



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000

Department of Planning and Environment

18 September 2019

Re: Dendrobium Mine Extension Project

Beyond Zero Emissions (BZE) appreciates the opportunity to provide a submission to the proposed Dendrobium Mine Extension Project.

BZE opposes this project for several reasons including:

- Global emissions and the Paris Agreement
- The capacity and economic opportunities of renewable energy
- Emerging trends in energy supply and exports, including investment and finance
- Effects on local communities, water security, the environment and public health
- Opportunities to support regions with sustainable economic development including zero carbon steel

Global emissions and the Paris Agreement

Australia has committed under the Paris Agreement to limit global warming to below 2°C and to aim for no more than 1.5°C. For a high-probability chance of achieving these targets there is no remaining carbon budget.

This means the only safe option is rapid and urgent reduction in emissions to zero. The expansion of any coal mine or fossil fuel project is contrary to the action required.

With global average temperatures at approximately 1°C above pre-industrial levels today, Australia is already experiencing a range of devastating consequences. Over the past decade, these have included:

- record breaking heat waves with loss of life due to heat stress
- extended periods of drought over large areas of the country
- a longer fire season and more frequent extreme wildfire events
- record extreme storm events with extensive damage to assets
- the demise of large portions of the Great Barrier Reef due to repeated bleaching
- lower rainfall over Southern Australia reducing runoff to reservoirs.

NSW is particularly vulnerable to climate change:

- its largest three cities are near the sea and on Low Elevation Coastal Zones
- airports, seaports railways, houses and other infrastructure are exposed to storms, swells, and erosion, and



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000

- large areas of land are vulnerable to bushfires (which are becoming more severe over an extended period), particularly in times of drought, and affecting our productivity.

Bearing in mind the above, any new planning proposal needs to show consistency with limiting the global temperature rise to 1.5°C, in accordance with the Paris Agreement. The latest analysis indicates this requires urgent and immediate action.

Early action increases the chances of success and limits the future cost of climate change. The greater the early ambition, the greater will be the flexibility in later years to increase ambition, if circumstances demand. Given that all indications are that global ambition will need to increase, the sooner we start the better.

The capacity and economic opportunities of renewable energy

The world is moving from the fossil energy era to the renewable energy era and Australia has a unique advantage: unparalleled resources in solar and wind energy. The global movement to eliminate emission will give rise to many new technologies and economic opportunities. Beyond Zero Emissions' research, such as *Renewable Energy Superpower*, shows this country is in an excellent position to capitalise on these opportunities.

Beyond Zero Emissions' research shows there are existing and affordable technologies to eliminate emissions in all sectors. The biggest opportunity is to replace nearly all fossil fuel energy with renewable electricity.

For example the ACT is already powered by 100% renewable energy and Victoria has a renewable energy target of 40% by 2025. This should be supplemented with a target of 100% renewables by 2030, and a plan for the orderly closure of all remaining coal-fired power stations by that date.

Our natural advantages combined with high-quality infrastructure, a skilled workforce and access to cheap capital can be exploited to develop relatively low-cost energy intensive industries on the back of developed renewable energy infrastructure. However, taking full advantage requires NSW to show leadership by taking early action on emissions reduction.

Putting NSW at the forefront of this global transition puts the state in a prime position to create jobs, attract investment and secure a safe climate through its leadership and action.

NSW can lower climate, geopolitical and resource risks by transitioning to renewable energy

NSW is a geographically central state within the National Electricity Market. Regional NSW is the largest, most diverse regional economy in Australia, yet the economies of some local government areas in NSW are overwhelming dominated by coal mining and coal power generation.



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000

In a risky geopolitical world where we depend on global trade for oil and manufactured goods - and as extreme weather events increase - a great opportunity exists for NSW to lower these risks by:

- lowering its total energy demand through improved energy efficiencies and adopting best practices across sectors, but particularly for the vulnerable land use, transport and power sectors
- adopting a renewable energy economy and moving to a zero carbon economy by 2030 to help stabilise the global climate and extreme events, and
- capitalising on the abundance of NSW's renewable energy resources to grow its economy.

The benefit of adopting these strategies (which are set out in Beyond Zero emissions' Zero Carbon Australia research plans) include:

- reducing geopolitical risks
- ensuring NSW continues with its powerhouse economy, and
- securing NSW's sustainable future for energy, food, water (e.g. by using less water for energy supply) and transport.

This will bring down electricity and transport costs and provide sustainable energy to support the electricity grid within NSW and abroad in the NEM with high penetration renewables. This will sustain existing and future mineral processing and metal manufacturing in NSW as ageing coal infrastructure retires.

Driving economic growth in NSW with renewable energy

The renewable energy potential, existing infrastructure and established manufacturing sector forms a vital foundation for NSW to grow revenue and jobs in the zero carbon economy.

By way of example, in June 2019 Beyond Zero Emissions launched an economic development plan based on renewables plan (The 10 Gigawatt Vision, BZE 2019), for the Northern Territory. The plan showed that a 10 MW solar build out has the potential to boost annual revenue by \$2 Billion and grow 8,000 new jobs.

Within weeks, the Chief Minister embraced the opportunity, and SunCable publicly announced its project - 10GW solar farm near Tennant Creek, exporting renewable electricity to Singapore. On 22 July 2019 the NT Government gave the proposal major project status.

NSW also has the technical knowledge and capacity to produce ammonia on a globally competitive basis using renewable energy rather than natural gas, and could export Hydrogen from what currently is the largest coal exporting port in the world.

Australia has sufficient renewable energy to be a net renewable energy exporter as revealed in



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000

the research conducted for BZEs' *Renewable Energy Superpower plan* (2015). This is enough to power the whole world ten times over.

If NSW seizes the opportunity to become a renewable energy powerhouse, it can create many jobs in the future with opportunities for:

- those who are employed in sunset industries and
- those who will be added to the workforce due to population increase including immigration intakes.

As the world moves at a gathering pace towards clean energy technologies, those who invest early will develop the know-how, products and services to develop profitable export markets.

At the same time we need to largely electrify buildings, transport, and manufacturing. Electrification should be part of a strategy to make all sectors more energy efficient. For example, Beyond Zero Emissions *Buildings Plan* found that through retrofitting we can reduce the energy consumption of buildings by an average of 50%. This would lead to huge financial savings for NSW families and businesses.

Emerging trends in energy supply and exports, including investment and finance

While Australia recently has become one of the world's largest Liquid Natural Gas exporters, this is at enormous environmental cost, with a significant spike in methane emissions (Ambrose, 2019; Hanley, 2018), with subsequent climate change repercussions.

Indications are that Australian coal exports have peaked and "entered a long-term decline", with the export volumes from Newcastle having peaked in 2016. At least 75% of NSW Coal Export demand at clearly high risk of reduction by 2030 by destination countries embarking on decarbonisation (Buckley, 2018; Nicholas, S., & Buckley, T. 2019a; 2019b).

Institutional Investors are also signalling their intention to divert from carbon exposure, and invest in low carbon opportunities. A recent survey by the Investor Group on Climate Change found that:

"... investor appetite for climate aligned investment continues to grow and activity accelerate. Even as the political landscape in Australia remains challenging, and doing deals is not easy." (Accelerating Change: Capital Growth in Climate Solutions: IGCC 2019)

Financial regulators are also increasingly raising the issue of carbon, financial risk. Both APRA and ASIC have warned that "Climate risk is all-pervading."

Major global corporations are setting science-based targets to future-proof their business. Many companies are setting decarbonisation targets across their entire supply chain.

These major global reforms and trends are an opportunity for NSW. Conversely, delaying



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000

transition to a zero carbon economy will leave NSW exposed to significant economic and financial impacts.

Many institutions and regions are now recognising there is an urgent need to promptly eliminate fossil carbon from the global economy (see the Table in Part 2 attachment) for regions in Australia taking urgent actions on climate change). This zero carbon economy must simultaneously maintain and enhance the quality of life of citizens; domestic and foreign. The great bulk of NSW fossil carbon emissions are energy related.

The risks of developing new fossil fuel extraction facilities in Australia have been highlighted with recent cases including:

- The Rocky Hill mine
- a mine has only been given approval to export to countries who are party to the Paris climate agreement, or have a similar plan to bring down emissions (Ludlow, 2019).
- The Bylong Valley

Effects on regional communities, water security, the environment and public health

There are already seeing significant, disruptive and catastrophic impact on humans and the environment from increases in temperatures including bushfires, heat wave deaths, drought and extreme rainfall. Temperatures have risen in Australia by more than 1°C since 1910, and have rapidly risen since 1950 (CSIRO & BoM 2018),

The IPCC and other experts show that:

“Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate (high confidence)” (IPCC 2018: 8). This due to the existing CO₂-e in the stratosphere and the current rate of CO₂-e increase

Australia like other rich countries is not doing its fair share of the global greenhouse gas reductions, according to our cumulative emissions, our wealth and the timing of when we put our emissions into the atmosphere. We need to reach zero emissions well before 2050 and all rich countries need to reach zero emissions by 2030 to meet our Paris commitments.

We need to act now to protect NSW:

The bushfires of the summer of 2017 were so unlikely (5 standard deviations from the average in actuarial risk tables) that it was probably a climate change event (Actuaries Institute, 2019). Other unlikely events recorded by the Actuaries Institute which had catastrophic effects included:

- the April 2015 Dungog inundation where houses were washed away was 2m above the 1% Annual Exceedance Probability (1 in 100 year flood event) for the Myall Creek used



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000

as basis for flood planning

- The June 2007 Newcastle flooding including the “Pasha Bulka” beaching. Notably the peak level of flooding of King and Steel Street Newcastle on the 8th June 2007 is similar to future sea level rise by 2090 in the prevailing trajectory of 4.3°C temperature rise by 2100 (RCP 8.5 scenario).
- The accentuated recent drought, exacerbating cattle, wheat and other farmer income stress.
- The shortfall of rain into the Murray-Darling system, leading to the Menindee Lakes fish kills (climate change trends show a drop in rainfall in the South-East of Australia).

We need to avert the serious human health effects to prevent the 51% increase in serious health claims in the mining industry in the 12 years from 2001 to 2013 (Wundersitz, 2017).

In addition, coal-fired power stations (Allen, 2019; Winn et al, 2019; Ewald, 2018) are responsible for:

- Extraction of large amounts of water
- Fugitive methane emissions
- Carcinogenic fine particulates
- Toxins from burning coal e.g. sulphur and nitrous oxide emissions
- Changes to local water temperatures and purity
- Leaching of toxic ash waste-streams into our soils, water tables and lakes.

Coal generation and its associated mining and transport is responsible for many illnesses (Ewald 2018), including:

- Asthma attacks
- Heart disease & stroke
- Lung cancer
- Higher mortality rates including deaths in coal mines,
- Low birth-weight of babies, and
- New onset diabetes.

The proposal will also have adverse impacts on local water catchments, affecting both drinking water and environmental reserves.

Opportunities to support regions with sustainable economic development including zero carbon steel

Our BZE research show transforming all economic sectors to zero carbon provides significant employment opportunities through diversifying local economies in NSW that are currently exposed to the negative consequences of a downturn in coal mining and exports. There are also opportunities to continue the economic growth and prosperity of the NSW economy as the



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000

burning of fossil fuels is limited and its exports diminish are depleted.

The job losses resulting from closure of coal-based assets requires an independent transition process with collaboration between the NSW Government and power generation and mining companies to invest in:

- clean technologies
- mine rehabilitation
- retraining
- skill development for the workforce, and
- for compensation to the community and the workers.

Legislation and policies required include:

- a 2030 zero carbon target to urgently prevent global 2°C rise
- Development of local and regional transition plans
- Resource transition strategies for impacted communities

Our report, *Electrifying Industry*, shows the many benefits of switching from fossil fuels to electricity for industrial heat processes. NSW manufacturers and particularly steel manufacturing can take advantage of the plummeting costs of renewable electricity and become world leaders in modern zero carbon manufacturing.

Opportunities to develop a zero carbon steel manufacturing hub in the region are also ripe. The Beyond Zero Emissions *Electrifying Industry* report outlines ways that this can be achieved including:

- Stimulate growth in NSW exports of intellectual property, due to the zero carbon footprint of valuable ideas compared with material goods
- Stimulate growth in NSW low-carbon flexible manufacturing, capitalising on our unique renewable energy resources
- Rapidly reduce industrial emissions to zero, with a focus on electrifying industrial heat processes.
- Support low-carbon goods through NSW government procurement standards and targets.

Incentives for industry

Governments in Australia must join other countries like Japan and South Korea by developing a coordinated strategy with the explicit aim of decarbonising industry. NSW is particularly exposed to Japan and South Korea decarbonisation and so coordination, rather than reaction, is vital.



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000

Further Recommendations:

- Introduce a complete ban on all new or expanded fossil fuel projects.
- Establish an agency charged with:
 - planning the orderly closure of coal-fired power stations
 - planning the transition from fossil fuels to renewable energy in all sectors.
 - drive electrification and energy efficiency in buildings, transport and industry.
 - ensure all sectors of society can take part in and benefit from the renewable transition.

Beyond Zero Emissions' work has shown that Australia can eliminate all domestic emissions using existing technology. Few countries have such advantages in this transition in terms of wealth, skills and renewable energy resource. We should grasp emissions reduction as a great economic and political opportunity.

All reports mentioned in this submission are available at <https://bze.org.au/>

About Beyond Zero Emissions

Beyond Zero Emissions is volunteer-led climate solutions think tank. We show that a zero emissions Australia is achievable and affordable today.

Beyond Zero Emissions research shows in detail how we Australia can reach net zero emissions in 10 years using existing technology.

We are ranked as the world's 50th best independent think tank by the Lauder Institute Think Tanks and Civil Societies Program.

Yours Sincerely,

A handwritten signature in black ink, appearing to be "V. Petrie".

Vanessa Petrie

Chief Executive Officer

Beyond Zero Emissions



Suite 3.9
247 Flinders Lane
Melbourne VIC 3000