

LOCK THE GATE ALLIANCE

AUSTRALIANS WORKING TOGETHER TO PROTECT OUR LAND, WATER, AND FUTURE

Sam Moorhead
on behalf of Lock the Gate Alliance

Senate Environment and Communications Legislation Committee
Australian Parliament

31 August 2022

ADDITIONAL SUBMISSION - Inquiry into Oil and Gas Production in the Beetaloo Basin

Lock the Gate Alliance is grateful for the opportunity to provide a further submission to the Senate Committee to support its Inquiry into oil and gas production in the Beetaloo Basin.

The Lock the Gate Alliance is a national collection of grassroots organisations made up of over 120,000 supporters and hundreds of local groups concerned about risky coal mining, coal seam gas and fracking. These groups and supporters include farmers, traditional custodians, conservationists and urban residents, located in rural, remote and urban areas in the NT and around Australia. The Lock the Gate Alliance has a vision of healthy, empowered communities that have fair, democratic processes available to them to care for their land and water, and to deliver sustainable solutions to food and energy needs.

We have already provided a submission to the Committee. That submission discussed our concerns regarding the nature and integrity of the Industry Research and Development (Beetaloo Cooperative Drilling Program Instrument 2021), and gaps in the implementation of certain recommendations made by the 'Pepper Inquiry' into fracking in the NT.

Since the Committee's first submission period, further information relevant to the Committee's terms of reference has come to light. This includes the 'Energy and Emissions Reduction' agreement between the former Federal and NT governments, which uncritically supports gas over renewables and fails to propose any tangible measures for reducing emissions, and the package of gas industry-specific infrastructure under consideration by Infrastructure Australia.

We have used this second submission opportunity to draw the Committee's attention to the overall scale of government support announced for onshore gas in the Beetaloo, but also to the fact that this endeavour will expose Australians to significant risk. Australians, given its environmental impacts, exposure to broader gas market volatility, and the growing stranding risk associated with fossil fuel infrastructure. Any potential pathway to market for Beetaloo gas raises serious technical, health and environmental challenges, while the social licence for gas has been seriously undermined by the gas cartel's rampant profiteering in recent months.

We also raise serious issues with the NT Government's approach to water management and critical baseline data collection, and note that while the Federal Labor Party recently made the hugely positive commitment to extend the 'water trigger' to shale gas, there is no information as to how and when this very welcome step will be taken.

Finally, we discuss the climate impacts of creating a new gas field, and the apparent attempt by the NT Government to renege on its promise to avoid an emissions increase from the Beetaloo in favour of a 'net zero' target which obscures the need for urgent emissions reduction.

In light of the new information and circumstances since the Committee's previous public hearings, the possibility of new Committee membership, and the ongoing community concern about the Middle Arm precinct and fracking in the Beetaloo, we would like to request that the Committee hold another round of hearings in the NT.

Summary of submission

Implementing commitments to extend the EPBC Act ‘water trigger’

- The Federal Labor Party committed to extending the ‘water trigger’ under the EPBC Act to shale gas prior to the election in May. This is a very positive reform that was recommended by the Pepper Inquiry and would see fracking proposals independently assessed by the IESC, but the Government has not yet implemented this promise.
- ***We submit that the Committee should seek information from the new Federal Government as to when and how this commitment will be implemented.***

Public money to create a market and infrastructure for Beetaloo gas

- The NT Government has referred a package of ‘*Enabling infrastructure for developing gas in the Beetaloo Basin*’ to Infrastructure Australia for potential taxpayer funding. This proposal includes gas industry-specific facilities, such as a waste treatment plant and compression stations, and has been included on the Infrastructure Priority List.
- ***We submit that the Committee should seek an explanation from Infrastructure Australia as to how it will assess this proposal for taxpayers to effectively fund standard costs of doing business for gas companies, and how the 2030 emissions reduction targets will be taken into account in this assessment.***
- In excess of \$2.6 billion has been announced for the heavy industrial precinct at Middle Arm, including \$300 million for CCS and fossil fuel-based hydrogen production, in the absence of any business case, environmental assessment or human health analysis. There is uncertainty as to which subsidy announcements have progressed into payments or contracts, and which have not progressed.
- ***We submit that the Committee should request information on the status of all funding announcements made by the former Federal Government in relation to subsidising Beetaloo Gas and the Middle Arm precinct, and on the status of any relevant business case.***
- In addition to specific grants, numerous other tax, loan and funding mechanisms are used to funnel public money into the fossil fuel industry, including NAIF and Export Finance Australia.

The ‘Commonwealth-NT Bilateral Energy and Emissions Reduction Agreement’

- The Agreement was signed by the former Prime Minister and NT Chief Minister in April 2022, and only released publicly in August.
- Both governments committed to the construction of 24 exploration wells by the end of 2023, and for production to commence in 2023 - arbitrary targets that undermine proper regulatory processes and critical baseline environmental data collection.
- The Agreement uncritically supports gas at the cost of sustainable and secure energy supply - \$2.6 billion for gas infrastructure plus the possibility of further payments to gas companies, compared to \$30 million for renewables and storage.
- The Agreement contains no tangible proposals for actual emissions reductions.
- ***We submit that the Committee should request information on the status of the Agreement, given it was signed prior to the Federal election and does not appear to reflect the stated priorities of the new Federal Government.***

Improbable return on investment for taxpayers

- Gas produced in the Beetaloo will be uncompetitively expensive due to the area’s remoteness and the inherent costs of producing shale gas, while all three potential pathways to market face serious technical, economic and environmental hurdles.
- Pipelines required to transport Beetaloo gas to domestic markets will struggle to stack up economically in the face of stranded asset risk and declining demand.

- LNG exports merely provide huge profits to gas companies to the cost of Australian communities and businesses - and would also require massive pipeline development.
- The Middle Arm petrochemicals precinct faces challenges including dredging through a quartz reef, site inundation due to rising sea levels, and health risks from pollution.
- Further, the new Federal Labor Government was elected on a platform of reinvigorating Australian manufacturing based on cheap, renewable energy but the entire Middle Arm Precinct is designed around manufacturing reliant on expensive, polluting gas.
- ***We submit that the Committee should interrogate the economic case for any further government support (financial or regulatory) for onshore gas in the NT.***

Precautionary water management compromised by support for the gas industry

- An NT Government decision regarding critical baseline environmental research has been referred to ICAC over integrity concerns.
- Water Allocation Plans recommended by the Pepper Inquiry are being rushed through without normal community input to meet the arbitrary 2023 gas production target.
- The Water Controller is granting extraction licences to onshore gas companies on the basis of rules allowing the unsustainable 'mining' of aquifers.
- Federal intervention via the extension of the water trigger to unconventional gas and CCS is necessary to protect critical water resources in the NT.
- ***We submit that the Committee should seek information from the new Federal Government and Environment Minister as to how and when the promise to extend the EPBC Act 'water trigger' to shale gas will be implemented.***

Significant climate impacts that cannot feasibly be avoided

- Shale gas production in the Beetaloo would create 22 - 26.5 million tonnes of direct greenhouse gas pollution every year - increasing our national emissions by 4.5%.
- There is no feasible way to effectively avoid or offset the emissions impact of a new onshore gas industry in the NT within the time required to avoid dangerous warming.
- The NT Government is attempting to obscure its promise to avoid an emissions increase behind a 'net zero' target which merely puts off the problem for later.
- A new gas industry will make climate change worse, with direct impacts on the habitability of the NT, for people, plants and wildlife alike.
- ***We submit that the Committee should consider the contribution opening up the Beetaloo would make to the global warming that is already damaging ecosystems and communities around the world, and threatens to make the NT uninhabitable within a matter of decades.***

Further public hearings in light of new information and the unfolding climate crisis

- Since the Committee's first round of public hearings, knowledge and circumstances surrounding the Beetaloo onshore gas project have changed, there is a new Federal Government elected on a platform of renewable energy and reducing greenhouse gas emissions, and the immediacy of the climate crisis has reached new heights.
- ***We submit that, in these circumstances, the Committee should hold another public hearing in Darwin to allow the community - many of whom will soon be directly affected by water and climate issues raised by Beetaloo fracking - to provide updated information to the Committee.***

1. Public money for ‘enabling infrastructure’ for the Beetaloo

Key points

- Public money for an onshore gas industry in the Beetaloo is not limited to the direct grants under the Cooperative Drilling Program.
- The **NT Government has referred a package of gas industry-specific facilities to Infrastructure Australia for potential taxpayer funding**, listed as ‘Enabling infrastructure for gas drilling in the Beetaloo Basin’ in the Infrastructure Priority List.
- In excess of **\$2.6 billion has also been announced for the heavy industrial precinct at Middle Arm to create a market for Beetaloo gas** (gas-dependent manufacturing & LNG exports), including \$300 million for CCS and fossil fuel-based hydrogen production.
- The **Middle Arm development has not yet been the subject of any business case, environmental impact assessment or human health analysis**, making any funding commitments for infrastructure dangerously premature.
- Numerous other tax, loan and funding mechanisms are used to funnel public money into the fossil fuel industry, including NAIF and Export Finance Australia.

The use of public money to fund gas industry activities in the Beetaloo is not limited to direct grants, such as those given out under the Cooperative Drilling Program. Substantial funding to facilitate a new gas industry through infrastructure and market-creation has been announced or is under consideration. The status of some of these announcements under a new Federal Government with new federal emissions reduction targets instead of a ‘gas-fired recovery’ agenda is unclear, but none have been formally retracted.

As discussed further in section 3 of this submission, there are many, many issues associated with any pathway to market for gas produced in the Beetaloo, including the considerable expense inherent to the gas itself. These issues create the significant risk that the public would never see a decent return on investment for these funds. Instead, this money would be wasted on stranded, gas-dependent assets that irrationally sought to prop up a new gas industry at a time when the need to transition away from fossil fuels is clearer than ever.

1.1 Infrastructure Australia - “Enabling infrastructure for developing gas in the Beetaloo Basin”

On 29 June 2022, the NT Government announced its ‘Infrastructure Strategy 2022 to 2030’ alongside a detailed ‘Infrastructure Plan and Pipeline’ (‘Plan’).¹ One of the ‘key infrastructure investments’ identified in the Plan was ‘investing in common user infrastructure in preparation for the Beetaloo Sub-basin development’.²

The Plan indicates that road upgrades, including to the Carpentaria Highway, have already been funded (at a cost to the Australian and NT Governments of \$367 million), so this investment ‘will be for the remaining infrastructure required’.³

¹ Eva Lawler, Minister for Territory Development, ‘[Northern Territory Infrastructure Strategy 2022 – 2030 and Infrastructure Plan and Pipeline 2022 Released](#)’ (29 June 2022).

² NT Department of Infrastructure, Planning and Logistics, [NT Infrastructure Plan and Pipeline 2022](#), 7.

³ NT Department of Infrastructure, Planning and Logistics, [NT Infrastructure Plan and Pipeline 2022](#), 8.

The Plan states:⁴

Developing the Beetaloo will require public and private investment in new infrastructure to get gas to market. This will include pipelines and additional compression facilities to increase existing pipeline capacity, waste and waste-water treatment facilities, upgrades to roads and an aerodrome.

This infrastructure is standard equipment required to produce gas. No explanation has been provided for why such industry-specific infrastructure should be publicly funded, or any detail provided about the expected return to the NT or Australian public.

As far as we can tell, this is the first indication of an intention to provide public funding for gas industry-specific infrastructure in the Beetaloo.

This package of ‘enabling infrastructure’ has been referred to Infrastructure Australia for consideration, and is listed on IA’s ‘Infrastructure Priority List’. It appears the NT Government is currently at the ‘options analysis’ stage of the investment.⁵

1.2 Funding for Middle Arm LNG export and petrochemicals hub

Expanding Darwin’s LNG hub and establishing ‘gas-based processing and manufacturing’ at Middle Arm in Darwin Harbour are two elements of the NT Government’s five-point strategy to transform the Territory into a ‘world-class gas production, manufacturing and services hub’, supplied by Beetaloo gas.⁶

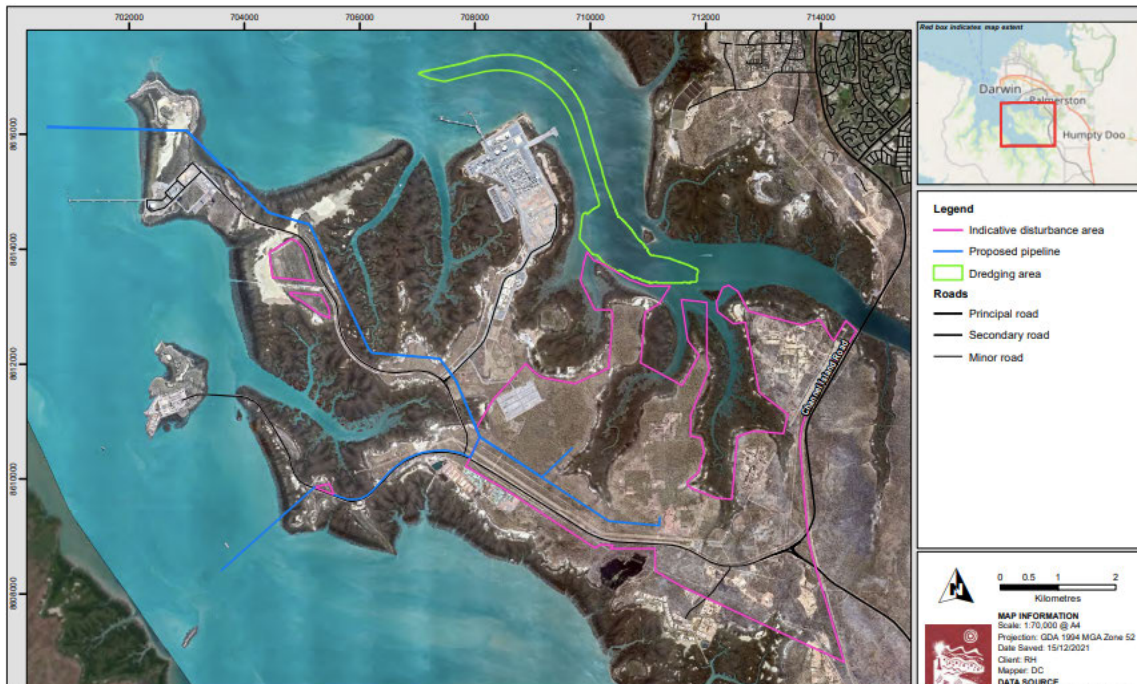
The proposed LNG, petrochemicals and manufacturing ‘precinct’ at Middle Arm is at an early stage of planning, with marine and land-based infrastructure at the feasibility assessment stage.⁷ The project would involve constructing heavy industrial facilities on a low-lying coastal peninsula, and dredging through quartz reef to create a new, deep shipping channel through a narrow, shallow, mangrove-edged creek (see image below).

⁴ NT Department of Infrastructure, Planning and Logistics, [NT Infrastructure Plan and Pipeline 2022](#), 103.

⁵ Infrastructure Australia, [‘Enabling infrastructure for developing gas in the Beetaloo Sub-basin’](#). It should be noted that if the climate change bills currently before Parliament pass, IA’s functions will be updated to include the phrase ‘taking into account’ Australia’s emission reduction targets, but there will be no hard requirement to consider or make decisions in line with the targets: see Climate Change (Consequential Amendments) Bill 2022 (third reading), sections 42-44.

⁶ NT Government, [‘Northern Territory gas strategy: five point plan’](#); NT Government, [‘Our Territory Gas Strategy - Beetaloo Sub-basin’](#).

⁷ NT Government, [‘Middle Arm Sustainable Development Precinct Referral Report’](#) (January 2022), 7.



No business case has been completed for the precinct,⁸ while preliminary environmental assessments have raised serious environmental and human health risks (see s. 1.2.3 below).

Despite the lack of a business case for the project, and the possibility of the precinct posing an unacceptable risk to human and environmental health, the previous Federal Government announced \$2.6 billion in the 2022-23 federal budget for 'transformative infrastructure across the Northern Territory'.⁹ This included \$1.5 billion for a new wharf and offloading facility, as well as the dredging to create a shipping channel to the precinct site, and \$300 million for 'clean' hydrogen production in Darwin ("clean" hydrogen as used by the previous Federal Government refers to hydrogen produced using natural gas in combination with CCS).¹⁰

The new Resources Minister appears to share the previous Government's report for the Middle Arm development,¹¹ even though her Government was elected on a platform of reinvigorating manufacturing in Australia based on cheap renewable energy.

There is also an uncoded package of publicly funded 'common user infrastructure' currently listed for assessment by Infrastructure Australia.¹² This package potentially includes expanding marine facilities and upgrading access roads, storm water and logistics.

None of these packets of money support the development of a business case or the studies necessary for environmental and planning approval - these critical steps to sound public decision-making were implicitly skipped by the Federal and NT Governments. The subsidisation of Middle Arm infrastructure is highly caught up in the previous Federal Government's uncritical

⁸ According to the NT Department of Infrastructure, Planning and Logistics and the Land Development Corporation, DIPL has responsibility for developing the 'draft Middle Arm Sustainable Precinct master plan', including a business case. No such business case is available on either of the NT Government websites for the precinct, or anywhere else as far as we could find: see, e.g., Land Development Corporation, '[Middle Arm Sustainable Development Precinct](#)'; NT Government, '[Middle Arm Sustainable Development Precinct](#)'.

⁹ *Commonwealth-Northern Territory Bilateral Energy and Emissions Reduction Agreement*, 8.

¹⁰ The Hon. Barnaby Joyce, '[2022-23 Budget delivers \\$7.1 billion to turbocharge our regions](#)' (29 March 2022) Media Release.

¹¹ Madeleine King MP, '[Speech to NT Resources Week Conference](#)' (24 August 2022).

¹² Infrastructure Australia, '[Common user infrastructure at the Middle Arm Precinct](#)'.

enthusiasm for natural gas, with these massive sums of money essentially designed to create a market for gas produced in the Beetaloo. We submit that the Committee should interrogate the appropriateness of the Middle Arm public funding commitments as part of its Inquiry.

1.3 Other mechanisms and policies enabling public subsidisation of the gas industry

There are numerous mechanisms that are utilised to provide taxpayer funds to facilitate fossil fuels via Australian institutions, authorities and taxation arrangements. These include, but are not limited to:

1. The provision of loans (including concessional loans) or equity via the Northern Australia Infrastructure Facility, such as the loan announced last year of \$175M for development of the Olive Downs Coal mine in Central Queensland.
2. The Fuel Tax Credit Scheme for fossil fuel companies which enables companies to obtain a rebate on diesel used in mining. MarketForces estimates that the Fossil Fuel Tax Credit amounts to \$1.1B per year, which over the last decade is about \$11 billion.¹³
3. The provision of funds by Export Finance Australia which provides finance for Australian exporters and overseas infrastructure development. Research by Jubilee Australia indicates that up to \$1.69 billion from EFA went to coal, oil or gas from 2009 to 2020.¹⁴
4. Ad hoc funding announced from time to time - the former Federal Government announced up to \$2.5 billion in subsidies to the gas industry from September 2020 to May 2022. **Appendix A** contains a list of all gas-related subsidies announced by the former Government over that period. The status of many of these subsidies is unclear.

In addition to the mechanisms outlined above, there are also a number of policies that promote and facilitate Federal Government support for fossil fuels, including the National Gas Infrastructure Plan and the associated Future Gas Infrastructure Investment Framework. The status of the Plan and Framework under the new Federal Government is unclear, but they have not formally been retracted.

There are numerous systemic, entrenched mechanisms and procedures in Australia which routinely transfer vast public wealth to fossil fuel companies. These mechanisms should form part of the Committee's scrutiny of government support for gas companies in the Beetaloo.

2. Energy and Emissions Reduction Agreement

Key points

- The Agreement reaffirms **\$2.6 billion of taxpayer money for gas-related infrastructure centred on the Middle Arm industrial precinct**
- In contrast, **only \$30m is promised for renewable energy and storage**
- The Agreement flags **payments to onshore gas companies**
- There are **no tangible proposals for actual emissions reductions** that do not rely on as-yet nascent technologies

¹³ Market Forces, '[How your tax dollars subsidise fossil fuels](#)'.

¹⁴ Lisa Cox, '[Australia's export credit agency gave 80 times more to fossil fuel projects than renewables](#)' (6 July 2021) *The Guardian*.

We also wish to draw the Committee's attention to the bi-lateral 'Energy and Emissions Reduction Agreement' signed by the former Prime Minister and Chief Minister of the Northern Territory in April 2022, and made public in mid-August.

The Agreement is supposed to last for 10 years, and cover both governments' actions with respect to reducing greenhouse gas emissions and ensuring energy security in the NT. Since the Agreement was signed, a new Prime Minister and a new Chief Minister have been appointed. Much like the subsidies covered in section 1 of this submission, the status of this Agreement is not necessarily certain, and we submit that its uncritical support for gas and lack of any tangible proposal to reduce emissions mean that it is not compatible with either the platform upon which the new Federal Government was elected nor with tackling climate change, and should be abandoned. A copy of the Agreement is included as **Appendix B**.

2.1 Ideological support for developing onshore gas at the cost of other energy sources

According to the Agreement, the NT and Federal Governments are 'committed to the development of onshore and offshore gas resources'¹⁵ and ensuring that 'additional commercial gas production occurs as soon as possible'.¹⁶ This is reflected throughout the Agreement, the terms of which support gas at the expense of renewable energy and any actual reduction in emissions.

Additionally, the Agreement sets a target of first gas production in 2023, with the NT Government committing to implement all Pepper Inquiry recommendations by the end of 2022 'in line with public commitments to enable consideration of production approvals'.¹⁷

As discussed further in section 4 of this submission, the stated timeframes for gas production and completing the Pepper Inquiry recommendations are reflected in the rushed and patchy approach the NT Government has taken to fulfilling its promise to implement the Inquiry recommendations. The NT Government has "put the cart before the horse": setting a target for commercial production - possibly under pressure from the "gas-fired recovery"-obsessed former Federal Government - and then attempting to squeeze what should be a rigorous and comprehensive risk assessment and reform project into the remaining 8 months before that target. This is hardly responsible and balanced decision-making.

2.1.1 Funding allocations to gas vs to renewables

The Agreement confirms the allocation of \$2.6 billion from the Commonwealth budget to the NT, again mentioning the \$300 million to 'reduce emissions from LNG production' and 'support clean hydrogen production in Darwin', with 'associated carbon capture, use and storage infrastructure'.¹⁸

In comparison, the amount of Commonwealth funding allocated to renewable energy projects under the Agreement is limited to \$15 million for a big battery project in Darwin¹⁹ and up to \$15 million for microgrid projects in remote Aboriginal communities.²⁰

2.1.2 Infrastructure

The Agreement again indicates that the Federal and NT Governments expect to provide public money for infrastructure needed to develop the Basin - for example, the agreement to establish a

¹⁵ Bilateral Agreement, Sch C, section 1.6.

¹⁶ Bilateral Agreement Sch C, section 7.

¹⁷ Bilateral Agreement, Sch C, section 2.8.

¹⁸ Bilateral Agreement, Sch B, section 2.2.

¹⁹ Bilateral Agreement, Sch E, section 2.11.

²⁰ Bilateral Agreement, Sch E, section 2.16.

‘Beetaloo Forum’ to ‘identify approaches to deliver common user pipeline and mid-stream infrastructure solutions’.²¹

2.1.3 Other forms of ‘support’

The Agreement also states that the ‘Parties commit to support the drilling of 24 gas exploration wells across the Territory’ by the end of 2023. The nature of this ‘support’ is not clarified.²²

The NT and Federal Governments also committed to conduct an ‘interim review’ to ‘identify any barriers to bringing on new gas supply, including the Territory and Commonwealth regulatory processes’.²³ The description of regulatory frameworks designed to ensure safe and value-for-money development and environmental protection as ‘barriers’ is highly concerning.

Finally, the Commonwealth flags the potential of further funding for the gas industry through ‘non-regulatory, incentive-based approaches to reduce fugitive emissions from onshore gas activities’.²⁴

2.2 No tangible proposals to reduce emissions in the short- or medium-term

The Agreement does not contain any tangible proposals to reduce emissions. Schedule D ‘Emissions reduction’ instead refers to ‘net zero’ targets, and commits the Parties to ‘support’ and ‘work on’ various technologies vaguely associated with decarbonising energy.

2.2.1 Support for speculative technologies that merely lock-in natural gas

The ‘hydrogen’ referred to in the Agreement is presumably blue hydrogen, where natural gas is used to produce hydrogen, and the resulting CO₂ is sequestered underground. This speculative process is both inefficient and emissions-intensive, with researchers in the US finding that blue hydrogen produces 20% more carbon emissions when used in the heat generation context than merely using natural gas, partly because of the additional electricity required to run the CCS component.²⁵

Meanwhile, CCS is a speculative technology that has not successfully been used for the reduction and storage of carbon dioxide emissions at any scale relevant to the level of emissions reduction necessary to keep global warming within safe limits by 2030. The ‘capture’ component of the CCS process requires huge volumes of water,²⁶ which raises additional questions - apparently never considered by either the Federal or NT Government - about its viability at-scale in the Territory. CCS is highly unlikely to deliver meaningful emissions avoidance within the 10-year term of the Agreement (or ever).

Committing to support these technologies is merely a commitment to natural gas - at best, attempting to undo some of the emissions impact of developing a new gas field, emissions which could and should be completely avoided by simply not pursuing gas in the Beetaloo.

2.2.2 Vague provisions about actual emissions reduction mechanisms

The provisions relating to other emissions-reduction mechanisms - electric vehicles, land-based abatement and energy efficiency - are vague and unlikely to result in any tangible emissions reductions.

²¹ Bilateral Agreement, Sch C, section 7.d.

²² Bilateral Agreement, Sch C, section 2.2.

²³ Bilateral Agreement, Sch C, section 2.6.b.

²⁴ Bilateral Agreement, Sch D, section 2.21.d.

²⁵ Robert Howarth and Mark Jacobson, ‘[How green is blue hydrogen?](#)’ (2021) 9(10) *Energy Science & Engineering*.

²⁶ Lorenzo Rosa et al, ‘[Hydrological limits to carbon capture and storage](#)’ (2020) 3 *Nature Sustainability* 658.

The Agreement states that the Commonwealth will allocate \$100 million to 'emissions reduction and energy projects' in the NT: \$75m from existing programs and funds to 'activities that reduce emissions in accordance with Schedule D ('emissions reduction') and E ('generation, networks and storage')', and \$25m from the CEFC or ARENA to projects that reduce emissions and align with the priorities of both governments.

However, it is not clear where or how any of this \$100m will be spent, and the mechanisms mentioned in the Agreement with the greatest capacity to actually deliver emissions reductions (energy efficiency, electric vehicles) receive a fraction of the attention and detail that is given to hydrogen, CCS and offsets.

The parties will 'make funding available' for the uptake of electric vehicles, but there are no details as to how or when.²⁷

The parties will 'identify opportunities' in the land-based abatement sector, with the NT Government promising to establish a Program to 'support' primary producers and land managers to research and commercialise 'land management practices to improve productivity and reduce emissions'.²⁸ The Commonwealth's contribution is limited to sharing data it apparently already has.²⁹

The section on energy efficiency - a critical component of reducing demand-side causes of electricity-related emissions - is two paragraphs long and does not commit the parties to any actual actions.³⁰ The Commonwealth's contribution is merely to 'collaborate to identify' Territory-appropriate measures, while the NT will 'augment and expand its commitments to energy efficiency'. Again, there are no details about timeframes or specific actions to be taken.

3. Improbable return on investment for the Australian public

Key points

- **Gas produced in the Beetaloo will be uncompetitively expensive** due to the area's remoteness and the inherent costs of producing shale gas
- **All three potential pathways to market face serious technical, economic and environmental hurdles**, as well as requiring massive investment in pipelines unlikely to be met by private sector finance and thus increasing taxpayer costs
- Connecting Beetaloo gas to **domestic markets would require enormous new high-pressure pipelines** stretching across the country which will struggle to stack up economically in the face of stranded asset risk and declining demand
- The **Middle Arm petrochemicals precinct faces significant technical and environmental challenges**, including dredging through a quartz reef, site inundation due to rising sea levels, and serious air quality issues resulting in harm to human health
- LNG exports merely provide **huge profits to gas companies to the cost of Australian communities and businesses**

²⁷ Bilateral Agreement, Sch E, section 2.11.

²⁸ Bilateral Agreement, Sch E, section 2.14-15.

²⁹ Bilateral Agreement, Sch E, section 2.16.

³⁰ Bilateral Agreement, Sch E, sections 2.17-18.

There are three potential pathways to market for gas produced in the Beetaloo: domestic markets on the east coast, in keeping with government and industry claims about the necessity of Beetaloo gas for 'energy security'; the petrochemicals and manufacturing precinct at Middle Arm; and expanding LNG exports via an expanded plant at Middle Arm.

Each of these pathways was the subject of public funding commitments under the previous Federal Government. However, it does not appear that any of these pathways to market is likely to deliver a worthwhile return to the Australian public, especially if the associated costs to water security and the climate are taken into account.

3.1 Beetaloo gas will be extremely expensive

Producing gas in an area as remote as the Beetaloo will carry high equipment, labour and maintenance costs, especially as the changing climate increases access issues and costs of infrastructure maintenance during intensifying wet seasons. Producing shale gas is far more expensive than producing conventional gas, and also requires huge volumes of inputs like water, proppant, chemicals and concrete.

Further, if NT Government and industry promises are to be believed, the emissions from gas production will be offset through the purchase of carbon credits by gas companies. The market for carbon credits can be expected to tighten as more companies voluntarily and compulsorily purchase credits to meet climate targets, including under the Safeguard Mechanism reforms proposed by the new Federal Government. According to carbon consultancy RepuTex, the value of Australian Carbon Credit Units can be expected to increase from \$30/unit now to between \$60-105/unit by 2032.³¹

While other industries may be able to reduce their emissions directly, a fossil fuel-based sector like natural gas is inherently, unavoidably polluting and will be highly exposed to carbon credit price increases, assuming the industry does honour its commitment to offsetting emissions from Beetaloo gas production. These costs can also be expected to be ultimately reflected in the eventual cost of Beetaloo gas.

3.2 Pathway 1: East-coast domestic gas markets

The gas industry, the NT Government, the previous Federal Government and, most recently, the new Resources Minister have emphasised shoring up domestic energy security and meeting potential shortfalls in the east coast as key objectives of developing the Beetaloo.³²

Transporting gas to the east coast would require massive new high-pressure pipelines stretching hundreds of kilometres across the outback.

The *National Gas Infrastructure Plan* proposed several options for pipelines to connect Beetaloo gas to the east coast, furthering the previous Federal Government's 'strategic basin plan' for the Beetaloo. According to the NGIP, sending Beetaloo gas from a 'small-scale' production scenario to the east coast would require a new 350TJ/day capacity pipeline to connect key production zones to an existing major gas pipeline, as well as work to substantially increase the capacity of the receiving pipelines.³³ Larger-scale development would require this new pipeline to be expanded up to 1700TJ/day, as well as a huge project to increase the capacity of at least one of the existing pipelines - along with a new high-capacity pipeline to transport the gas through Qld and NSW.

³¹ Mark Ludlow, 'Tougher climate policies will "drive up carbon credit price"' (21 July 2022) *Australian Financial Review*.

³² See, e.g., Jane Bardon, '[Industry says gas from the Beetaloo Basin could solve Australia's energy crisis. Some energy analysts question that claim](#)' (20 July 2022) *ABC News*; Madeleine King MP, '[Speech to NT Resources Week Conference](#)' (24 August 2022).

³³ See the analysis put forward in the *National Gas Infrastructure Plan* (2021), 17-20.

Any of these pipelines would take at least several years and huge amounts of money to construct, the consent of all affected Traditional Owners and landholders, and a raft of environmental and planning approvals under State, Territory and Federal law. There is no way any Beetaloo gas would be available to meet a potential shortfall in 2023.³⁴

If these pipelines are privately funded, these enormous costs and risks will be reflected in the transmission agreements signed between the pipeline operators and gas producers, and passed on to domestic gas consumers, resulting in very expensive gas.

If the pipelines are publicly subsidised, the Australian public bears the cost and risk of constructing the pipelines, on top of the costs inherent to the gas - which will be worn directly by residential gas consumers, and by the public at large as gas costs flow through to everyday items, as we have seen play out with the current gas price increase.

On top of the construction and general development costs of the pipelines, there will be an added cost stemming from the clear risk that these pipelines will become stranded assets as demand for gas on the east coast continues to decline, and the remaining pool of gas demand is filled by cheaper gas produced within the eastern states.³⁵

It is hard to see how this poses a good value proposition for the Australian public, especially given that the costs of renewable energy and battery storage are declining faster than ever.³⁶

3.3 Pathway 2: Supplying Middle Arm petrochemicals and manufacturing hub

The second pathway depends on the development of the petrochemicals and manufacturing hub at Middle Arm in the face of a somewhat breathtaking array of engineering, environmental and human health challenges.

The precinct has recently been referred to the NT EPA for assessment, and will be subject to a Strategic Environmental Assessment Agreement under the federal *Environment Protection and Biodiversity Conservation Act 1999*. According to the NT EPA referral report, the precinct has the potential to have a significant impact on all but two of the 14 environmental factors identified by the EPA for protection.³⁷ This includes: significant adverse impacts to human health given the precinct's proximity to the City of Palmerston; impacts to sacred and cultural sites during dredging, land clearing, shipping and industrial operations; changes to the physiology of Darwin Harbour; and impacts to threatened species from the proposed clearing of 1,500ha of sensitive and significant vegetation.

The proposed site is 3km from the City of Palmerston and 13km from Darwin proper. An expert report commissioned by the Environment Centre of the NT in relation to the precinct found that

³⁴ ACCC, [Gas inquiry 2017-2025: Interim report](#) (July 2022), 9.

³⁵ For a discussion of the stranding risk faced by gas infrastructure, see NERA Economic Consulting, [‘Stranding risk for gas networks’](#) (3 September 2021); Australian Energy Regulator, *Regulating gas pipelines under uncertainty: Information paper* (November 2021). For a discussion on the economic viability of producing gas in the Beetaloo, see Bruce Robertson, [‘The Northern Territory is pinning its hopes on a declining industry’](#) (March 2021) Institute for Energy Economics and Finance; Jane Bardon, [‘Industry says gas from the Beetaloo Basin could solve Australia’s energy crisis. Some energy analysts question that claim’](#) (20 July 2022) *ABC News*; John Robert, [‘More subsidies proposed for a failing and risky gas industry’](#) (19 July 2022) Institute for Energy Economics and Financial Analysis.

³⁶ ARENA, [‘Battery costs falling fast, wind and solar still cheapest new electricity’](#) (17 June 2021) *ARENAWIRE*; P.W. Graham et al, *GenCost 2018 - Updated projections of electricity generation technology costs* (December 2018) CSIRO <<https://www.csiro.au/en/News/News-releases/2018/Annual-update-finds-renewables-are-cheapest-new-build-power>>.

³⁷ NT Government, [‘Middle Arm Sustainable Development Precinct Referral Report’](#) (January 2022), xii.

‘air pollution and industrial accident risk from the [precinct] pose significant human health threats to residents of the Greater Darwin Region’. These threats include a possible 513% increase in particulate emissions in the region with health impacts equivalent to 15 premature deaths a year, and a four-fold increase in the risk of industrial cancer hazard.³⁸

Furthermore, it is highly probable that the precinct site will be inundated by rising sea levels by 2100, and as early as 2050 if global emissions continue on their current trajectory.

Project 2050 sea level rise under ‘high’ emissions scenario (RCP 8.5)



Source: CoastAdapt³⁹

³⁸ See, e.g., Dr Michael Petroni, ‘[Expert opinions related to potential environmental and human health impacts of the Middle Arm sustainable development precinct as well as the adequacy of the draft terms of reference for strategic assessment](#)’ (9 June 2022), 6.

³⁹ CoastAdapt, ‘[Sea-level rise and future climate information for coastal councils - Litchfield, NT](#)’.

Projected 2100 sea level rise under 'low' emissions scenario (RCP 4.5)



Source: CoastAdapt

Projected 2100 coastal inundation under 'high' emissions scenario (RCP 8.5)



Source: Coastal Risk Australia, based on IPCC Sixth Assessment 2021⁴⁰

⁴⁰ Coastal Risk Australia 2100, '[Darwin NT](#)'.

The Middle Arm precinct's "sustainability" credentials rest squarely on unproven carbon capture and storage technologies, raising further questions about its environmental impact as a massive, fossil fuel-reliant industrial plant with, it would be expected, a planned lifetime of at least several decades. There has been no public acknowledgement, to our knowledge, of the fact that carbon capture significantly increases the water requirements of energy generation⁴¹ - a critical factor for the viability of CCS in a place as water-stressed as the NT.

A further obstacle lies in the fact that getting gas from the Beetaloo to Middle Arm would still involve significant investment in pipelines - first a new high-pressure pipeline to connect the gas field to the existing north-south pipeline from Alice Springs to Darwin, and then to substantially upgrade the capacity of that pipeline from the connection point to Darwin, hundreds of kilometres to the north.

Meanwhile, getting Middle Arm off the ground requires private investors and firms interested in setting up a petrochemicals or other gas-based manufacturing process in Darwin. The value proposition for private sector investment in precinct is just as questionable as it is for public sector investment, if not more so. Why would a company set up in a remote town, with very little existing manufacturing workforce, on a site that's going to be underwater within a matter of decades, to start a business reliant on expensive gas exposed to increasing price volatility instead of cheap renewables, when forward-looking investment is focussed on decarbonisation and transitioning away from fossil fuels, including as material inputs?

It is highly questionable whether it would ever be in the public interest to devote public funds to a greenfield, fossil fuel-dependent heavy industrial precinct on an ecologically sensitive, low-lying coastal site in close proximity to residential areas. Further, the current Federal Government was elected on a platform of reinvigorating manufacturing in Australia based on cheap renewable energy. This is a very different proposition to the Middle Arm development.

The breadth of technical challenges and socio-environmental risks associated with this development should raise serious questions around its viability, and the likely pay-off of this development for either the NT or Australian communities.

1.2.4 Pathway 3: LNG exports

The final - and, it would appear, given the issues discussed above, the most likely - pathway for Beetaloo gas would be to the LNG export market, via the to-be-expanded LNG plant at Middle Arm. At least one of the Beetaloo gas companies (Santos) has publicly acknowledged that LNG exports would be necessary given the costs of developing this gas field.⁴²

Amidst a global upheaval in energy and gas supply sparked by Russia's invasion of Ukraine and worsened by climate change's impacts on power generation throughout Europe,⁴³ the small cartel of massive gas companies monopolising Australia's domestic and export LNG markets raked in windfall profits.

⁴¹ E A Byers, '[Water and climate risks to power generation with carbon capture and storage](#)' (2016) 11(2) *Environmental Research Letters*;

⁴² Michael Mazengarb, '[Santos admits Australia's gas expansion has always been about offshore customers](#)' (25 March 2022) *Renew Economy*.

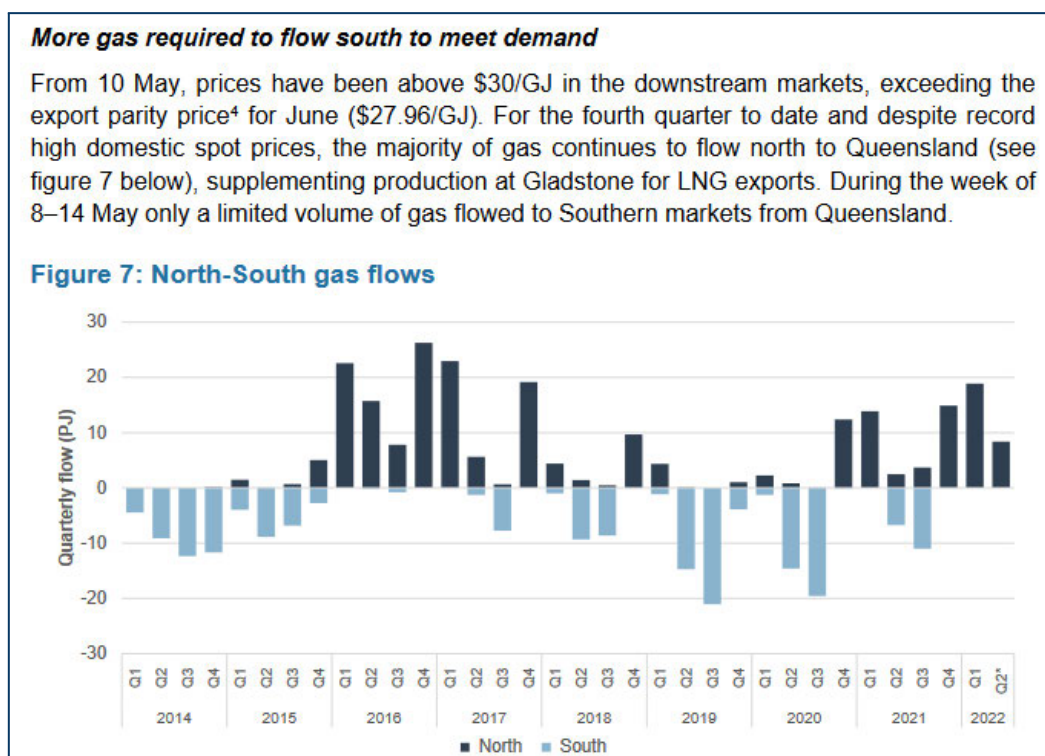
⁴³ Jack Wittels, William Wilkes, Rachel Graham and Laura Malsch, '[Rhine River Withers to Crisis Level as Europe Craves Energy](#)' (10 August 2022) *Bloomberg Green*; Jason Horowitz, '[Europe's Scorching Summer Puts Unexpected Strain on Energy Supply](#)' (18 August 2022) *The New York Times*.

The interim report from the ACCC’s investigation into Australia’s gas market found that:⁴⁴

- There is a high level of market concentration, with LNG exporters and associates influencing close to 90% of proven and probable reserves in the east coast (including Santos and Origin, both of whom hold interests in the Beetaloo)
- LNG exporters have diverted most of the excess gas they produce to overseas spot markets in recent years, contravening a Heads of Agreement that should see uncontracted gas prioritised for the domestic market
- LNG exporters have been net withdrawers of gas from the domestic market since 2021, worsening the risk of gas shortfall

The LNG cartel has been making huge profits by sending Australian gas overseas, leaving domestic customers paying more for Australian gas than overseas buyers.⁴⁵

During the midst of the crisis, LNG exporters channelled gas north for export, with ‘higher demand from LNG export facilities [placing] upward pressure on domestic gas prices’, as shown in the below excerpt from a report produced by the Australian Energy Regulator in May 2022.⁴⁶



It is extremely hard to see why the Australian public should be expected to fund infrastructure to support an expansion of the LNG export industry in these circumstances. The social licence for this industry is in tatters.

It should also be noted that in the draft petroleum royalties legislation recently released for consultation by the NT Government - in the midst of the gas price crisis - proposed setting royalties at the same level as other jurisdictions in Australia, despite it being readily apparent at

⁴⁴ ACCC, ‘[LNG exporters must divert gas to the domestic market to avoid shortfalls](#)’ (1 August 2022).
⁴⁵ See, e.g., Rhiana Whitson, ‘[Gas users and experts call for federal crackdown on east coast “gas cartel”](#)’ (11 August 2022) ABC News; David Llewellyn-Smith, ‘[Simple way to fix Australia’s east coast energy crisis](#)’ (4 Augusts 2022) News.com.au
⁴⁶ Australian Energy Regulator, ‘[8-14 May, Weekly Summary](#)’, 1 and 6.

the time that those royalty levels were preposterously low compared to gas industry profits. The NT Government did not take the opportunity to set up a much-needed windfall profits tax.

4. Serious risks to water resources worsened by questionable water regulation and management

Key points

- An NT Government decision regarding critical baseline environmental research has been referred to ICAC over integrity concerns
- Water Allocation Plans recommended by the Pepper Inquiry are being rushed through without normal community input to meet the NT Government's target of gas production by 2023
- The Water Controller is granting extraction licences to onshore gas companies on the basis of rules allowing the unsustainable 'mining' of aquifers
- Fulfilment of the Federal Labor Party's pre-election promise to extend the 'water trigger' to shale gas is critical to protecting critical water resources in the NT

The management of risks to groundwater resources must form part of any consideration of the viability and merit of pursuing an onshore unconventional gas industry in the NT.

Groundwater supplies the vast majority of the NT's water demand, and is critical to a diverse range of ecosystems and surface waterways. As such, the potential impacts of onshore shale gas production on water resources are a chief concern for the NT community.⁴⁷

The principal groundwater resource in the Beetaloo is the Cambrian Limestone Aquifer ('CLA'). The CLA formations fill bores relied upon by communities, pastoralists and businesses. It also sustains the baseflow and riparian ecosystems of the Roper and Daly Rivers, as well as the Elosey National Park, including the Mataranka springs major tourist attraction.⁴⁸

The CLA has also been targeted by the fracking industry for the huge volumes of water required to frack for shale gas.

We submit that there continue to be serious problems with water regulation in the NT, and the way in which the NT Government has approached the assessment and mitigation of risks to water posed by onshore gas. Given how critical water is both to shale gas production and to the ongoing viability of the NT's communities and ecosystems, we submit that the Committee should take the following matters into consideration as part of its Inquiry.

4.1 Reason for serious integrity concerns in fulfilment of baseline water studies

The Pepper Inquiry attempted to assess the risks to ground- and surface water posed by fracking but concluded that there was insufficient information about the NT's water resources to do so with certainty.⁴⁹ As a result, the Inquiry recommended that a 'Strategic Regional Environmental Baseline Assessment' (SREBA) be completed for any proposed onshore gas production area prior to the grant of production approvals. Groundwater and surface water were to be key components of the SREBA research.

⁴⁷ *Scientific Inquiry into Hydraulic Fracturing in the NT - Final Report* (2018), 102.

⁴⁸ *Scientific Inquiry into Hydraulic Fracturing in the NT - Final Report* (2018), 125.

⁴⁹ *Scientific Inquiry into Hydraulic Fracturing in the NT - Final Report* (2018), 133.

The NT Government has committed itself to completing the SREBA by the end of 2022, in order to facilitate production licences from 2023 onwards.

There is cause for concern in the way in which the NT Government is fulfilling this commitment.

A team of researchers from the local Charles Darwin University conducted research with CSIRO looking at stygofauna populations in Beetaloo aquifers. The research found at least 11 new species of stygofauna, with the scientists concluding that ‘the discovery of these new NT species has implications for all extractive industries affecting groundwater’.⁵⁰

The same team of researchers then entered into discussions with the NT Government for further baseline studies to support the SREBA. However, after about a year of discussions - and the publication of the preliminary research raising the prospect of ‘implications’ for extractive industries, the contract was instead awarded to an interstate company for nearly double the price proposed for the CDU team.⁵¹ This decision has now been referred to ICAC for investigation, with the NT Government refusing to comment.

4.2 There are still significant gaps in water regulation and recent decisions in relation to water planning by the NT Government appear to be designed purely to facilitate gas

In August 2021, the Environmental Defenders Office released a briefing paper in which it stated that it considered ‘water law and governance in the NT to be among the poorest in the country’.⁵² Key issues identified by the EDO included: a failure to have in place formal Water Allocation Plans (‘WAP’s) for most water resources in the NT (note - this includes most of the Beetaloo); inconsistencies and a failure to define critical concepts in the WAPs that do exist; no clear strategies to fulfil commitment to address uncertainties through ‘adaptive management’; and the lack of any real obligation on the Water Controller to make extraction licence decisions that comply with legislative objectives.

This report sets the scene for our concerns regarding the capacity of NT water regulation to mitigate the risks posed to water by onshore gas - all of these issues are relevant to fracking, and none have yet been addressed by the NT Government.

4.2.1 Concerning approach to delivering Water Allocation Plans for the Beetaloo

The Pepper Inquiry recommended that WAPs be developed for the northern and southern regions of the Beetaloo prior to any production approvals being granted, as follows:⁵³

- For the Northern Beetaloo, a WAP restricting consumption of water to less than that which can be sustainably extracted without adverse impacts on the environment and other water users
- For the Southern Beetaloo, a WAP prohibiting water extraction for onshore gas until the nature and extent of groundwater resource and recharge rates are quantified

One of the key objectives of the SREBA recommended by the Pepper Inquiry was to fill the considerable gaps in knowledge about groundwater in the Beetaloo in order to support robust and sustainable water management.

⁵⁰ Jenny Davis et al, ‘[Blind shrimps, translucent snails: the 11 mysterious new species we found in potential fracking sites](#)’ (16 February 2021) *The Conversation*.

⁵¹ Samantha Dick, ‘[NT government referred to ICAC over its handling of fracking research contract in Beetaloo Basin](#)’ (23 April 2022) *ABC News*.

⁵² Environmental Defenders Office, ‘[Deficiencies in the existing water law and governance framework in the Northern Territory](#)’ (August 2021).

⁵³ *Scientific Inquiry into Hydraulic Fracturing in the NT - Final Report* (2018), rec. 7.7.

As noted earlier, the NT Government has set an arbitrary deadline of December 2022 for the implementation of all Pepper Inquiry recommendations, including the SREBA and the WAPs.

Ordinarily, WAPs are the product of considerable scientific and community deliberation, and are co-developed by Water Advisory Committees, including members of affected communities.

Instead, the NT Government's approach to declaring the Beetaloo WAPs has been to:

1. Develop the WAPs in the absence of the critical SREBA studies designed squarely to fill knowledge gaps essential to sustainable water planning in the Beetaloo, just to fulfil the arbitrary December 2022 deadline; and
2. Refuse to appoint dedicated Water Advisory Committees, instead relying on the Beetaloo Regional Reference Group, a group of organisational representatives appointed to consult on the SREBA studies.

Without the SREBA being completed and without input from affected community members, it is hard to see how the NT Government will successfully fulfil its commitment to develop WAPs that avoid adverse impacts and/or rest on properly quantified groundwater resource and recharge rates. It is highly concerning to see proper processes sacrificed so blatantly to progressing one industry, especially an industry with such severe environmental impacts.

4.2.2 Use of Arid Zone rules allowing water mining

Where there is no WAP in place and no directly related scientific research, the NT Water Allocation Planning Framework sets out 'contingent allocation' rules which apply to groundwater extraction licence decisions. Under these rules, water allocations in the 'Arid Zone' can be made allowing the consumptive use of up to 80% of an aquifer's total storage capacity over 100 years, while the 'Top End' rules limit total consumptive use to 20% of the aquifer's annual recharge amount.

The boundary between the Top End and Arid Zone roughly bisects the Beetaloo Sub-basin. The Pepper Inquiry considered that it would be 'ecologically unsustainable' to apply the Arid Zone rule in the Beetaloo region, where aquifer recharge appears to be very slow.⁵⁴ Instead, the Inquiry recommended that water should be allocated on the basis of a SREBA-informed numerical groundwater model reflected in the new WAPs for the Beetaloo.

Despite these findings, the NT Water Controller has since granted water extraction licences based on the Arid Zone allocation rules to virtually all onshore gas companies operating in the Beetaloo: a 4-year licence for 299ML/yr to Sweetpea Petroleum in June 2021,⁵⁵ a 3-year licence for 175ML/yr to Origin Energy in June 2019 (subsequently renewed for another 3 years),⁵⁶ a 5-year licence for 193.5ML to Santos in May 2019,⁵⁷ and a 4-year licence for 85ML/yr to Imperial Oil & Gas in July 2021.⁵⁸

These licences cover the forward works program for each company, and will persist past the early 2023 target by which the NT Government wishes to be granting production approvals. It is therefore highly possible that onshore gas production will be facilitated by water licences granted on the basis of 'ecologically unsustainable' contingent allocation rules.

⁵⁴ *Scientific Inquiry into Hydraulic Fracturing in the NT - Final Report* (2018), 137.

⁵⁵ [Water Extraction Licence Decision](#), [18].

⁵⁶ [Water Extraction Licence Decision](#), [23].

⁵⁷ [Water Extraction Licence Decision](#), [21].

⁵⁸ [Water Extraction Licence Decision](#), [18].

4.2.3 No charge for use of groundwater

Compounding the risk of unsustainable - but still legal - water mining by onshore gas companies, there is still no price on water in the NT - a situation that does not exist anywhere else in Australia, and is completely at odds with the scarcity and importance of water in the Territory.

The NT Government accepted the Pepper Inquiry's recommendation to introduce a charge on water for onshore gas activities.⁵⁹ The target completion date is the end of December 2022, with progress to date consisting of work towards a Strategic Water Plan for the NT. Notably, each gas company either already has or has recently applied for a licence to extract the water required for the next stage of their exploration and appraisal program. It is unclear whether any future price on water would apply to water extracted under already-granted extraction licences.

4.3 Exploration EMPs have been approved that do not account for or manage water risks

Onshore gas companies are required by the Petroleum (Environment) Regulations 2016 to submit and have approved 'environmental management plans' or 'EMPs' for all but the most preliminary exploration activities.

Multiple EMPs have been approved by the NT Environment Minister that do not acknowledge, or propose credible ways to manage, risks to water posed by onshore gas activities.

Some examples we have consistently found in approved EMPs include:

- The evaporation of produced water (i.e., residual fracking fluid) in open-topped tanks to produce semi-solid or solid waste brines and thus reduce disposal costs, without any consideration of how toxins in the waste may become concentrated or interact over time, or the increased risk concentrated waste would pose in the event of a spill.⁶⁰
- The transfer of toxic waste from open-topped tanks to close-topped tanks within 8 hours prior to an 'extreme rainfall event' to avoid overflow into surrounding landscape, but without any explanation of how sites would be accessed in monsoon conditions, or often any modelling to assess the increased intensity of extreme rainfall under a changing climate.
- No plan for the treatment or long-term management of brine and sludge waste that is too toxic (by the company's own assessment) to bury onsite, despite the real risk of contamination via leaks or seepage from wastewater ponds.⁶¹
- Groundwater monitoring that does not comply with the Pepper Inquiry's recommendation that basic groundwater data be submitted to the NT Government in real-time and made publicly available.

4.4 Action at the Federal level is needed to protect NT water

The information presented above indicates that the NT Government may be unwilling or unable to properly safeguard water resources in the Territory. We submit that, given the value of water in the NT and the previous support given to onshore gas at the Federal level, it is appropriate that

⁵⁹ See *Scientific Inquiry into Hydraulic Fracturing in the NT - Final Report* (2018), rec. 7.2.

⁶⁰ Note that the use of open-topped tanks was explicitly recommended against by the Pepper Inquiry: Final Report, recommendation 7.12 on p 156.

⁶¹ The Independent Expert Scientific Committee (responsible for giving advice in relation to CSG and large coal mine developments under the EPBC Act) recently raised concerns about the 'legacy issues of brine management and disposal', which it states are relevant to proponents' environmental management plans 'whether this occurs on or offsite': IESC, ['Advice to decision maker on coal seam gas project'](#) (6 February 2022), 6.

Commonwealth regulation is used to protect water resources from the adverse impacts of shale gas and associated industries.

4.4.1 Extend water trigger to all forms of unconventional gas production...

The Pepper Inquiry recommended that the EPBC Act should be amended to apply the water trigger to onshore shale gas development.⁶²

The 'water trigger' under the EPBC Act means that all coal seam gas and large coal mining developments that are likely to have a significant impact on water must be approved by the Federal Environment Minister, on the advice of the Independent Scientific Expert Committee.⁶³ This extends to infrastructure associated with large coal and CSG projects.

The IESC is one of the only genuinely independent statutory authorities to advise on water impacts of coal and CSG in any jurisdiction in Australia. Its advice is made available to both Federal and state/territory governments.

Recently, investigation by the IESC has been instrumental in identifying serious risks to water sources posed by the Central Queensland coal project near the Great Barrier Reef, and by the Dendrobium coal mine expansion in Sydney's drinking water catchment.

Prior to the election, the Federal Labor party committed to extending the water trigger to shale gas, and the ALP MP for Lingiari, Marion Scrymgeour, has publicly affirmed this commitment since then. The new Federal Government has not yet introduced legislation to implement this commitment, but has indicated that the EPBC Act will be subject to reform next year.

In the context of fracking in the NT, where such well-founded concerns exist in relation to the calibre and impartiality of decision-making on water, there would be huge benefit to the involvement of the IESC in the assessment of fracking proposals.

The Federal Government should ensure that its commitments to extend the water trigger are enacted as a matter of urgency and prior to any production proposals being submitted for gas development in the Beetaloo Basin.

4.4.2 ...and to carbon capture and storage

Further, carbon capture and storage can also pose significant risks to groundwater and, in our view, should also be covered by the water trigger. These risks are related to the significant volumes of water required for the carbon capture process, and to the fact that when carbon dioxide dissolves in water, it produces carbonic acid.⁶⁴ If CO₂ is injected directly into an aquifer - as is proposed by, for example, Glencore's CCS demonstration project in south Queensland - this could result in the acidification of the groundwater contained in the aquifer, both at the injection site and along the groundwater flow path. This could also occur if there is a leak from a CO₂ storage formation into overlying, shallower aquifers. As well as the acidification of the water - which would have impacts to the potability and environmental values of affected water - the reduced pH can lead to the mobilisation of minerals and contaminants into the aquifer's groundwater.⁶⁵

⁶² *Scientific Inquiry into Hydraulic Fracturing in the NT - Final Report* (2018), rec. 7.3.

⁶³ *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 24D.

⁶⁴ Robin L Newmark et al, '[Water Challenges for Geologic Carbon Capture and Sequestration](#)' (2010) 45(4) *Environmental Management* 651.

⁶⁵ Nikolla P Qafoku et al, 'Review of the impacts of leaking CO₂ gas and brine on groundwater quality' (2017) 169 *Earth-Science Reviews* 69; Ting Xiao et al, 'Chemical Impacts of Potential CO₂ and Brine Leakage on Groundwater Quality with Quantitative Risk Assessment: A Case Study of the Farnsworth Unit' (2020) 13 *Energies* 5674

Given these risks, the nascent stage of CCS use as a large-scale emissions-avoidance technology, and the apparent dedication to using CCS to justify continued fossil fuel expansion, including in the Beetaloo, we submit that the water trigger amendments should extend to CCS projects likely to have a significant impact on water resources.

5. Climate impacts of opening up the Beetaloo for gas production

Key points

- Shale gas production in the Beetaloo would create at least **22 - 26.5 million tonnes of direct greenhouse gas pollution** every year - increasing Australia's national emissions by 4.5%
- There is **no feasible way to effectively avoid or offset the emissions impact** of a new onshore gas industry in the NT
- The **NT Government is hiding its commitment to avoid an increase in emissions with a 'net zero' target which merely puts off the problem for later** - time we no longer have to waste
- Opening up the **Beetaloo is not compatible with a safe, habitable future** for the Northern Territory

The greenhouse gas emissions that would result from a new shale gas industry in the NT would be nationally - even globally - significant. Methane is a particularly potent greenhouse gas, and none of the mechanisms so far proposed by government and industry to reduce or avoid emissions from Beetaloo gas production are credible. Given the increasingly dire impacts climate change is already having on Australian communities, we submit that the Committee should consider the climate impact of onshore oil and gas production in its Inquiry.

5.1 Emissions from gas production in the Beetaloo would be nationally significant

The potential emissions impact from a new gas field in the Beetaloo is huge, and would make it even more difficult for Australia to meet its emissions reduction targets.

5.1.1 Estimated GHG pollution from producing gas in the Beetaloo

The Scientific Inquiry into Hydraulic Fracturing in the Northern Territory modelled the potential emissions associated with the development of a small, medium and large-scale industry. The Inquiry found that a medium-scale, 1,000-well development would create an additional 26.5Mt of greenhouse gas emissions in Australia every year - increasing our national emissions by approximately 4.5%.⁶⁶

Similar conclusions were reached by RepuTex Energy, who analysed the carbon costs and emissions from developing the Beetaloo in October 2021 (see **Appendix C**).

If the NT and former Federal Governments are to be believed, and the huge challenges outlined above are somehow overcome, and Beetaloo gas is used in Australia, 24Mt of additional greenhouse gas emissions would be created every year for 20 years under a moderate, domestic-use scenario.⁶⁷ Approximately 20% of this carbon footprint occurs 'upstream', during the extraction and processing of the gas. None of this upstream gas would be captured under a potential CCS scenario.

⁶⁶ Scientific Inquiry into Hydraulic Fracturing in the Northern Territory, *Final Report* (2018), 228.

⁶⁷ See RepuTex Energy, *Analysis of Beetaloo gas basin emissions & carbon costs* (October 2021), 11.

RepuTex found that the total lifecycle emissions of a moderate-scale Beetaloo development would be 368 million tonnes of CO₂-e.

Under a large-scale development scenario, where 80% of gas is converted to LNG for export, 22Mt of greenhouse gas pollution is created every year just from the extraction and processing of the gas. These emissions would occur in Australia and count towards our inventory, while an additional 67Mtpa would be released from transport, regasification and eventual combustion of the gas.

Importantly, in its modelling RepuTex assumed a 1.7% leakage rate to form the basis of fugitive emissions associated with the Beetaloo development. However, if leakage rates are higher than that - as they have been found to be at most unconventional gas sites in the US⁶⁸ - then emissions will be much higher. The risk of additional fugitive emissions is heightened in the context of the Beetaloo, where any pathway to market involves very long, high pressure pipelines passing through sparsely habited areas of the outback.

5.1.2 Comparison to Australia's NDC emissions reduction target

Australia emitted 621Mt of GHG pollution in 2005. To achieve our new emissions reduction target (43% lower than 2005 levels by 2030), our annual national emissions need to drop to approximately 354Mt in 2030. This translates into a cut of approximately 14.4Mt every year (from the latest inventory date, 2020, through to 2030).

In contrast, opening up the Beetaloo would instead *increase* emissions by approximately 22 to 26Mt a year.

Critically, the bulk of emissions associated with the production of natural gas are methane, a particularly potent greenhouse gas - almost 83 times more powerful over a 20-year timeframe than carbon dioxide. This highlights the damage shale gas production in the Beetaloo could do over a short timeframe.

Meeting the national emission reduction target will already require enormous effort across all sectors of the economy. It is very hard to see why it is advisable to make this task even harder by developing a new gas field.

5.2 The NT Government is struggling to fulfil a commitment to avoid an emissions increase

Given the serious risk posed to climate stability by a new onshore gas industry in the Territory, the NT Scientific Inquiry recommended that the NT and Australian governments seek to ensure that there is no net increase in the life cycle GHG emissions emitted in Australia from any onshore shale gas produced in the NT.⁶⁹

The NT Government committed to fulfil this recommendation by December 2022, but appears to be at an impasse as to how to do so, resulting in apparent attempts to roll back its commitment.

In his latest review of the NT Government's progress on implementing the Fracking Inquiry recommendations, dated 31 May 2022, independent overseer Dr David Ritchie found that there was no 'clear path' to fulfilling recommendation 9.8, and that the measures relating to emissions implemented by the NT Government so far would not meet the recommendation's objective.⁷⁰

⁶⁸ See, e.g., Josh Saul and Naureen Malik, '[As Gas Prices Soar, Nobody Knows How Much Methane Is Leaking](#)' (3 May 2022) *Bloomberg*; Environmental Defense Fund, '[Major studies reveal 60% more methane emissions](#)' (2022).

⁶⁹ Scientific Inquiry into Hydraulic Fracturing in the Northern Territory, *Final Report* (2018), 239.

⁷⁰ Dr David Ritchie, '[Letter to the Chief Minister re: Progress on the Implementation of Recommendations from the Final Report of the Hydraulic Fracturing Inquiry - November 2021 to 31 April 2022](#)' (31 May 2022).

Leaked correspondence from a senior bureaucrat within the NT Government that came to light in May 2022 raised concerns about the feasibility of fulfilling the recommendation, asking ‘how ambitious [the government] wants to be in implementing recommendation 9.8 in the NT itself’ and noting that weakening the commitment would make the task easier.⁷¹

This sentiment is reflected in the NT Government’s apparent effort to obscure the specific commitment made in response to recommendation 9.8 behind its broader ‘net zero by 2050’ target. For example, the NT Government’s public report on progress towards implementing recommendation 9.8 commences with the following:

Since it accepted the recommendations of the Inquiry, the NT Government has adopted a development goal of a \$40 billion economy by 2030, and committed to a target of net zero greenhouse gas emissions by 2050. Government has also committed to a target of 50% renewable energy by 2030. These commitments frame the Territory’s approach to growing and decarbonising the economy. ...

The Territory is focused on achieving its economy-wide target of net zero emissions by 2050 and recognises that meaningful emissions reductions from the onshore petroleum industry will be required to achieve the target.

Nowhere does the NT Government’s policy on this recommendation acknowledge the explicit requirement to ensure that these “meaningful emissions reductions” must correspond to an absolute avoidance of any additional emissions from a new gas industry.

The problem with this ‘net zero’ target is that it allows the prospect of increasing emissions in the short-term (i.e., through developing the Beetaloo), in the hope that these additional emissions will somehow be removed from the atmosphere by 2050. This is a deeply risky approach because large-scale carbon capture technologies are still nascent and the speed of climate change is increasing towards irreversible ‘tipping points’ with every day and every additional tonne of greenhouse gas pollution emitted to the atmosphere.⁷² A certain - dangerous - amount of warming is already locked into the global climate, and it is foolhardy to bet on uncertain technologies that may not ever be proven to work at sufficient scale being deployed in a climatically unstable future world. This is why the IPCC has stated that it is ‘now or never’: emissions must peak by 2025, and be halved by 2030.⁷³ Relying on carbon removal technologies like CCS to come online in future is unacceptably risky.

5.3 Proposals to avoid emissions from gas through offsets are deeply problematic

A more short-term proposal to deal with the emissions impact of producing gas in the Beetaloo is the purchase of carbon credits. Indeed, unless and until the somewhat remote prospects of a large-scale CCS and/or hydrogen industry come to fruition, carbon credits will be critical to any attempt to fulfil promises about a ‘zero emissions’ gas industry in the Beetaloo.

The NT Government has introduced various policies in an attempt to reduce the emissions impact of onshore gas. These include a ‘Large Emitters Policy’, which requires project proponents to prepare ‘greenhouse gas abatement plans’ if the forecast emissions from their project exceeds 100,000t in any one financial year. The ‘GGAP’ should identify measures to ensure the project contributes to the NT Government’s target of net zero emissions by 2050.

⁷¹ Jesse Thompson, [‘NT government bureaucrat warns fully implementing fracking recommendation 9.8 could scare off gas industry in confidential email’](#) (13 May 2022) *ABC News*.

⁷² Professor Duncan McLaren, [‘The problem with net-zero emissions targets’](#) (30 September 2019) *Carbon Brief*.

⁷³ See IPCC, [‘The evidence is clear: the time for action is now. We can halve emissions by 2030’](#) (4 April 2022).

So far, gas companies have indicated an intention to fulfil the bulk of this obligation by purchasing carbon credits to offset the emissions from exploration and production activities.

This is problematic for many reasons.

First, no company has provided any analysis to suggest that there are sufficient carbon credits of verifiable quality to offset the emissions from a gas industry in the Beetaloo, nor has the NT Government. Indeed, the leaked correspondence from a senior NT bureaucrat mentioned above acknowledges that it is 'questionable' whether the national supply of carbon credits could offset life cycle emissions from Beetaloo gas.⁷⁴

Secondly, there are serious questions about the integrity of Australia's carbon credit system. This framework is currently undergoing a review following the release of several papers by a former member of the ERF assurance committee presenting evidence that large segments of generated ACCUs may have failed to actually avoid or reduce any greenhouse gas emissions.

Thirdly, even if the review finds that the questioned ACCU methods did, for example, in fact protect forests that were going to be chopped down, this type of man-made land-based carbon sink does not actually address the problem created by the combustion of fossil fuels. This is because the carbon released when coal or gas is burnt had been stored for millions of years underground, whereas trees only live - and store carbon - for a matter of decades. So, even if enough trees were planted to draw down a few million tonnes of CO₂ from the atmosphere, the continued use of fossil fuels would continue to - in aggregate - add carbon pollution to the atmosphere that will take thousands of years to cycle back to geological storage via the carbon cycle.⁷⁵

Fourth, and related to the 'net zero' problem discussed above, carbon offsetting isn't designed to *reduce* the net amount of emissions in the atmosphere - it's designed to *not increase* the amount of pollution being released to the atmosphere. As has been repeated ad nauseum by the scientific community, the urgent task at hand is reducing, in absolute terms, the amount of greenhouse gases in the atmosphere, not merely stopping an increase. Making this task harder by allowing the opening up of a new gas field, instead of supporting the transition away from fossil fuels, is simply irrational.

Fifth, the NT Government's draft offsets controversially policy permits reliance on overseas-generated carbon offsets, most probably in response to this internal understanding about the limits of the domestic carbon credit market. International credit units are much harder to verify, and also raise serious ethical concerns about the prospect of rich countries (like Australia) offsetting pollution through forestation and monoculture cropping projects in poorer countries, which may have detrimental impacts on local Indigenous cultures, food security and pre-existing livelihoods.⁷⁶

The on-paper offsetting of emissions from gas production is meaningless if it relies upon carbon credits that fail to achieve the basic tenets of integrity, additionality and verifiability.

⁷⁴ Jesse Thompson, '[NT government bureaucrat warns fully implementing fracking recommendation 9.8 could scare off gas industry in confidential email](#)' (13 May 2022) ABC News.

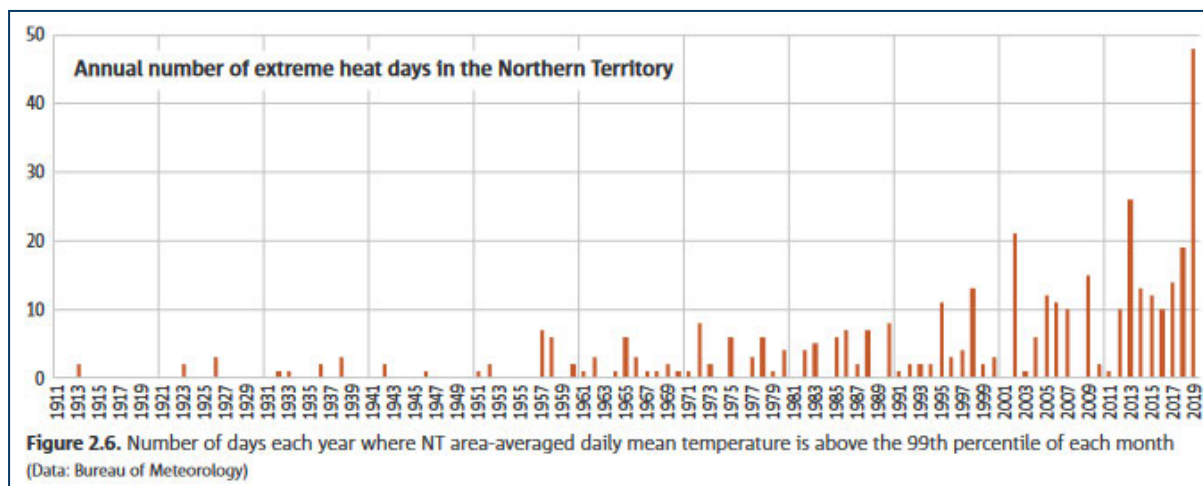
⁷⁵ For a simple explanation of this issue, see Kate Dooley, '[Carbon offsets are only delaying emissions](#)' (15 March 2021) *GreenBiz*.

⁷⁶ See, e.g., Amazon Watch, '[Offsets don't stop climate change](#)' (6 October 2021); The Oakland Institute, '[The darker side of green: plantation forestry and carbon violence in Uganda](#)' (2014); Heidi Bachram, 'Climate fraud and carbon colonialism: the new trade in greenhouse gases' (2004) 15(4) *Capitalism Nature Socialism*.

5.4 Opening up the Beetaloo will make climate change worse and endanger life in the NT

Adding millions of tonnes of GHG pollution to the atmosphere from gas production in the Beetaloo will make climate change worse, at a time when communities and ecosystems around the world are feeling the effects of global warming more frequently and more intensely than ever before.

At ~1.2 degrees additional warming since the Industrial Revolution, Alice Springs already has 6 times as many extreme heat days (above 44) as it did over the 1959-1988 period.⁷⁷ The below graph, taken from an NT Government report on climate change impacts in the Territory,⁷⁸ illustrates the increase in the number of extreme heat days since 1911.



Ecosystems in the NT are already in danger of collapse: hotter and longer dry seasons caused by greenhouse gas pollution are adding to existing pressures on tropical savannahs across the Top End, and to the diverse ecosystems of the arid centre.⁷⁹

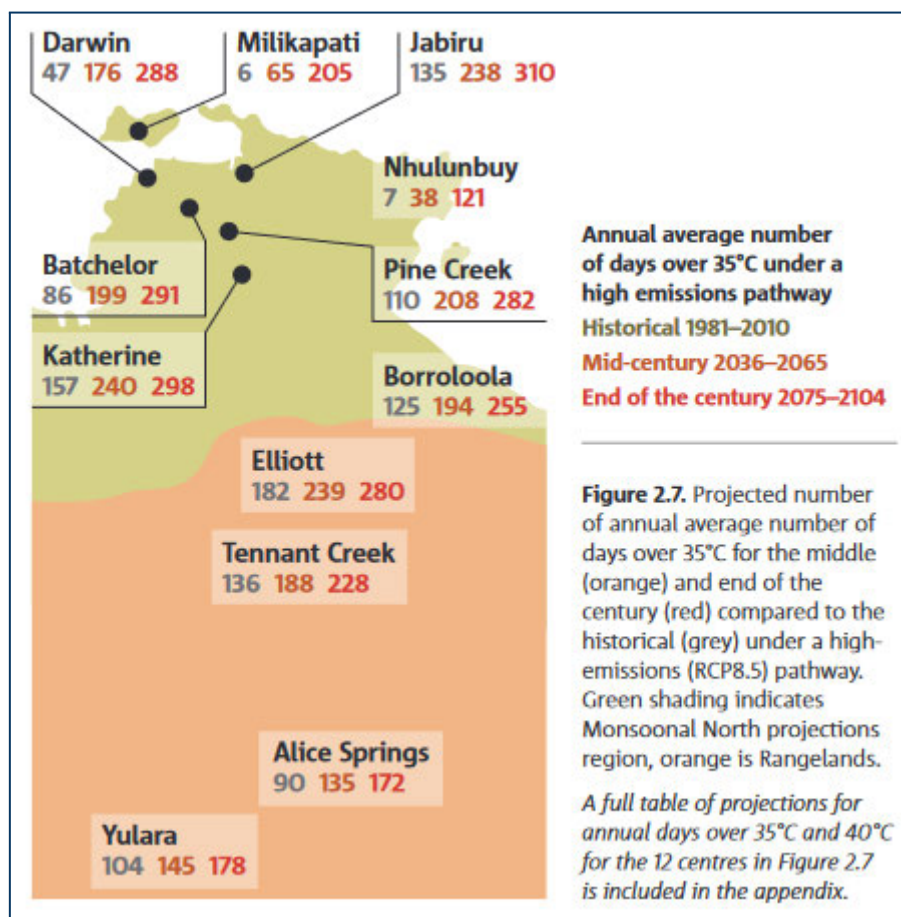
If the world gets much hotter, the NT simply won't be habitable - 288 days over 35 in Darwin by the end of the century (see below), with human health implications compounded by increasing humidity.⁸⁰

⁷⁷ [Climate change in the Northern Territory: State of the science and climate change impacts](#), 14.

⁷⁸ [Climate change in the Northern Territory: State of the science and climate change impacts](#), 14.

⁷⁹ Dana M Bergstrom et al, "[Existential threat to our survival](#)": see the [19 Australian ecosystems already collapsing](#)' (26 February 2021) *The Conversation*; Dana M Bergstrom et al, '[Combating ecosystem collapse from the tropics to the Antarctic](#)' (2021) 27(9) *Global Change Biology* 1692.

⁸⁰ Lucas R Vargas Zeppetello et al, '[Probabilistic projections of extreme heat stress driven by climate change](#)' (2022) 3 *Communications Earth & Environment*; Donna Lu, '[Northern Australia could have dangerously high heat most days of the year by 2100, study finds](#)' (26 August 2022) *The Guardian*.



Source: NT DENR, *Climate change in the Northern Territory*, 14.

Returning to the value proposition for opening up the Beetaloo interrogated earlier in this submission, developing a new gas field at this critical stage in the fight to combat global warming simply makes no sense against any metric of sensible decision-making.

Conclusion

Allocating public funds to facilitate onshore gas in the NT via infrastructure and market-creation makes no sense, from either an economic or an environmental perspective.

There is no pathway to market for Beetaloo gas that would be viable in the absence of huge public subsidies,⁸¹ yet there is also no clear way creating such pathways would benefit the Territory or Australia from an economic perspective, once the costs and risks of these proposals are taken into account.

The gas industry, the NT Government and the Federal Government have all claimed that creating a new gas field in the Beetaloo is not incompatible with tackling climate change. When the justifications for this somewhat extraordinary position are examined, it swiftly becomes apparent that it is completely untenable.

We urge the Committee to consider the appropriateness of spending public money to create a new fossil fuel development when the climate emergency is reaching new heights of intensity.

⁸¹ See comments from Alison Reeve, Grattan Institute, and Rick Wilkinson, EnergyQuest, in Jane Bardon, '[Industry says gas from the Beetaloo Basin could solve Australia's energy crisis. Some energy analysts question that claim](#)' (20 July 2022) *ABC News*.

Expanding natural gas infrastructure puts the essential work involved in the energy transition at risk by locking-in our dependence on this climate-endangering fossil fuel.⁸² Betting Australia's future habitability on flimsy promises of 'low emissions technologies' said to materialise at some point in the coming decades is a huge risk to take, and far from a responsible use for our shared public wealth.

The devastating implications of further fossil fuel development are not distant, in either temporal or geographic terms. The NT is at direct risk from climate change, and climate change is an immediate and direct consequence of producing and using natural gas.

An incredible history of continuous Indigenous culture, the diversity of modern-day communities in the NT, scarce water resources, extraordinary wildlife and plants specially adapted to the landscapes of the Territory - all stand to be lost in a world warmed by projects just like the Beetaloo. We urge the Committee to use its position and this Inquiry to thoroughly interrogate the wisdom of creating a new gas field in the Territory, when so much is at stake.

Thank you for considering our submission,

Sam Moorhead
On behalf of Lock the Gate Alliance.

⁸² Claudia Kemfert et al, '[The expansion of natural gas infrastructure puts energy transitions at risk](#)' (2022) 7 *Nature Energy* 582.