



CLIMATE ENERGY FINANCE

Narrabri Underground Mine Stage 3 Extension Project

(SSD 10269) Public Hearing

Response to Additional Material

March 2022

Tim Buckley, Director, Climate Energy Finance, Australasia

[REDACTED]

Acknowledgement

Climate Energy Finance (CEF) has been engaged by Environmental Defenders Office (EDO) on behalf of Lock the Gate to prepare this independent expert witness report covering the global policy, market and financial landscape relating to the energy sector with respect to climate change and technology developments. A copy of my expert brief is attached to this report as Appendix 1. As author I, Tim Buckley, acknowledge that I have read the Expert Witness Code of Conduct in Schedule 7 of the Uniform Civil Procedure Rules 2005 (NSW) and that I agree to be bound by it.

[REDACTED]

Tim Buckley, 8 March 2022

Coal Power Plants Are Becoming Stranded Assets: Whether in Developed Markets or Increasingly in Emerging Markets

I provide this report in response to the invitation from the Independent Planning Commission (IPC) for further submissions on the 'Additional Material' provided by Whitehaven Coal and the Department of Planning and Environment (DPE) in response to the public hearing for the Narrabri Underground Mine Stage 3 Extension Project (SSD 10269) (the Project). Attached to the Whitehaven Coal submission dated 25 February 2022 was a document by Ashurst (Ashurst Response) that included comments on my expert opinion presented to the IPC on 18 February 2022.

The Ashurst Response states that the US coal market has nothing to do with the Asian coal market. While narrowly interpreted this is correct, it clearly misses the point made in my previous expert opinion. That is, that I expect the same economic, technology and policy forces that have driven the 50% collapse in the US coal use in the last decade will most likely happen in Asia over the coming decade. In my opinion, this will take the coal industry by surprise again if it fails to heed the lessons of the US, as with Europe, and assumes other nations like China will abrogate their climate pledges. Figure 1 reproduced from S&P Global Market Intelligence details the forecast rate of coal-fired power plant closures in the US that is equal in the coming six years to the trends of the last six years, with no new coal power plants being built, or even proposed. The direction is clear, and continuing, and in my opinion, this trend is now going global.

Figure 1: U.S. Coal Capacity Closures by Year (MW)



Source: S&P Global Market Intelligence, 10 February 2022

As a very clear guide as to how rapidly and fundamentally the coal industry thinking has changed in recent months, the March 2022 interview with Ian Macfarlane, the chief executive officer of the Queensland Resource Council (QRC) and ex Resources Minister, is telling. Having only four years ago advocated for substantial government subsidies to build new coal fired power plants, Macfarlane now acknowledges that thermal coal use in Australian power generation is likely to soon cease:¹

"In Queensland, in terms of domestic issues, I'd be realistic and say that domestic coal-fired generation is rapidly approaching the time when it will close and that might be within the decade,"

The Ashurst Response (page 6, 15b) argues the outlook for Asia is different for three reasons:

"The rate of decline, particularly in the STEPS and APS, is faster in advanced economies which have older coal power plants than in emerging market and developing economies. Younger plants, mostly in Asia, currently account for two-thirds of global coal-fired capacity. The construction of new coal-fired power continues in emerging market and developing economies, mainly in China, India and Southeast Asia in the STEPS and APS. Younger and more efficient facilities are the best candidates for retrofitting with carbon capture technologies, and younger plants fitted with such technologies are projected to be the only kinds of facilities still in operation in the NZE in 2040;"

The Ashurst Response (page 7 of their second report) also makes a direct response to my presentation of the 18 February 2022 to the IPC.

I would make three observations in response to the comments in the Ashurst Response.

Firstly, the NSW Government is committed to the Paris Agreement, which accepts the climate science and the collective need to address increasingly extreme weather events of increasing frequency.² Ashurst argues (page 36, 110-113) that if we follow "two of the three main WEO 2021 scenarios" (that is, the two scenarios that are based on the failure to limit global warming to 1.5 degrees C), then the coal demand outlook is less negative than under the International Energy Agency's (IEA's) Net Zero Emissions (NZE) scenario. In that situation the costs to all of NSW of this collective failure will be dramatically higher than the token \$1m the proponent has included (Table ES-1³). In my view, a presumption of failure is not an acceptable central scenario that NSW should plan towards.

I have also provided advice on the rapid acceleration of formal coal exit policies and pledges by leading global financial institutions collectively managing US\$130 trillion of assets to commit to NZE and limiting warming to 1.5°C. These pledges were made going into the 2021 Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26) in November 2021, well after the IEA finished their modelling for their Net Zero Emissions by 2050 Roadmap,⁴ which was released in May 2021, six months earlier. There was a near doubling of 1.5°C pledges from US\$70 trillion in April 2021⁵ to more than US\$130 trillion by November 2021. Further, October 2021 saw a seismic shift: by the largest funder of coal power in the world in the last decade, the Chinese Government – who announced it will immediately cease funding new coal abroad,⁶ matched three

¹ ABC, [Coal-fired power in Australia could be over within 10 years concedes lobbyist Ian Macfarlane](#), 3 March 2022

² NSW Department of Planning and Environment, [Net Zero Plan Stage 1: 2020-2030](#), 28 September 2021

³ Narrabri Underground Mine Stage 3 Extension Project Environmental Impact Statement Appendix L Economic Assessment, AnalytEcon ES-2

⁴ IEA, [Net Zero By 2050: A Roadmap for the Global Energy Sector](#), May 2021, page 13

⁵ UN Climate Change, [UN New Financial Alliance for Net Zero Emissions Launches](#), 21 April 2021

⁶ Aljazeera, ['Game-changer': China to stop funding overseas coal projects](#), 22 September 2021

days later by the Bank of China.⁷ The significance of this dramatic global upscaling of policy and financial support will be incorporated in the IEA WEO 2022 estimates, and hence further material reductions in coal estimates will likely result, everything else being equal.

Secondly, the philosophy of the Paris Agreement is based on the principle of “Common But Differentiated Responsibilities”.⁸ Having accelerated the decline of coal in developed nations like Western Europe (the World Bank illustrates the total phase out of coal power in Greece by 2028⁹), the USA and Australia, the World Bank¹⁰ and Asian Development Bank (ADB)¹¹ agreed at COP26 to now work towards a developing country plan of accelerated closure of newer coal fired power plants. This program of new work is termed the “energy transition mechanism (ETM)”, aiming to acquire and accelerate the closure of newer coal power plants well ahead of their engineering useful life, replacing their electricity generation with new renewable energy infrastructure built ahead of the early closure of the coal plant. At COP26 in Glasgow, the ADB, along with Indonesia and the Philippines, launched the ETM Southeast Asia Partnership which aims to retire 5-7 coal-fired power stations in those countries in the coming years. The ADB summarises this public-private partnership:

“ETM will help unlock or “crowd in” investments in cost-effective renewable generation and support and enable technologies such as smart grids, hydrogen, electric vehicles, and other clean technologies.”

Far from Japan continuing its historical approach as one of the largest global providers of government capital subsidies to new coal fired power plants across greater Asia over the last decade, Japan has pledged to cease new coal power plant financing¹². Further, the Japanese Government’s Vice-Minister for International Affairs at the Ministry of Finance of Japan, Mr Masato Kanda,¹³ states how this pilot could be ramped up:

“ETM is a transformative, blended-finance approach that seeks to retire existing coal-fired power plants on an accelerated schedule and replace them with clean power capacity. The mechanism will comprise two multibillion-dollar funds: one devoted to early retirement or repurposing of coal-fired power plants on an accelerated timeline, and the other focused on new clean energy investments in generation, storage, and grid upgrades. It is envisioned that multilateral banks, private institutional investors, philanthropic contributions, and long-term investors will provide capital for ETM.”

Thirdly, the Ashurst Response claims young coal fired power plants in Asia are the best candidates for retrofitting with carbon capture and storage (CCS). This argument entirely fails to be grounded in any supporting evidence, given there are no coal-fired power plants anywhere in Asia that are operating with CCS, and there are none that have even reached final investment decision (FID). There are no coal-fired power plants operating with CCS anywhere in the world in 2022 except for a single subscale 120MW unit of one plant in Canada (Boundary Dam), and there the Chief Executive Officer recently confirmed that the company was not considering applying this failed and massively subsidised CCS

⁷ Reuters, [Bank of China to stop financing new coal mining, power projects overseas from Q4](#), 24 September 2021

⁸ Paris Agreement English - UNFCCC

⁹ World Bank, [Greece's Transition Away From Coal Offers a Roadmap for Other Countries](#), 23 February 2022

¹⁰ World Bank, [Coal Mine Closure and a Just Transition for All](#), 10 November 2021

¹¹ Asian Development Bank, [What People are Saying About the Energy Transition Mechanism \(ETM\)](#), 12 November 2021

¹² Nikkei Asia, [Tokyo vows at G-7 to cut off overseas coal financing this year](#), 15 June 2021

¹³ Asian Development Bank, [Japan Announces \\$25 Million for ADB-Led Energy Transition Mechanism in Southeast Asia](#), 3 November 2021

technology to a second coal unit.¹⁴ In my opinion, seismic activity across many parts of Asia (the Ring of Fire¹⁵) preclude serious consideration of CCS, which is considered to have a high probability of triggering even more earthquakes¹⁶ thereby rendering CO₂ sequestration entirely ineffective in this region. Evidence of increased earthquakes can be seen from the United States of America, which is already using this technology for Carbon Capture Use and Storage (CCUS) – otherwise known as Enhanced Oil Recovery (EOR).¹⁷

The assumption that coal plants that have been approved but not yet built will add to coal demand, and that existing coal plants across greater Asia will continue to operate for their useful life, unaffected by policy, financial and technology changes, is a forecast by Ashurst. In my expert opinion, recent events such as the accelerated closure timetable of the 2.88GW Eraring coal-fired power plant 7 years ahead of previous guidance suggest there is nothing “baked in” and immutable, particularly as extreme weather events keep compounding the economic costs of ignoring the climate science in the face of the growing evidence, a situation presumed to continue in the Ashurst Response (page 7).

The Ashurst Response (page 7, 15e) also states the Project’s coal is high quality in terms of energy content or calorific value (CV), but the Ashurst Response puts entirely aside that NSW thermal coal is also high ash content relative to global seaborne market averages, lowering its quality. The Ashurst Response states that “there is a real likelihood that coal sourced from elsewhere to meet demand will be of inferior quality”. The Project’s coal is equal in quality to the NSW average, so this statement ignores the real likelihood that the coal will be sourced from other existing NSW coal mines, and therefore, any substitution will be for coal equal in quality.

Cost-Benefit Analysis

The revised cost-benefit analysis provided by the proponent makes assumptions that NSW will only bear a 32% share of Australia’s costs of climate change from Scope 1 & 2. It ignores and downplays the reality that the NSW is currently bearing massive economic and societal loss from climate change now (floods across Northern NSW nearly wiping out Lismore and other regions) whilst the benefits are in large part privatised to the shareholders the proponent – which is largely owned by foreign institutions and foreign individuals (such as Fritz Kundrun, the largest shareholder in Whitehaven Coal¹⁸). In considering the Project benefits, the cost-benefit analysis failed to remove the non-NSW share of Project net producer surplus. In my view, the net benefit analysis should give reduced weight to the private foreign gains being made relative to the significant and unquantified public NSW and wider Australian costs borne by climate change and the more frequent, more extreme weather events it is causing. The economic costs of climate change from the failure to curtail new and extended fossil fuel developments will, in my opinion, be well beyond any historic estimates. The intergenerational impact should not be ignored, or trivialised – these economic costs are real, dramatic and increasing, if hard to value. The IEA uses a real CO₂ price of US\$250/t by 2050, that is a good starting point in my expert opinion.

¹⁴ E&E News, [CCS ‘red flag?’ World’s sole coal project hits snag](#), 10 January 2022

¹⁵ National Geographic, [Ring of Fire](#)

¹⁶ Global CCS Institute, [Induced seismicity and CO₂ geological storage](#), 16 April 2016

¹⁷ PNAS, [Earthquake triggering and large-scale geologic storage of carbon dioxide](#), 18 June 2012

¹⁸ Whitehaven Coal, 2021 Annual Report, pages 110-111

Climate Energy Finance

Climate Energy Finance (CEF) conducts public interest research and analyses on global financial and economic issues related to the global energy transition, as well as the implications for the Australian economy, with a key focus on the threats and opportunities for Australian investments and exports.

About the Author

Tim Buckley

Tim Buckley, CEF's director of energy finance research, Australasia, has 30 years of financial market experience covering the Australian, Asian and global equity markets from both a buy and sell side perspective. Before founding CEF as a public interest thinktank in 2022, Tim founded the Australia and Asian arms of IEEFA in 2013 and worked as the Australasian Director on the global energy transition for eight years till the start of 2022. Prior to this, Tim was a top-rated Equity Research Analyst and has covered many sectors of the Australian economy over the previous 2 decades, including spending two years as Head of Equity Research in Singapore at Deutsche Bank covering Asian markets in 1996-1998. Tim was a Managing Director, Head of Equity Research at Citigroup for 17 years till 2008, then spent two years as Head of Institutional Equities at Shaw & Partners and subsequently in 2010-2013 was co-Managing Director of Arkx Investment Management P/L, a global listed clean energy investment company that was jointly owned by management and Westpac Banking Group. Tim started his career as a lecturer in Finance and Market Regulation at the University of Technology, Sydney before moving to Macquarie Group in 1988 to work in equity research. Tim has a Bachelor of Business majoring in Accounting and Finance from UTS Sydney (1985-87), and has received the US SEC Series 7 (General Securities Representative Qualification Examination) and Series 24 (General Securities Principal Qualification Examination) qualifications.

Important Information

This report is for information and educational purposes only. CEF does not provide tax, legal, investment or accounting advice. This report is not intended to provide, and should not be relied on for, tax, legal, investment or accounting advice. Nothing in this report is intended as investment advice, as an offer or solicitation of an offer to buy or sell, or as a recommendation, endorsement, or sponsorship of any security, company, or fund. CEF is not responsible for any investment decision made by you. You are responsible for your own investment research and investment decisions. This report is not meant as a general guide to investing, nor as a source of any specific investment recommendation. Unless attributed to others, any opinions expressed are our current opinions only. Certain information presented may have been provided by third parties. CEF believes that such third-party information is reliable, and has checked public records to verify it wherever possible, but does not guarantee its accuracy, timeliness or completeness; and it is subject to change without notice.



Environmental Defenders Office

2 March 2022

Tim Buckley
Climate Energy Finance

By email [REDACTED]

CONFIDENTIAL AND PRIVILEGED

Dear Tim

Supplementary Brief to Expert – Narrabri Underground Mine Stage 3 Extension Project (SSD 10269) Public Hearing

1. Thank you for accepting our expert brief dated 2 February 2022 regarding the public hearing into the Project.
2. On 1 March 2022, the IPC reopened public submissions after receiving new information from the Department of Planning and Environment (**DPE**) and Whitehaven Coal in relation to the Project.¹
3. The IPC states that in accordance with its Additional Material policy,² it will accept public submissions on the following new material only:
 - a. DPE's response to the IPC, dated 28 February 2022;³ and
 - b. Whitehaven Coal's submission to the IPC, dated 25 February 2022.⁴
4. Our client wishes to ensure the IPC receives independent expert advice on the Project. Accordingly, our client wishes to retain your services to provide an expert report for submission to the IPC on the above new material.

¹ <https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2021/12/narrabri-underground-mine-stage-3-extension-project-ssd-10269/statement-from-the-commission/220301-statement-from-commission--additional-material.pdf>

² <https://www.ipcn.nsw.gov.au/policies>

³ https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2021/12/narrabri-underground-mine-stage-3-extension-project-ssd-10269/additional-material/220228-in-department-response-to-commission_redacted.pdf

⁴ <https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2021/12/narrabri-underground-mine-stage-3-extension-project-ssd-10269/additional-material/220225-in-applicant-submission-to-the-commission.pdf>

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Primary purpose to provide independent expert advice

5. We note as a preliminary matter that our primary purpose in briefing you to prepare your report is to provide independent expert advice in your area of expertise. We do not ask you to be an advocate for our client. You are requested to prepare an independent report that is clear and well-written.
6. In this respect, we draw your attention to Division 2 of Part 31 of the *Uniform Civil Procedure Rules 2005 (UCPR)*, and the Expert Witness Code of Conduct (**Code of Conduct**) contained in Schedule 7 of the UCPR, both of which govern the use of expert evidence in NSW Courts (**attached**). We understand that the IPC public hearing is not a Court proceeding, however, we are of the view that the same Code of Conduct should be adhered to in this instance.
7. In particular, clause 2 of the Code of Conduct states that:

“An expert witness is not an advocate for a party and has a paramount duty, overriding any duty to the party to the proceedings or other person retaining the expert witness, to assist the court impartially on matters relevant to the area of expertise of the witness.”
8. Your expert report must contain an acknowledgment that you have read the Expert Witness Code of Conduct and that you agree to be bound by it.
9. Your expert report will be used as evidence in chief of your professional opinion. Information of which you believe the decision maker should be aware must be contained in your expert report.
10. In providing your opinion to the decision maker you must set out all the assumptions upon which the opinion is based. This may include, for example, facts observed as a result of fieldwork or ‘assumed’ facts based on a body of scientific opinion. If the latter, you should provide references which demonstrate the existence of that body of opinion.
11. Your expert report must also set out the process of reasoning which you have undertaken in order to arrive at your conclusions. It is insufficient for an expert report to simply state your opinion or conclusion reached without an explanation as to how this was arrived at. The purpose of providing such assumptions and reasoning is to enable the decision maker and experts engaged by other parties to make an assessment as to the soundness of your opinion.

Overview of work requested

12. We request that you undertake the following work:
 - a. review the documents listed below; and
 - b. prepare a written expert report that addresses the issues identified below (‘Issues to address in your expert report’), and ensure that the work is prepared in accordance with Part 31, Division 2 of the UCPR.

Documents

13. We enclose the Code of Conduct and Part 31 Division 2 of the UCPR.
14. Full Project documentation is available at the following websites:
 - a. NSW Government Planning Portal: <https://www.planningportal.nsw.gov.au/major-projects/project/10731>
 - b. IPC: <https://www.ipcn.nsw.gov.au/projects/2021/12/narrabri-underground-mine-stage-3-extension-project-ssd-10269>.
15. The new material provided to the IPC is:
 - a. DPE's response to the IPC, dated 28 February 2022;⁵ and
 - b. Whitehaven Coal's submission to the IPC, dated 25 February 2022,⁶ (together, the **New Material**).
16. Please let us know as soon as possible if you require further information for the purpose of giving your expert opinion.

Issues to address in your expert report

17. We ask that your report address the following issues in regard to any climate change impacts arising as a result of the Project:
 - a. Has your opinion on any of the issues listed in paragraph [16] of your expert brief dated 2 February 2022 changed because of the New Material?
 - b. Has your opinion on any of the matters described in your expert report dated 24 February 2022 changed because of the New Material?
 - c. Provide any further observations or opinions which you consider to be relevant.

Key dates

18. The IPC will accept written comments on the New Material until **5pm AEDT on Tuesday 8 March 2022**.
19. To assist our clients to prepare for the public hearing, we request a draft of your expert advice by **12 noon Monday 7 March 2022**.
20. Please provide your final expert advice by **10am Tuesday 8 March 2022**.

⁵ https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2021/12/narrabri-underground-mine-stage-3-extension-project-ssd-10269/additional-material/220228-in-department-response-to-commission_redacted.pdf

⁶ <https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2021/12/narrabri-underground-mine-stage-3-extension-project-ssd-10269/additional-material/220225-in-applicant-submission-to-the-commission.pdf>

Duty of confidentiality

21. Please treat your work as strictly confidential until your expert report is provided to the IPC, unless authorised by us.

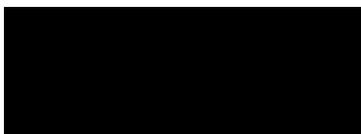
Fees and Terms

22. Thank you for agreeing to provide your advice in this matter on a pro bono (volunteer) basis. EDO relies on experts such as you to assist in matters with very little financial compensation.
23. Please note the following terms:
 - a. your work will only be used by EDO to relation to this matter;
 - b. our client may choose to make your expert advice publicly available. Any public release of your report, whether by our client or by way of publication on the IPC's website, may result in disclosure of any works in your report over which you may claim copyright;
 - c. EDO will take all reasonable steps to prevent your work being used for purposes other than that mentioned above, but we accept no responsibility for the actions of third parties;
 - d. regardless of the above points, EDO may choose not to use your work; and
 - e. you will not be covered by the EDO's insurance while undertaking the above tasks.
24. If you would like to discuss this brief further, please contact the author on (02) 9262 6989 or email 

We are grateful for your assistance in this matter.

Yours sincerely

Environmental Defenders Office



Matt Floro
Special Counsel

Reference number: S2602