Submission to the NSW DPIE major projects assessment team concerning the proposed **Chain Valley Colliery Consolidation Project (SSD-17017460)**

Thank you for the opportunity to make a submission re the proposed Chain Valley Colliery Consolidation Project (SSD-17017460).

I object to this proposed project proceeding, as there is no need for more coal projects as thermal coal demand will inevitably shrink, and overwhelming evidence I see indicates more coal projects will contribute to facilitating increasing the risk of human civilisation collapse before the end of this century.

Domestic thermal coal demand will inevitably shrink

Per AEMO's generating unit expected closure year data (dated 30 Nov 2022)[1], the NEM's coal-fired generator currently expected order of closure is derived in the following table:

Site Name (state)	Dispatchable Unit Identifier	Expected Closure Year	Closure Date	Capacity (*MW*)
Liddell (NSW)	LD03	Unit Closed	2022 Apr 01	1x 420 +
Liddell (NSW)	LD04, LD01, LD02	2023	2023 Apr 01	3x 420 +
Eraring (NSW)	ER01, ER02, ER03, ER04	2025	2025 Aug 19	4x 720
Callide B (QLD)	CALL_B_1, CALL_B_2	2028		2x 350
Yallourn W (VIC)	YWPS1, YWPS2	2028		2x 360
Yallourn W (VIC)	YWPS3, YWPS4	2028		2x 380
Vales Point B (NSW)	VP5, VP6	2029		2x 660
Bayswater (NSW)	BW01, BW02, BW03, BW04	2033		4x 660
Gladstone (QLD)	GSTONE1, GSTONE2, GSTONE3, GSTONE4	2035		4x 280
Loy Yang A (VIC)	LYA1, LYA3, LYA4	2035		3x 560
Loy Yang A (VIC)	LYA2	2035		1x 530
Tarong (QLD)	TARONG#1, TARONG#2	2036		2x 350
Tarong (QLD)	TARONG#3, TARONG#4	2037		2x 350
Mt Piper (NSW)	MP1, MP2	2040		2x 730
Kogan Creek (QLD)	KPP_1	2042		1x 750
Stanwell (QLD)	STAN-1	2043		1x 635
Stanwell (QLD)	STAN-2	2044		1x 635
Stanwell (QLD)	STAN-3	2045		1x 635
Stanwell (QLD)	STAN-4	2046		1x 635
Loy Yang B (VIC)	LOYYB1, LOYYB2	2047		2x 535
Millmerran (QLD)	MPP_1, MPP_2	2051		2x 440
Callide C (QLD)	CPP_3, CPP_4	Not Disclosed		2x 460

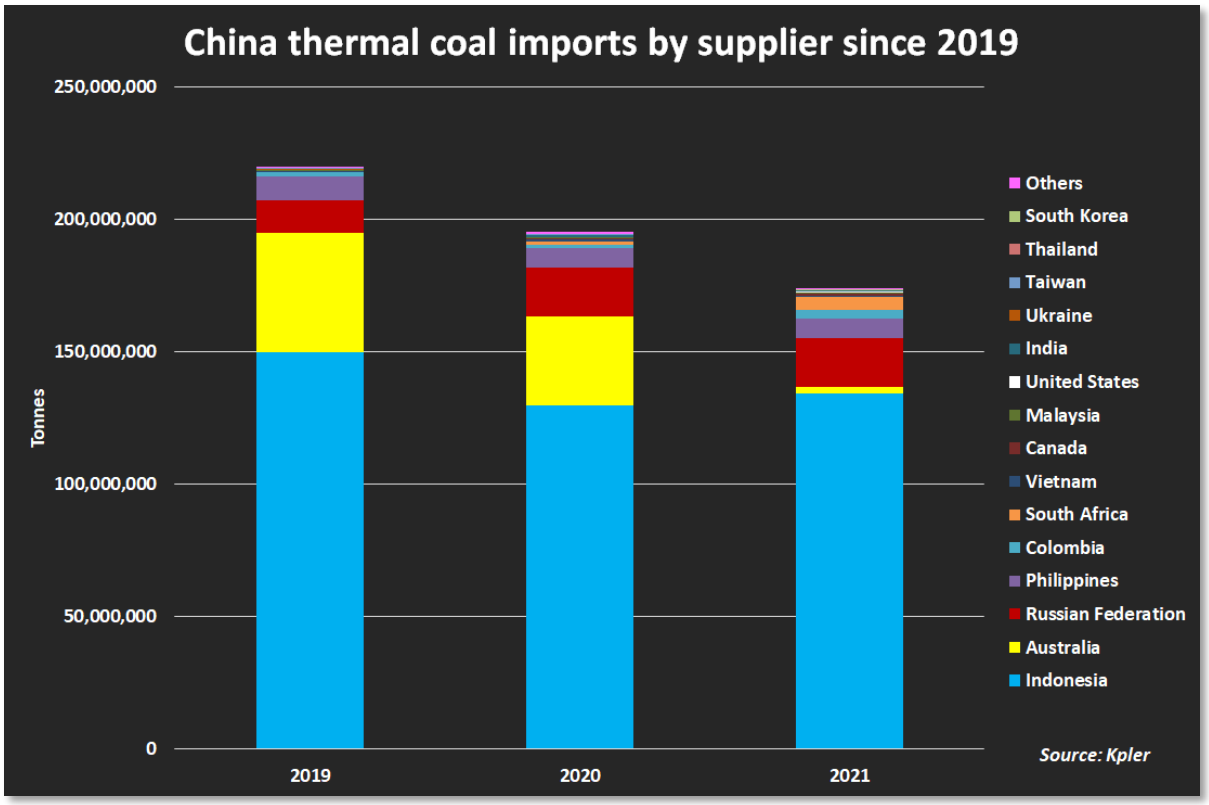
[1] https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information

New South Wales authorities say they are preparing for a potential faster closure of the state's remaining coal generators over the coming decade.[2]

Domestic thermal coal demand could shrink faster than expected.

China's thermal coal imports declining, shrinking export market

Chinese investments in domestic transport infrastructure are already shrinking the seaborne thermal coal export market. See graph[3]:



ANU climate change economist Professor Frank Jotzo said[4]:

> "***Our findings illustrate how energy security concerns, a fracturing global security and trade landscape, combined with climate action are putting the squeeze on coal not in the distant future but imminently.***"

> "***Our findings should be of high concern to the coal industry and to Australian governments. Coal will be on the way down. We need to foster alternative economic futures Australia's resource and energy industries have every opportunity to prosper in a low emissions world.***"

In 2021, China was the world's largest coal importer.[5]

[2] https://reneweconomy.com.au/nsw-prepares-for-faster-coal-closures-and-supply-chain-bottlenecks-for-renewables/
[3] https://twitter.com/crudeoilpeak/status/1594269777555755008
[4] https://www.anu.edu.au/news/all-news/bleak-outlook-for-australian-coal-exports-to-china
[5] BP's *Statistical Review of World Energy 2022*

There is NO CARBON BUDGET REMAINING for a safe climate

The atmosphere in 2021 contained greenhouse gases with CO_2-equivalent of 508 ppm, of which 415 is CO_2 alone.[6] **Humanity has now entered climate territory not encountered for millions of years.**

In the *YouTube* video titled **SR Australia – Social and Earth System Tipping Points | Prof. Will Steffen + Dr. Nick Abel**,[7] published 3 Apr 2022, executive director of the Australian National University (ANU) Climate Change Institute, Professor Will Steffen said from time interval 0:19:12:

> **"*So, if you look at the projected temperature rise from the IPCC, by 2050 – middle of the century – thirty years out – even under the most, ah... drastic emission reduction scenario they assess, we'll still hit 1.6*** [°C]***. This is dangerous territory. As I said before, we're on track to reach somewhere around 2.7 to 3*** [°C]***, by the end of the century. But these other scenarios will reach 2, or have reached 2*** [°C]***, ah... at mid... even by 2050. So, um... the... Even the IPCC is saying we're entering dangerous territory, unless we do something really drastic. So, it's virtually certain that we will breach 1.5*** [°C] ***before the... ah, before the middle of this century. Some people think even by 2035, we can reach 1.5*** [°C]**."**

The table presented in Professor Steffen's slide as he was talking was sourced from the IPCC's *AR6 WG1 SPM*, Table SPM. 1,[8] on page 14:

	Near term, 2021–2040		Mid-term, 2041–2060		Long term, 2081–2100	
Scenario	Best estimate (°C)	*Very likely* range (°C)	Best estimate (°C)	*Very likely* range (°C)	Best estimate (°C)	*Very likely* range (°C)
SSP1-1.9	1.5	1.2 to 1.7	1.6	1.2 to 2.0	1.4	1.0 to 1.8
SSP1-2.6	1.5	1.2 to 1.8	1.7	1.3 to 2.2	1.8	1.3 to 2.4
SSP2-4.5	1.5	1.2 to 1.8	2.0	1.6 to 2.5	2.7	2.1 to 3.5
SSP3-7.0	1.5	1.2 to 1.8	2.1	1.7 to 2.6	3.6	2.8 to 4.6
SSP5-8.5	1.6	1.3 to 1.9	2.4	1.9 to 3.0	4.4	3.3 to 5.7

James Hansen together with 14 co-authors have submitted **Global Warming in the Pipeline** to *Oxford Open Climate Change*. With the permission of Editor-in-Chief Eelco Rohling, the submitted version is available on arXiv,[9] the website used by physicists for preprints. It begins with (highlighted text my emphasis):

> Improved knowledge of glacial-to-interglacial global temperature change implies that fast-feedback equilibrium climate sensitivity is at least ~4°C for doubled CO2 (2xCO2), with likely range 3.5-5.5°C. Greenhouse gas (GHG) climate forcing is 4.1 W/m2 larger in 2021 than in 1750, equivalent to 2xCO2 forcing. Global warming in the pipeline is greater than prior estimates. Eventual global warming due to today's GHG forcing alone — after slow feedbacks

[6] https://gml.noaa.gov/aggi/
[7] https://www.youtube.com/watch?v=Mn3WQGS9wOI
[8] https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf
[9] https://arxiv.org/abs/2212.04474

> operate — is about 10°C. Human-made aerosols are a major climate forcing, mainly via their effect on clouds. We infer from paleoclimate data that aerosol cooling offset GHG warming for several millennia as civilization developed. A hinge-point in global warming occurred in 1970 as increased GHG warming outpaced aerosol cooling, leading to global warming of 0.18°C per decade. Aerosol cooling is larger than estimated in the current IPCC report, but it has declined since 2010 because of aerosol reductions in China and shipping. Without unprecedented global actions to reduce GHG growth, 2010 could be another hinge point, with global warming in following decades 50-100% greater than in the prior 40 years. The enormity of consequences of warming in the pipeline demands a new approach addressing legacy and future emissions.

This paper is not peer-reviewed, but Hansen has had decades of experience in this field of science.

On 9 May 2022, the World Meteorological Organization (WMO) stated:[10]

> There is a 93% likelihood of at least one year between 2022-2026 becoming the warmest on record and dislodging 2016 from the top ranking. The chance of the five-year average for 2022-2026 being higher than the last five years (2017-2021) is also 93%, according to the Global Annual to Decadal Climate Update, produced by the United Kingdom's Met Office, the WMO lead centre for such predictions.
>
> ...
>
> Dr Leon Hermanson, of the Met Office led the report. He said: "Our latest climate predictions show that continued global temperature rise will continue, with an even chance that one of the years between 2022 and 2026 will exceed 1.5 °C above pre-industrial levels. A single year of exceedance above 1.5 °C does not mean we have breached the iconic threshold of the Paris Agreement, but it does reveal that we are edging ever closer to a situation where 1.5 °C could be exceeded for an extended period."

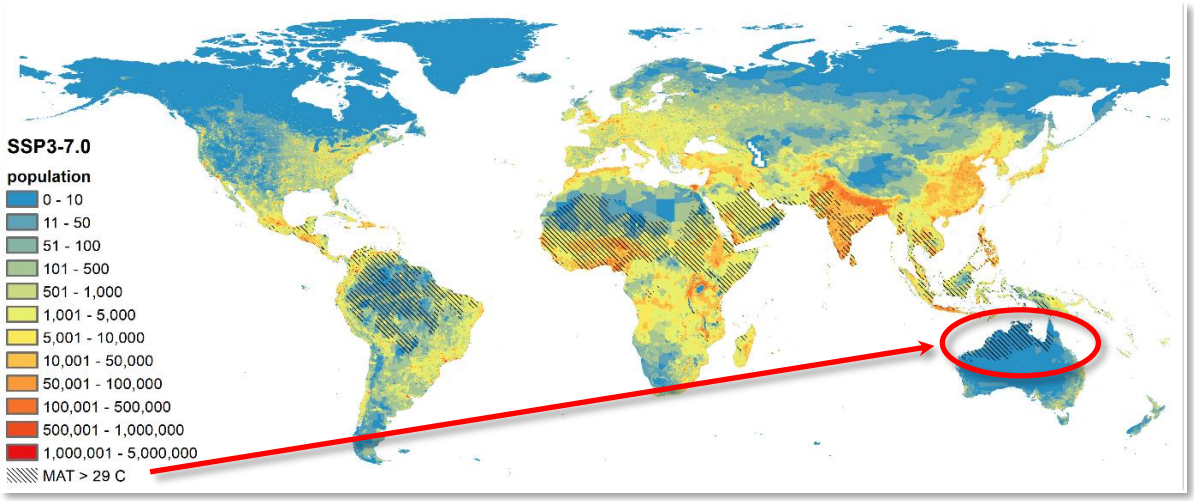
Published on 1 Aug 2022 in the journal *Proceedings of the National Academy of Sciences* (*PNAS*) was a perspective paper by Luke Kemp *et. al.* titled **Climate Endgame: Exploring catastrophic climate change scenarios**.[11] The authors give four reasons to be concerned about climate catastrophe:

i. **Warnings from history**, where climate change (either regional or global) has played a role in the collapse or transformation of past societies;
ii. **A threat multiplier for other catastrophic risks**, including global geopolitical conflict, pandemics, and other spillover events;
iii. **Economic damage, loss of land, and water and food insecurity that coalesce together** into system-wide synchronous failures; and
iv. **Create significant latent risks** that could irrevocably undermine humanity's ability to recover from another cataclysm, such as nuclear war.

[10] https://public.wmo.int/en/media/press-release/wmo-update-5050-chance-of-global-temperature-temporarily-reaching-15%C2%B0c-threshold
[11] https://doi.org/10.1073/pnas.2108146119

The *PNAS* paper included:

> Fig. 1 shows how projected population density intersects with extreme >29 °C mean annual temperature (MAT) (such temperatures are currently restricted to only 0.8% of Earth's land surface area). Using the medium-high scenario of emissions and population growth (SSP3-7.0 emissions, and SSP3 population growth), by 2070, around 2 billion people are expected to live in these extremely hot areas. Currently, only 30 million people live in hot places, primarily in the Sahara Desert and Gulf Coast (43).



On our current greenhouse gas emissions trajectory, the northern third of Australia could become unliveable in less than 50 years.

See also the pdf document dated 8 July 2022, derived from a PowerPoint presentation titled **The Climate and Energy Crisis**.