australia.

and also the IPC to seek and consider an analysis from an Economics expert who seems to operate from more neutral standpoint, or even alternatively presents an opposition view, before the IPC makes a final adjudication of what, on balance, is in the greater public interest.

The monetised value of water and swamps.

GREA made the point in the Inquiry presentation that it was important to make an attempt at estimating the dollar values of natural features, and suggested that choice modelling used in the past in for other approvals in the Southern Coalfields had at least done this. Dr Neil Perry from UWS, expert witness for POWA, also indicated that failure to represent such values in the Cost benefit analysis resulted in an over-estimation of the Economic benefits of the Dendrobium project by under-estimating the real costs.

The methodology of the Dendrobuim economic assessment could have reflected that of what occurred in the EIS for the last partial approval of a SSD mining project, the 'Bulli Seam Operations'. The **Cost benefit analysis** factored in the losses:

1. Swamps impacts at \$95M, by applying the CM method.
2. Stream losses at \$368M
3. Flora and fauna \$112M

These figures, by today's estimates may vastly underestimate costs, however it was an attempt. It is appalling that the Dendrobium proponent has costed these at zero, and to this point there has been no expert questioning of this.

Another approach, focusing on **just carbon capture within the upland swamps** of SE Australia's upland swamps, a recent academic paper has established a monetised value at \$404M.⁶ The 25 swamps about to be lost at Dendrobium, are part of this ecosystem. This figure though still under values the total contribution of these swamps, as further value is added, as a result of the capability of a saturated swamp to slow wildfires, and provide for other ecosystem benefits.

⁶ Kirsten L. Cowley, Kirstie A. Fryirs *,
Forgotten peatlands of eastern Australia: An unaccounted carbon capture and storage system, Department of Earth and Environmental Sciences, Macquarie University, North Ryde, NSW 2109, Australia.

A summary of the approach: "In a carbon-constrained world, global peatlands are vital carbon capture and storage systems. Here we calculate regional carbon stocks, sequestration rates and potential carbon emissions of Temperate Highland Peat Swamps on Sandstone (THPSS) found in low order headwater streams in eastern Australia. We find that total carbon stocks within THPSS in two regions are 25 Mt CO₂ eq. with annual carbon sequestration rates at 60.5 kt CO₂ eq. A risk assessment model, based on anthropogenic activities known to impair the carbon storage functions of THPSS is used to identify swamps most at risk of carbon loss. Potential CO₂ emissions from at risk swamps could be up to 8.6 Mt CO₂ eq. When carbon stock is valued at the current carbon abatement price of \$AUD16.10 t⁻¹ CO₂ eq, the total value of THPSS is over AUD\$404 million dollars (US\$281 million). This makes a strong economic case for the implementation of sustainable swamp conservation and restoration activities."

GREA also verbally presented a methodology for the valuing of the lost drinking water, that is so significant that it is worth repeating here. It demonstrates that the water compensation package offered by South 32, and supported by the DPIE is appallingly too low.

Here is the calculation method:

1. From 1 July 2020 the price consumers pay for water will depend on dam levels. While dam levels are above 60%, you will pay \$2.35 per kilolitre of water you consume. But if dam levels fall below 60%, this price will rise to \$3.18 per kilolitre.

<https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/Prices-for-Sydney-Water-Corporation-from-1-July-2020>

2. So 3.3 GL/year is nearly \$8M per annum at the \$2.35/kL level or ~\$10M at \$3.18/kL.
3. \$103M only represents 10 years water loss (at \$3.18/kL) or nearly 13 years (at \$2.35/kL). The mine water loss is designed to go on for longer than these periods, the DPIE Report (p.88) says for at least 170 years, and it could be in perpetuity

So, if the compensation (\$103M), represents just 10 years of loss, it does not come close to the true value of the water loss. This should be multiplied by a factor of at least 17. That will equal \$1,750M or \$1.75Billion.

GREA notes that Peter Depens, the expert witness for POWA, at the IPC hearing, did present a monetary value for lost drinking water, that is far more supportive of this GREA case, than it was, for the Proponent/DPIE case.

There is clearly a case for a refusal of this consent, as a consequence of the dire long-term impacts on Drinking Water. Should an approval be granted, as a condition of consent, South 32's water offset, should reflect the market value of the loss, as estimated above.

To even out costs, South 32 could be required to pay \$103M up front for the first 10 years, then the same amount up front at the beginning of each new decade. Should there be an approval this should be a condition of consent. Furthermore, there should be **no approval for the mine to use Sydney Water for any mining operations**, with the exception of the bathhouse and drinking water provision, at the mine pit top/s.

Another way of looking at the inadequacy of the \$103M water compensation package is this; It may pay for the repair of some leaky Sydney Water pipes in the short term, however should Sydney or Wollongong need another De-salination plant in the future, (and the current only can supply about 15% of Sydney's needs), it would cost around \$2Billion to build. Sydney Water did propose that the water starved Macarthur region, now to be further threatened by more water taking coal mines, may need to have a pipeline running from Prospect Reservoir southwards back into the region, supplementing its supply from Warragamba. This pipeline was costed in 2019 at more than \$500M⁷.

⁷ <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/pricing-reviews-water-services-metro-water-prices-for-sydney-water-corporation-from-1-july-2020/legislative-requirements-prices-for-sydney-water-corporation-from-1-july-2020/sydney-water-updated-pricing-proposal-12-november-2019.pdf> page 7.

If the wider public were to really know, that they could be required to pick up the 'costs' well into the future in terms of water scarcity and increased water rates, there would be no 'social licence' for the fact that they would be subsidising this Dendrobium extension project.

Employment 'issues' around this Project

The GREA presentation to the Public Inquiry addressed the far-fetched assertion of the DPIE based on the biased and non-peer reviewed BA Economics Report, that the whole regional economy was at risk, should this single Dendrobium extension project be rejected. Rather than accept the single, one track pathway towards economic disaster, we provided a set of alternatives to a Dendrobium approval, that could keep BlueScope Steel alive. Here we add two other economic perspectives.

There is the question of the **Mining Multiplier**, where a case is built on the apparent significant ability of a coal mine to provide a whole avalanche of other job opportunities. Whilst there is a flow on in terms of steel production, ancillary assembly and fabrication and port handling. These industries are increasingly capital rather than labour intensive. Additionally, coal mining is not essential to the range of tertiary service industries that seem to serve it. They will exist in any case, with the withdrawal of mining, as structural adjustment takes place, and coal mining is replaced by other industries. There is both Australian and global evidence and research, that backs this argument.⁸

Accepting there are other sources of coal for Blue Scope outside the drinking water catchments, there is the matter of '**Opportunity Cost**'. An abandoned Dendrobium mine site, does not necessarily have to remain an abandoned scar. It provides the chance to develop at that site a use that is employment generating and far more compatible with the surrounding drinking water catchment function. Why not aspire to develop a world class research facility attached to one of the regional universities closest into innovatory green technologies, and a laboratory and field study facility for mine remediation. That should be a growth industry of the future.

8

<https://www.smh.com.au/business/minings-economic-contribution-not-as-big-as-you-might-think-20170203-gu4r5l.html>

<https://core.ac.uk/download/pdf/30672592.pdf>

<http://saveourmacleayriver.com/wp-content/uploads/2013/05/exaggerated-Mining-benefits-report.pdf>

https://scholarship.law.columbia.edu/sustainable_investment_staffpubs/17/

Timothy D. Tregarthen, Robert P. Larkin and Gary L. Peters, Mining, Markets, and Land Use, *Geographical Review*, Vol. 68, No. 3 (Jul., 1978), pp. 351-358 (8 pages)

Other Reasons for a Non-Approval

The public Interest in relation to the Objects of the EP&A Act

Within the Act; Table 4 (b) is 'To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about Environmental planning and assessment.'

The concept of **sustainability**⁹ is intrinsically dependent at its definitional beginning on the idea of conserving and sustaining, so that depletion is avoided, and should be applied to drinking water in this case. This raises the rights of all **now and into the future**, that is a consideration of **intergenerational equity**, which is still inherently implied. Whilst future generations may not need coal, they will always need water. The fact that water losses will be for at least 170 years is against these welfare principles for the 'now' generation as well as those that come after us.

With respect to Table 4 (j) 'to provide increased opportunity for community participation in environmental planning and assessment

Chilvers and Kearnes argued that public collectives can be “socially constructed” by the participatory devices chosen and also by social and political orders around issues.¹⁰ The relevance of that claim, in relation to this, is that the DPIE have chosen an easy, facile and shallow device, namely the ‘Have Your Say’ comment bubble to allow the over-statement of support for the project. A simple ‘tick one box, without a substantive comment’ approach, is highly exploitable by a coal company, who can urge their employees to opt into this. The device is highly vulnerable to vested interests, particularly when they have a captive workforce and a community captured by the past coal ‘heroic.’

The DPIE represents the outcome of this ‘Have Your Say’ strategy, together with their acceptance of simple short written submissions from individuals who are not required to state their status, and declare a personal interest, as widespread community support, when it is not. A better approach would at least test the **wider social licence** of this project, because it has such high stakes in terms of the future of the water supply, and for those well beyond the rusted-on coal addicted locals, who are easily manipulated by the South 32 rhetoric which presents no alternative scenarios for them.

Parsons and Moffat claimed that “The idea that an organisation needs a licence from society, rather than just from the state, represents a challenge since it implies that

⁹ The Australian government recognises the need to conserve rather than deplete our resource base, for the future <https://www.environment.gov.au/about-us/esd/publications/national-esd-strategy-part1#WIESD>

¹⁰ J Chilvers and MKearnes, ‘Remaking Public Participation’, Routledge, London, 2016, p.15

external stakeholders may determine whether a business should operate.”¹¹ This is the challenge, that this IPC needs to tackle.

The IPC must admit, that ‘public participation’ has failed as it has not been widespread and engaging enough, given the huge risks to drinking water this proposal presents. **The IPC should refuse this consent, and instruct the DPIE that community consultative practise in this case, should include mass information campaigns, and opinion testing.**

Some methodologies may include randomised widespread surveys, outside the project area, since this project is by definition of ‘State Significance’ and arguably determination should involve the concept of inclusive options like a citizen’s jury.

SEPP Sydney Drinking Water Catchment, 2011

‘10 Development consent cannot be granted unless neutral or beneficial effect on water quality

- (1) A consent authority must not grant consent to the carrying out of development under Part 4 of the Act on land in the Sydney drinking water catchment unless it is satisfied that the carrying out of the proposed development would have a neutral or beneficial effect on water quality.*
- (2) For the purposes of determining whether the carrying out of the proposed development on land in the Sydney drinking water catchment would have a neutral or beneficial effect on water quality, the consent authority must, if the proposed development is one to which the NorBE Tool applies, undertake an assessment using that Tool.’*

South 32 and the DPIE admit to a whole suite of damaging impact on both water quality and water volumes. The expert evidence of both Dr Stuart Khan and Dr Ian Wright, is of direct local relevance, and contradicts any nonsensical claim of nonsense that impacts on water quality are just ‘localised’ and ‘transient’. Ultimately the costs of the extra treatment to be required as a result of mine and subsidence induced contamination needs to be accounted for. **Should any approval be granted, it should be this mine project that pays for the cost of the additional contamination of water, that prior to its impact, was of a very pure quality.**

A failure to consider the application of the Precautionary Principle in relation to the sealing of the Mine

The IAP Report (p.35) raises the issue of the lack of feasibility, and even, the potential impossibility of a satisfactory sealing the mine, and the ongoing likely drinking water losses in perpetuity. Arising out of that is all the uncertainty around the matter of ‘payment’ for the surface water taken in this event and the ongoing funding and management of the treating of mine discharge. From a simple common-sense perspective, all of this is an appalling and catastrophic future scenario.

¹¹ R Parsons, & K Moffat, ‘Constructing the Meaning of Social Licence’, *Social Epistemology, A Journal of Knowledge, Culture and Policy*, vol. 28, no. 3-4, 2014, p. 342

This uncertain scenario of threats to drinking water, but with serious and irreversible impacts recalls the application of the Precautionary Principle as invoked by the judgements of the 2 cases; *Telstra Corporation Limited v. Hornsby Shire Council* (2006) NSW LEC 133 and *Newcastle and Hunter Valley Speleological Society Inc v. Upper Hunter Shire Council and Stoneco Pty Limited* (2010) NSW LEC 48. Both of these cases were argued to apply with respect to Upland Swamps to be undermined by the Bulli Seam Project, (BSO) in 2010 by the Planning Assessment Commission (PAC).¹²

GREU urges this IPC to apply the Precautionary Principle, in a way that aligns with the previous BSO PAC, this time though to the matter of the mine sealing uncertainty with its future consequences in terms of it being likely to be both serious and irreversible.

A failure to properly consider the interaction of Dendrobium extension with the Appin community and to consult with them regarding the Waste Emplacement at Appin North

In 2012 the partial approval of the Appin mine extension (BSO Extension Project) included the approval of Stage 4 of the coal waste dump, and area of threatened species, pristine bushland, intermittent watercourses and a surface extent of 76 ha. It is a rugged landscape that will have a coal waste valley infill of 88m and a hill rising out of it, to achieve the height of 365m, when locally the highest ridge-top was approximately 300AHD.¹³

This waste emplacement was justified to take the fill from Dendrobium at that time. We cannot find an approval for that referenced specifically any extension of that Dendrobium project. This valley infill and coal waste mountain creation could have serious socio-environmental consequences for the nearby growing village of Appin, in terms of dust and visual amenity, on top of the biodiversity loss. Stream destruction is very regrettable and should be avoided. Furthermore, the emplacement footprint involves the partial in-filling of Brennans Ck dam. It already has demonstrated its lack of capacity in heavy rainfall events, as lately as early 2020, by overtopping and spilling coal waste charged water into the upper Georges River downstream.¹⁴ A reduced dam capacity and a greater footprint of coal dumping suggests an increased risk of such water pollution events. It also threatens to un-do all of what has been achieved, after 8 years of negotiation, to have reasonable discharge standards reflected in the EPL for the Appin mines, and will possibly render the new reverse osmosis waste water treatment plant at Appin North, meant to achieve these better discharge standards, ineffective.

So with respect to this **interaction between the Appin mines and Dendrobium extension**, South 32, and presumably the DPIE assumes its option of dumping its waste coal at the Appin Nth mine waste emplacement, does not require assessment. However, it is a significant, and new risk to the local community. Further, as it could compromise the operational capacity of the newly planned water treatment facility to be installed at this site, it potentially will result in unacceptable loads of excessive toxic minerals, ph

¹² BSO PAC, BSO PAC Report 2010. pp.123-130.

¹³ IC-BHP Biliton, Bulli Seam Operations Environmental Assessment, Vol. 1., 2.36 and Fig. 2-15.

¹⁴ pers. comment, S.Cullis, member of Appin mines CCC.

and turbidity into the upper Georges River, once again. **The IPC should assess this risk.**

Should any approval proceed, this IPC should condition the movement of waste back to the Appin North emplacement, with the proviso that the levy required to dump here is revised, and increased severely. The extent of that levy increase should involve a negotiated process with community input. The measure is meant to discourage the development of the Stage 4 emplacement option, and thus minimize the local community and environmental risks of this project around the Appi site.

Dr Ian Wright at the IPC public hearing referred to the excessive discharges of highly saline brine that will be discharged in future as a result of the transfer of this waste product from the Appin North and Appin West Mines 'inland' reverse osmosis water treatment plants, that will join the huge salty waste water stream from the Dendrobium extension, that will average an astounding 22 million litres per day till at least until 2048. The cumulative impact of this on the receiving marine ecosystems of Port Kembla, and including that on the significant bird breeding habitat of the NPWS 5 Islands Nature Reserve, have not been assessed.

With respect also, to any waste water discharges from the Dendrobium extension and together with that of the brine from the Appin mines, EPL licence limits to any receiving streams (notably Allens Ck, into Pt Kembla) should reflect ANZECC (2000) guidelines, as has been the case for both the Bulli Seam-Appin Mines project and Russell Vale. These should be put in place prior to any extraction, following any new approval.

Furthermore, the 22 million litre daily water discharge, effectively being wasted by discharge to the sea, must be intercepted and treated for beneficial re-use.

Conclusion

We members of GREA, move in a generalised social realm, that is our diverse communities, and our common place interactions are with friends, family and casual acquaintances who don't share our deep commitments and preoccupations tied into environmental activism. However sometimes we raise this mining within drinking water catchments issue as a topic of conversation. People react with disbelief. People sometimes say, no! Our government would not be that stupid! What they can't see, the damage in catchments, they don't believe. Otherwise, people say, yes, we need a steel industry, but no, we shouldn't tolerate coal mining in the drinking water catchment. They say in their own ways, what is reflected in this sentiment: It defies common-sense, logic and morality that we tolerate longwall coal mining in our drinking water catchments.

Your decision-making dilemma, may seemed to be framed around questions of science and economics, but really at the heart of this controversy, are the socially mediated parameters of what is most significant and acceptable. It is important that your institution, the IPC, retains legitimacy and public trust, by making a decision, that is seen sensible, fair and for the greater good.

Appendix One:

Dendrobium-IPC Public Inquiry Presentation-Speakers-Notes

Thanks for this opportunity. I am Sharyn Cullis. I have a recently graduated PhD in coal mining impacts in the NSW Southern Coalfield. I have been on the Appin Mines Community Consultation Committee, since 2012. Those South 32 mines interact with the Dendrobium mine. So, I have a close-up view.

(Slide One Impacts)



I represent the Georges River Environmental Alliance. We object to this project because it will have serious and irreversible impacts on drinking water. It does not pass the public interest test, and should be rejected.

BTW we support the steel making industry in Wollongong, but don't think this project is the only, or best way to provide for it.

(Slide Two -social licence)



Whilst the GREA submission is broader and complex, today I only focus on the flawed economic justification, interactions and some alternatives to this project.¹⁵

¹⁵ It is legally mandated that these matters, set out in the SEAR's (**Secretary's Environmental Assessment Requirements**), are properly considered. And both the proponent and the DPIE appear to have failed in this respect. The SEARS include:

consideration of alternatives, including development of the Area 3C and Area 4 mining domains, the development of a mine plan which avoids key sensitive surface features including swamps and water storage infrastructure, and the 'do nothing' option and a project justification

the likely interactions between the development and the existing Dendrobium Coal Mine, and any other existing, approved or proposed mining-related development in the vicinity of the site (including any relevant statutory approvals, environmental management regime relating to these operations)

an assessment of the likely economic impacts of the development, paying particular attention to: the significance of the resource and the costs and benefits of the development, identifying if it would result in a net benefit to NSW

a description of the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of: whether these measures are consistent with industry best practice, etc

The DPIE, relies on the case of the mine proponent and the report it commissioned from BA Economics, that claims that the regional economy is at risk if the Dendrobium extension is refused. ¹⁶

But, that Report, is not reliable and is **flawed** at its foundation. The author admits, to no face-to-face meetings with the businesses, hindering restrictions because of Covid, and that some businesses would only supply limited data, anyway. It is also **misleading** to present, only an approval or a 'do nothing' option. There is a range of **other** alternatives that are not revealed or evaluated.

So, now to explore some of those.

Firstly, Blue Scope Steel can continue if **South 32 supplies coal, from the Appin Mines instead of Dendrobium**. The Appin mines are outside, not inside drinking water catchments. ¹⁷

However, the BA Economics Report, makes the implausible claim, that "Illawarra Coal, part of South 32... "is likely to be **economically unviable**" without jointly operating both the Appin and Dendrobium Mines¹⁸

Here is the opposing evidence! South 32 are currently acting as a business with a bright future. On the 17 November, South 32 reported to the CCC that the Appin Mine was profitable, and its new exploration lease, (namely EP8972), was guiding future Appin Mine expansion. The business reported a major investment in a new Appin Ventilation and Mine Access Project, which is integral to that planning.

South 32 reported also, that a contract has been signed for an expensive RO Water Treatment Plant, at the Appin North pit top and waste emplacement. It is required to protect the Georges River from mine pollution. That is a big investment in the future.

What a shame BA Economics and the DPIE weren't present to hear that!!!! BTW, those facts are in the draft minutes of the meeting.

Hypothetically, if stringent environmental standards **for waste water discharges** and **beneficial re-use** are required for the Dendrobium Extension, if approved, that mine could

¹⁶ In the EIS (Section 9, Evaluation and Conclusion, 9.1) ¹⁶, the Dendrobium project justification is based mostly on the proximity to and interactions with Mt Kembla steelworks. Further support is from DPIE Report, Economic Value and Risks p.xv and xvi.

The mythical fear is that Bluescope has indicated in the past it "may struggle to remain viable", if the Dendrobium approval does not proceed. South 32 provides 60% of its necessary Metallurgical Coal, and the viability of the South 32 Appin mines also depend on a Dendrobium approval. Further coal sourced from the Bowen Basin rather than the Illawarra would add further freight costs.

¹⁷ Whilst the Appin mines may be higher cost, this does not necessarily mean they need to supply to Blue Scope at a higher price, it may mean just a slimmer profit margin for South 32. The approvals for the Appin mines extend beyond 2040.

¹⁸ BAEconomics Report, p.13
Supported by DPIE Report, pp. 20-21

become as costly as the Appin Mines. And it's a moral imperative, as people in the Illawarra deserve the same environmental safeguards, as those now downstream of the Appin mine.¹⁹

Now, to the claim that South 32 must supply Blue Scope a **blend of Bulli Seam Coal** with Wongawilli Seam Coal from Dendrobium. The DPIE present this, as justification for a whole Approval,²⁰ when there's a **pragmatic case for just a partial approval**. Area 5 of Dendrobium, only producing Bulli Seam Coal, can be substituted by the Appin mine product. Area 6 of Dendrobium is the source of the other ingredient, Wongawilli coal. Approving **only** Area 6, would limit the damage to the swamps and water supply. There is a precedent, a **partial approval** took place for the Bulli Seam Operations, when 40% of the project area was excluded. South 32, despite protests at the time, continues to be viable.²¹

Yet **another Alternative** is, that Blue Scope should develop **another blend**, to avoid the use of the Wongawilli Seam coal completely. Coal blending can't be an insurmountable problem. There are scores of steel mills around the world, and their coal blends must vary.²² Blue Scope should be adaptive.

Thinking even more **laterally**, if Dendrobium is not approved, South 32 could import coal, from its own operations in the Bowen basin, where it has a lucrative share in the Eagle Downs mine. That may be, the lowest cost coal. This outcome might be best for both Pt Kembla Coal Port and Blue Scope Steel.²³

By failing to consider alternatives like these, (and others) the Proponents case and its acceptance by the DPIE, has not met the mandated matters set out in SEARS, and no approval is justified.²⁴

¹⁹ Should any consent proceed, all of the water standards, and stringent requirements for beneficial re-use, must be **defined within EPLs, prior to any new operations**. I am acutely aware that it took 8 years for the EPL to control pollution into the Georges River, to be finalised after the consent for Appin mines (called the Bulli Seam Operations).

²⁰ DPIE Report, pp. xvi

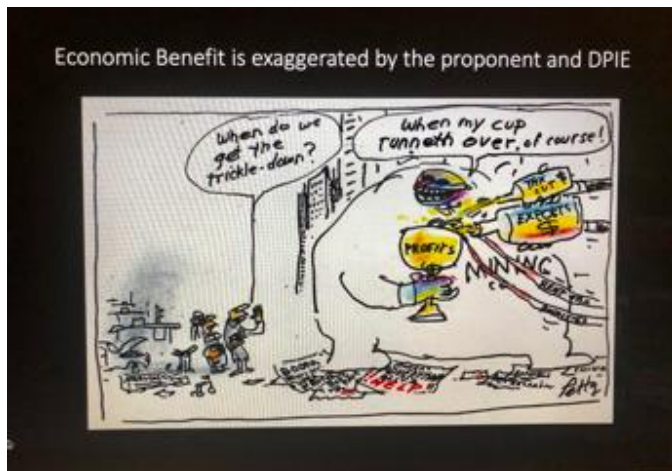
²¹ Another source of Wongawilli Seam is the Russell Vale Min, where they claim they can be viable by extracting it, via the less damaging bord and pillar method.

²² <https://www.worldsteel.org/en/dam/jcr:f7982217-cfde-4fdc-8ba0-795ed807f513/World%2520Steel%2520in%2520Figures%25202020i.pdf>

²³ <https://www.south32.net/our-business/exploration-projects/eagle-downs-metallurgical-coal>

²⁴ With respect to **interactions**, one serious concern, is that South 32 gives itself the continued option of dumping its waste coal at the Appin Nth site. This must not be approved, as it is a significant, risk, and could undo all of the benefits of the new water treatment facility to be installed here, and will result in unacceptable loads of excessive toxins into the upper Georges River, once again.

Slide 3 on Economic case exaggerated)



The proponent has chosen a deficient and biased methodology with respect to the Cost Benefit Analysis, which overstates the projects economic value, and the DPIE accepts it without an impartial assessment or a peer review.

The project Cost-benefit analysis²⁵ assigns a monetary value to the direct benefits of the project. Yet it identifies 12 indirect costs, without estimating their monetary values. This is a serious deficiency with respect to the loss of natural features, like swamps, streams and drinking water.

This methodology does not meet the **industry best practise standard**, as defined and published by the federal government. (March 2020)²⁶ It recommends the “**monetising**” of costs and benefits, even for goods and services not traded in markets, and suggests a wide range of tools, and these include Contingent Valuation and Choice Modelling. This **federal government stance** reflects the better approaches, both in literature, and also previously applied, in the Southern Coalfield.

It was used, to underpin the economic case for the Bulli Seam Operation in 2009 (ie Appin Mine).²⁷ The project net benefit took account of the loss of natural features.²⁸ Even though it is difficult, as such features are often seen as priceless, assigning a dollar value, is better than nothing. Yet the CBA of the Dendrobium Project values these **at nothing**.

The PAC for the BSO determination recommended the Choice Modelling approach, for future assessments of mining in NSW.²⁹ This IPC should therefore, apply the wisdom of this

²⁵ Table1: Cadence Economics, App.I., EIS <https://www.planningportal.nsw.gov.au/major-projects/project/9696>

²⁶ https://www.pmc.gov.au/sites/default/files/publications/cost-benefit-analysis_0.pdf

²⁷ IC-BHP-B, Bulli Seam Operations, Vol.1, Main Report, 3.1.8, 7.8.3 and Gillespie

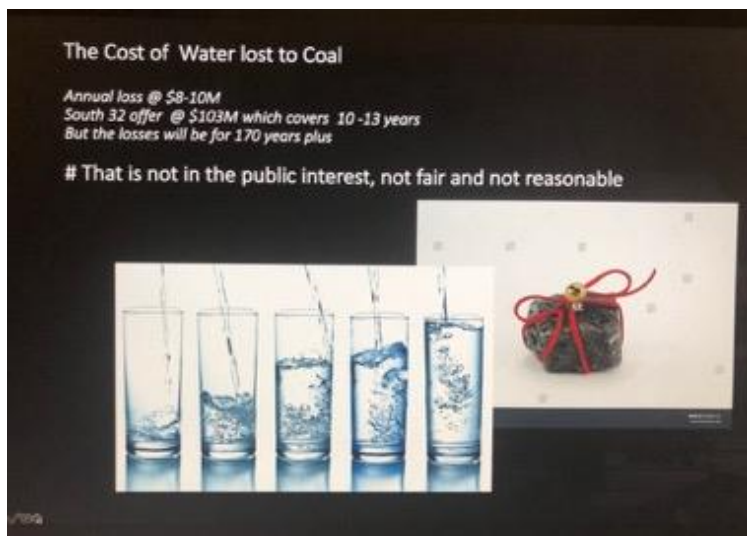
²⁸ CM at least attempts to measure and monetise community preferences and desires with respect to the value of these natural features,

²⁹ PAC, BSO PAC, p.361.

past PAC recommendation, to reach the same standard of rigor for this assessment, or exceed it.³⁰

I have developed examples that reveal how the monetised value of natural features and water can and should be reported, but today I will only have time to overview one of those.³¹

(Slide 4; Water)



With respect to this, the most aggressive, of all the mines in the region, disgracefully located, but hidden from public view, in a drinking water catchment, here is one way of measuring the water loss that will incur:

Using the current Sydney Water pricing structure and the Water NSW estimates of water loss, accepted by the DPIE Report, the annual loss can be valued at \$8-10 M pa. South 32 have only offered \$103M which only represents 10-13 years of water loss. However, the DPI has admitted the

³⁰ Please reject this application, as the proponent has failed to apply best practise, and the DPIE has failed to provide an impartial expert review of the Proponents economic case.

³¹ The other is; The Bulli Seam Economics Report, factored in estimated stream impacts at \$368 M, flora and fauna impacts at \$112M and swamps impacts at \$95M, by applying the CM method. To re-iterate an earlier point, it is appalling that the Dendrobium proponent has costed these at zero, and to this point there has been no expert questioning of this.

As a further illustration, focusing on just carbon capture within the upland swamps of SE Australia's upland swamps, a recent academic paper has established a monetised value at \$404M. using another costing approach. (Forgotten peatlands of eastern Australia: An unaccounted carbon capture and storage system, Kirsten L. Cowley, Kirstie A. Fryirs *

Department of Earth and Environmental Sciences, Macquarie University, North Ryde, NSW 2109, Australia .) The 25 swamps about to be lost at Dendrobium, are part of this ecosystem. This figure though still under values the total contribution of these swamps, as further value is added, as a result of the capability of a saturated swamp to slow wildfires, and provide for other ecosystem benefits.

These figures need to be showing on Dendrobiums balance sheet so we know what we are really losing.

water loss will continue for at least 170 years.³² How is that fair? The miner will pay for 10 years, and then water consumers will bear the brunt of water scarcity, and increased charges to subsidize this mine, long after it is gone, for at least another 160 years.

There is clearly a case for a refusal of this consent, as a consequence of the dire long-term impacts on Drinking Water. If approved, Water NSW should set the price of South 32's water off-set to reflect the longer-term value of the loss. ³³

I wish to finish with a personal statement.

It is meant for the IPC, but also for those miners and their supporters, who have flooded the IPC with messages of support for this mine. It is fine that you worry about your jobs, whilst people like me worry about your drinking water, and the greater public interest.

But jobs and industries come and go, **structural adjustment and employment uncertainty is the economic norm**. This year, South 32 have ruthlessly terminated more than 400 contractors³⁴. In 2016, South 32 shed 300 jobs.³⁵, Blue Scope wiped out 500 jobs in October 2015.³⁶ And surprise, the sky did not fall in, after each of these events.

Now to the present, the Dendrobium Extension will directly support 500 employees and 200 contractors.³⁷ As mining and heavy industry become increasingly capital intensive there will be fewer jobs. So hopefully for you, there is a just transition ahead, employment in cleaner and sustainable new industries, perhaps even in the production of green steel.

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³² From 1 July 2020 the price you pay for water will depend on dam levels. While dam levels are above 60%, you will pay \$2.35 per kilolitre of water you consume. But if dam levels fall below 60%, this price will rise to \$3.18 per kilolitre.

<https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/Prices-for-Sydney-Water-Corporation-from-1-July-2020>

So 3.3 GL/year is nearly \$8M per annum at the \$2.35/kL level or ~\$10M at \$3.18/kL.

\$103M only represents 10 years water loss (at \$3.18/kL) or nearly 13 years (at \$2.35/kL). The mine is designed to go on for longer than these periods and the water loss is likely to be in perpetuity. The proposed compensation (\$103M) does not come close to the true value of the water loss.

DPIE Report, p. 88, models losses will be for 171 years

³³ Furthermore, there should be no approval for the mine to use Sydney Water for any mining operations, with the exception of the bathhouse and drinking water provision, at the mine pit top/s.

³⁴ <https://me.cfmeu.org.au/news/more-pain-contractors-appin-new-campaign-targets-casualisation-mining>

³⁵ <https://www.illawarramercury.com.au/story/3753444/a-hammer-blow-coal-mining-company-sheds-770-jobs-australia-wide/>

³⁶ <https://www.dailytelegraph.com.au/business/port-kembla-job-losses-bluescope-steel-to-shed-500-jobs-unions-agree-to-wages-bonus-freeze/news-story/77554f5c895efa96580c757cd0fd6078>

³⁷ DPIE Report, p.7.

