



Environmental
Defenders Office

**Submission to the Department of Planning, Industry
and Environment re. Preliminary Regional Issues
Assessment: Bancannia, Pondie Range, Neckarboo
and Yathong-Ivanhoe**

9 April 2021

About EDO

EDO is a community legal centre specialising in public interest environmental law. We help people who want to protect the environment through law. Our reputation is built on:

Successful environmental outcomes using the law. With over 30 years' experience in environmental law, EDO has a proven track record in achieving positive environmental outcomes for the community.

Broad environmental expertise. EDO is the acknowledged expert when it comes to the law and how it applies to the environment. We help the community to solve environmental issues by providing legal and scientific advice, community legal education and proposals for better laws.

Independent and accessible services. As a non-government and not-for-profit legal centre, our services are provided without fear or favour. Anyone can contact us to get free initial legal advice about an environmental problem, with many of our services targeted at rural and regional communities.

Environmental Defenders Office is a legal centre dedicated to protecting the environment.

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Submitted to:

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I. Introduction

- 1 Environmental Defenders Office Ltd (**EDO**) welcomes the opportunity to contribute to the NSW Department of Planning, Industry and Environment’s Preliminary Regional Issues Assessment (**PRIA**) in relation to Bancannia, Pondie Range, Neckarboo and Yathong-Ivanhoe (collectively, the **Potential Release Areas**).
- 2 We understand that the PRIA was initiated in relation to the Potential Release Areas because an initial assessment of resource potential conducted by the Geological Survey of NSW identified the Potential Release Areas as having moderate to high potential for gas resources. Pursuant to the Strategic Release Framework (**SRF**), the PRIA will be considered by the Advisory Body for Strategic Release (**Advisory Body**) in deciding whether to recommend to the Minister for Resources that the exploration be undertaken in the Potential Release Areas.
- 3 EDO recognises that the PRIA is an “issues identification process”, with purposes that relevantly include (see SRF, p 7):
- identifying the high level, environmental, economic and social considerations readily evident at the regional or sub-regional level
 - ...
 - examining potential risks associated with exploration and development at the point in time at which the PRIA is conducted (e.g. significant environmental concerns and land use conflicts; potential burdens on existing and future developments and infrastructure, level of community support for development); and
 - ...
- 4 This submission identifies and provides a high-level outline of one environmental issue/risk that is associated with development of gas resources – climate change impacts caused by greenhouse gas (**GHG**) emissions from gas projects.¹
- 5 In EDO’s submission, for reasons that are expanded on below, this environmental issue/risk is so significant that on the basis of it alone, the Advisory Body must recommend that no exploration be undertaken in the Potential Release Areas at this time. In light of the information contained in this submission, and the very clear, publicly available, scientific evidence linking catastrophic climate impacts with the development of new fossil fuel reserves, no decision-maker in the position of the Advisory Body could reasonably make such a recommendation.

II. Climate science concepts

- 6 This section briefly outlines climate science concepts that must inform the analysis of climate risks posed by development of gas resources in the Potential Release Areas. In outlining these concepts, EDO draws on a report authored by Dr Penny D Sackett titled “Expert

¹ This submission’s focus on climate change impacts should not be taken as suggesting that this is the **ONLY** environmental issue/risk presented by development of gas resources in the Potential Release Areas.

Report on the Greenhouse Gas and Climate Implications of the Narrabri Gas Project (SSD-6456)” and dated 9 August 2020 (**Narrabri Report**).²

(a) *GHG emissions, climate change and anthropogenic activity*

- 7 At [4] of the Narrabri Report, Dr Sackett gives a simple explanation of the relationship between GHG emissions and climate change, as follows:

Greenhouse gases (GHGs) trap some of the heat from the Sun that would otherwise escape from Earth’s upper atmosphere; this heat warms the lower atmosphere and the surface of the Earth.

This scientific fact is widely known by governments and the general public.

- 8 Dr Sackett goes on to explain the impact of anthropogenic activity on GHGs and climate change:

Anthropogenic climate change is change in the Earth’s climate caused by human activities that release additional greenhouse gases into the atmosphere or alter the natural land and ocean sinks for these gases.

Human activities are upsetting a long-standing balance, adding energy that **fuels current changes in the global climate** (Intergovernmental Panel on Climate Change, or IPCC, 2013). **The primary greenhouse gases** driving current anthropogenic (human-caused) climate change **are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).**

[emphasis in original]

The contribution of human activity to climate change is accepted science and is also widely known by governments, including the NSW Government, and the broader community.

(b) *Impacts of GHG emissions and climate change*

- 9 Anthropogenic GHG emissions are currently responsible for a 1.1°C increase in the global mean temperature since pre-industrial levels: Narrabri Report, [7].
- 10 The consequences of this temperature increase include: increased severity of storms and heat waves, species extinction, wild fires, coastal inundation caused by rising sea levels and increased storm surge and ocean acidification: Narrabri Report, [21]-[22]. Australia is currently experiencing the following climate change impacts (see Narrabri Report, [23] – [24]):
- increasingly warm day and night time temperatures;
 - decrease in cool season rainfall in the southwest and southeast of Australia, leading to reduction in stream flows;
 - marine heatwaves in the Tasman Sea, leading to coral bleaching in the Great Barrier Reef;

² Available at https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/03/narrabri-gas-project/correspondence/edo/sackett-narrabri-gas-project-ipc-advice-revised_final.pdf.

Plainly, this report was given in the context of the Narrabri Gas Project. But the general scientific concepts that inform Dr Sackett’s conclusions in relation to that project are of equal application to the PRIA.

- a long-term increase in extreme fire weather and fire season length across large parts of Australia; and
- an increase in acidity of surface water ocean acidity by more than 30% since the 1880s.

11 If GHG emissions continue unabated and warming continues, these impacts are predicted to worsen. Dr Sackett provides examples of the types of impacts likely to be experienced (Narrabri Report, [33] – [37]), including:

...ecosystems are at high to very high risk, there is a high risk of extreme global weather events, and a moderate risk of large-scale singular events that could lead to climatic tipping points...

...

Tipping points in the Earth System refer to thresholds that, if crossed, would lead to far reaching, and, in some cases, abrupt and/or irreversible changes. Examples range from the release of CH₄ [methane] from ocean methane hydrates, which is likely to take place slowly over millennia, to the total loss of Arctic sea ice in summer, which on current trends is likely to happen between 2040 and 2050.

Continued warming increases the risk that crossing tipping points will cause subsystems of the Earth to rapidly collapse, one initiating another, to create a cascade of transformations that result in what has been dubbed a “Hothouse Earth”. In this future, average temperatures will rise to match those not seen since the beginning of the Stone Age, millions of years ago, with devastating consequences.

[emphasis in original]

[citations omitted]

12 Plainly, these are severe and unacceptable risks, as any reasonable person in the position of the Advisory Body would conclude.

III. The Paris Agreement and the carbon budget

(a) The Paris Agreement

13 Australia is a signatory to the Paris Agreement, which entered into force on 4 November 2016. The Paris Agreement aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by, inter alia:

Holding the increase in the global average temperature to *well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels*, recognizing that this would significantly reduce the risks and impacts of climate change.

[emphasis added]

14 Individual signatory nations have made separate Nationally Determined Contributions (NDCs) to meet the Paris goals. At present, it is estimated that the current NDCs, if achieved, would result in global warming between 2.9°C and 3.4°C by 2100 relative to pre-industrial levels, and continuing thereafter. That is, current commitments are not sufficient to hold warming to well below 2°C, let alone 1.5°C.

(b) *The carbon budget approach*

- 15 According to Dr Sackett, the carbon budget approach, as adopted by the Intergovernmental Panel on Climate Change, is a conceptually simple and scientifically sound method to determine the cumulative amount of carbon that can be emitted into the atmosphere to meet a desired warming target, such as the Paris targets: Narrabri Report, [50]. The method is premised on an approximately linear relationship between the cumulative amount of carbon emitted from anthropogenic sources and increases in average global surface temperatures: Narrabri Report, [53].
- 16 The carbon budget approach indicates that in order to have greater than a 66% probability of limiting global average temperature rise to no more than 2°C, the total anthropogenic carbon budget from 1870 onwards is 1,000Gt of carbon: Narrabri Report, [57]. Much of this 2°C carbon budget has already been spent in the form of historical emissions. When climate feedbacks and emission of non-CO₂ GHGs (i.e. methane (CH₄), and nitrous oxide (N₂O)) are taken into account, as at August 2020, Dr Sackett estimated that there was between 45 and 290Gt of carbon left in the global 2°C carbon budget: Narrabri Report, Tables 1 & 2, [61]). In other words, approximately 70 – 95% of the global 2°C carbon budget has already been spent. Plainly, the carbon budget to hold warming to 1.5°C is less than the 2°C carbon budget.
- 17 Based on current emissions trajectories and without immediate, dramatic action to reduce GHG emissions, the remaining global 2°C carbon budget may be consumed in 4 – 25 years: and the global 1.5°C carbon budget may be expended in about 3 years: Narrabri Report, [61], [68]. However, with the exception of a small decline in 2020,³ GHG emissions are in general rising, which means that there may be even less time before the global 2°C (and 1.5°C) carbon budget is spent.

III. Development of gas resources in the Potential Release Areas is inconsistent with stabilising the climate and Australia's obligations under the Paris Agreement

- 18 The sections above demonstrate that:
- emission of CO₂ and other GHGs into the atmosphere cause the global average temperature to rise;
 - as a result of anthropogenic GHG emissions, the global average temperature is currently about 1.1°C above pre-industrial levels;
 - warming of 2°C above pre-industrial levels is likely to have severe and clearly unacceptable impacts;
 - to hold warming to 1.5°C, there is a fixed carbon budget – that being the amount of carbon that can be released into the atmosphere to achieve that temperature goal;
 - the global 1.5°C carbon budget has almost been spent;

³ Tollefson, J. (2021) COVID curbed 2020 carbon emissions – but not by much *Nature* 589: 343.

- Australia, as a signatory to the Paris Agreement, has committed to pursuing efforts to limit the temperature increase to 1.5°C, and to holding the increase in average global temperatures to well below 2°C; and
- even if Australia and other signatories to the Paris Agreement were to keep to current NDCs under the Paris Agreement (and Australia is not on track to do so), global temperature rises would exceed 2°C above pre-industrial levels.

19 It also follows that if the global 1.5°C carbon budget is expended in approximately 3 years, given the necessary timeframes for exploring and gaining any approval for gas exploitation, any gas resources developed from the Potential Release Areas will occur after the 1.5°C carbon budget has been expended. Subsequent exploitation of those resources would escalate already severe and unacceptable climate change impacts for the environment and people of NSW, Australia and the globe, and would be contrary to the stated goals of the Paris Agreement. Any proposal to permit exploration within the Potential Release Areas should be rejected on that basis alone.

20 The Advisory Body cannot reasonably rely on the Paris Agreement or the actions of national governments alone to contain and reduce emissions to safe levels. That responsibility now sits squarely with all individuals and decision-making bodies that make decisions facilitative of GHG emitting activities. In EDO's submission, a recommendation by the Advisory Body that exploration be permitted in the Potential Release Areas would constitute such a decision, and cannot reasonably be made. The exploration and eventual exploitation of new gas resources in the Potential Release Areas at this point in time is entirely inconsistent with the urgent need for rapid and drastic emission reductions.

21 Gas is sometimes touted as a "transition fuel" that will facilitate transition to a low-emissions or carbon neutral economy and assist Australia and the world in restricting warming to within Paris Agreement limits. EDO rejects that premise entirely. In relation to this point, at [96] of the Narrabri Report, Dr Sackett observes:

Underscoring this point is the SEI report (SEI et al., 2019) that analyses the gap between different nations' expectations for the production of fossil fuels and the Paris warming targets that the same nations support. **The analysis shows that governments are planning to produce about 50% more fossil fuels by 2030 than would be consistent with a 2°C pathway and 120% more than would be consistent with a 1.5°C pathway. This means that plans *already on the table* must be shelved to hold warming to Paris limits.**

[emphasis in original]

22 Aside from emissions caused by the burning of gas, the production of gas poses an additional climate risk – the emission of fugitive methane (leakage) during production/ extraction, transmission and consumption. Methane is a more potent GHG than CO₂ – over a 20-year period, methane is 84 times more effective than CO₂ in trapping heat, and 28 times more effective over 100 years" Narrabri Report, [20]. These emissions will occur in NSW regardless of where the gas is ultimately burned.

23 In July 2020, the Global Energy Monitor published a paper titled "Gas Bubble 2020: Tracking Global LNG Infrastructure" (**GBE Gas Report**).⁴ In that paper, the authors observed that

⁴ The full report is available at https://globalenergymonitor.org/wp-content/uploads/2020/07/GasBubble_2020_r3.pdf

leakage rates of the US fossil gas system were estimated to be 2.3%: GBE Gas Report, p 8. The authors went on to state at p 8:

At that rate, emissions from methane leakage are about the same as the emissions from burning the natural gas in power plants or for heat, when evaluated over a 20-year period— thus doubling the warming from simply burning the gas...

Given the leakage rates in the US fossil gas system, using fossil gas for electricity can at best achieve only minor reductions in warming compared with using coal, while locking in long-term fossil infrastructure that will slow the transition to combinations of renewables and battery storage... Overall, due to the consequences of further locking in fossil combustion rather than transitioning to renewable power, *switching from coal to gas does not appear to offer a useful strategy to achieve rapid cuts in greenhouse gas emissions to achieve carbon neutrality.*

[emphasis added]

- 24 Exploiting any new gas resources will further jeopardise Australia's already inadequate efforts to keep to the temperature targets set down by the Paris Agreement and to reduce its emissions in accordance with a 1.5°C (or well-below 2°C) carbon budget. Exploitation of new gas resources will also negatively impact the NSW Government's commitment to an aspirational objective of achieving net-zero emissions by 2050, a commitment which is intended to be consistent with the Paris Agreement.⁵
- 25 In light of the severe and catastrophic environmental, social and economic consequences that will arise from activity that contributes to continued warming, the climate change impacts that would be caused by GHG emissions from exploitation of gas resources in the Potential Release Areas must be accorded paramount consideration by the Advisory Body. On the basis of that environmental issue/risk alone (and in the expectation that there are many others), the Advisory Body must not recommend that exploration be undertaken in the Potential Release Areas. To do so would be irrational and unreasonable.
- 26 If you would like to discuss this submission further, please contact Brendan Dobbie or Jasper Lambe on (02) 9262 6989 or at brendan.dobbie@edo.org.au or jasper.lambe@edo.org.au.

Yours sincerely

Environmental Defenders Office Ltd

⁵ NSW Government Fact Sheet *Achieving net-zero emissions by 2050*, available at: <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/achieving-net-zero-emissions-by-2050-fact-sheet-160604.pdf>