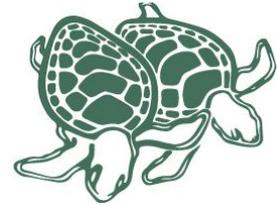




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Environment Centre NT

protecting nature | living sustainably | creating a climate for change



February 26th 2021

ALEC & ECNT submission on the Federal Government's gas-fired recovery

The Arid Lands Environment Centre (ALEC) is central Australia's peak environmental organisation that has been advocating for the protection of nature and ecologically sustainable development of the arid lands since 1980. ALEC actively contributes to the development of energy and resources policy through written submissions and advocacy within the community.

The Environment Centre NT (ECNT) is the peak community sector environment organisation in the Northern Territory of Australia, raising awareness amongst community, government, business and industry about environmental issues and assisting people to reduce their environmental impact and supporting community members to participate in decision-making processes and action.

Our submission strongly opposes the Federal Government's gas-fired recovery. We dispute the need of the gas industry as being the stimulant to Australia's COVID-19 economic response. The expansion of gas infrastructure such as pipelines, in addition to the opening up of new gas basins across Australia (including those in the Territory) will cause substantial harm to our climate, land and water. A gas-fired recovery is a backward step which prioritises the short-term profits of fossil fuel companies ahead of the sustainable industries of the future. This is to the detriment of people, culture and the environment. ALEC and ECNT strongly oppose the development of the Beetaloo sub-basin, associated pipelines across the Northern Territory and a petrochemical plant at Middle Arm.

In our submission, we outline where gas production and consumption in Australia currently stand. Then, we challenge the core pillars of Australia's gas-led recovery, namely the impact of gas on: electricity prices, network stability, jobs and climate. We emphasise that a focus on gas is a missed opportunity in creating more resilient energy infrastructure, lowering electricity prices, creating the jobs of the future in climate mitigation and climate adaptation and decarbonising the economy. We finish by focusing on the Territory and outline why a gas-led recovery will have a devastating impact on water, climate and Country.

1. Gas consumption and production

Gas production in the east-coast market has nearly trebled in the last 8 years, with the huge expansion of Australia's LNG export industry at Gladstone.¹ Due to regulatory failures, as gas production grew, Australia's domestic gas prices doubled and in some markets tripled, leaving Australia with some of the highest gas prices globally, whilst also being the world's largest exporter of LNG in 2019.²³

Gas consumption is split into four different consumers: residential and commercial; industrial; gas powered generation (GPG); and, LNG. Gas consumption for residential and commercial consumers is anticipated to flatline over the 20-year outlook period at around 200PJ per year⁴. Similarly, gas as an industrial input is forecast to flatline over the 20-year outlook period at around 250PJ per year⁵. GPG consumption has been falling for years from 220PJ in 2014⁶. The 20-year outlook forecasts GPG consumption to fluctuate but to remain less than 100PJ per year, with periods of 50PJ of GPG consumption.⁷ GPG consumption forecasts may vary depending on the timing of transmission connection upgrades, renewable energy development and storage and the timing of coal-fired power station retirements. LNG consumption is expected to grow slightly and then flatline over the 20-year outlook at 1450PJ.⁸ Outlook demand for LNG is greatly linked to global markets and demand for LNG.

Shortfalls of gas are anticipated to emerge from 2024 for the domestic economy. This is forecast to grow to a supply gap of above 75PJ by the end of the decade.⁹ This is shortfall of around 7% of the amount of gas which is currently produced, of which more than 70% is for export.

ALEC and ECNT strongly dispute the need to manage these short-falls with a nationally coordinated gas extraction strategy. We outline below why a gas-fired recovery is not what the Territory and Australia need in response to the COVID-19 economic crisis.

2. Gas-fired recovery and the domestic energy market

A gas-fired recovery is a significant intervention into Australia's energy political-economy. It is an intervention that is not justified, nor is it congruent with the trajectory of the domestic or global energy markets. The energy sector is already undergoing a dramatic transition towards renewable energy. The 20 year roadmap by the Australian Energy Market Operator (AEMO) in its Integrated System Plan (ISP) makes it clear that a diverse array of renewable technologies with storage capacity, a focus on demand management and upgrades made to the transmission network will foster a resilient and reliable energy system in Australia. Australia is fortunate to have the highest solar radiance of any continent globally, extensive pumped-hydro capacity, some of the world's best wind resources and the potential of a huge

¹ AEMO, 2020c, p.21. Gas Statement of Opportunities

² Australian Energy Regulator, 2021. Wholesale statistics: SSTM Quarterley prices

³ Owen, W, 2020. Australia officially the world's largest exporter of LNG. LNG Industry. Accessed 25th February 2021.

LNG Industry, 2020.

⁴ AEMO, 2020, p.25. Gas Statement of Opportunities.

⁵ AEMO, 2020, p.26. Gas Statement of Opportunities.

⁶ AEMO, 2020, p.28. Gas Statement of Opportunities.

⁷ AEMO, 2020, p.28. Gas Statement of Opportunities.

⁸ AEMO, 2020, p.30. Gas Statement of Opportunities.

⁹ AEMO, 2020, p.44. Gas Statement of Opporunitites.

hydrogen energy industry.¹⁰¹¹¹² It is well known that standalone renewable energy is by far the cheapest form of new energy generation, where standalone solar costs have dropped in price by more than 500% in the last decade.¹³¹⁴

With an additional 26GW of renewable energy required by 2040, in addition to a further 9-16GW of dispatchable resources, the role of gas in the 20-year plan remains unclear. Existing gas supplies (19% of electricity generated in Australia) will play a supportive role in the renewable energy transition, however additional new gas generation remains unlikely and is dependent on gas prices remaining between \$4-6 for the technology to be viable.¹⁵¹⁶ Wholesale gas prices are currently above \$6, and gas prices for power generation, residential and commercial, and industrial uses are forecast to rise sharply around Australia across the 2020-2050 outlook.¹⁷¹⁸ Variable renewable energy such as wind and solar built with storage capacity are already competitive with gas-fired generation.¹⁹ The cost of storage to accompany renewable energy will continue to fall and become even more competitive. This is critical, as the Australian grid will require additional dispatchable power to firm the grid, primarily in the 2030's when a significant proportion of coal-fired generation will be retired. Batteries, small-scale pumped hydro and potentially hydrogen-energy are highly likely to be more competitive than gas-fired generation.

Australia currently sits at a critical juncture in determining how it transforms its economy to be powered by the technologies of the future, which will offer reliable, low cost and low carbon energy. The answer is not gas. A gas-fired recovery is a regressive step in Australia's transition to renewable energy. It is a highly concerning intervention that may disrupt Australia's decarbonising potential for decades.

3. Gas and electricity prices

As mentioned above, gas prices nearly tripled between 2014 and 2017 in direct correlation with growth in gas production for LNG exports. Easily accessed gas resources were funnelled off for export, leaving more expensive gas resources for the domestic market.²⁰ The opening up of untapped gas reserves in Central Queensland, the remote Northern Territory or north-western NSW isn't going to lower domestic prices. These basins are isolated, capital intensive and will accrue substantial transportation costs. It has led some within the industry to suggest that aspirational gas prices of \$4-6 are nowhere near

¹⁰ Geoscience Australia, 2019. Energy Resources and Markets. Key Messages. Australian Government. Accessed 24th February 2021.

¹¹ Blakers, A., Lu, B. and Stocks, M., 2017. 100% renewable electricity in Australia. *Energy*, 133, pp.471-482.

¹² Commonwealth of Australia, 2019. Australia's National Hydrogen Strategy. COAG Energy Council.

¹³ de Atholia, T., Flannigan, G. and Lai, S., 2020. Renewable Energy Investment in Australia| Bulletin–March Quarter 2020. Reserve Bank of Australia.

¹⁴ Graham, P., Hayward, J., Foster, J. and Havas, L. 2020, GenCost 2019-20, Australia

¹⁵ AEMO, 2020a, p.55. Integrated System Plan

¹⁶ Department of the Environment and Energy, 2019a. Australian Energy Statistics, Table O, March 2019. Australian Government.

¹⁷ AEMO, 2019. Delivered Wholesale Gas Price Outlook 2020-2050

¹⁸ Australian Energy Regulator, 2021. Wholesale statistics: SSTM Quarterley prices

¹⁹ Graham, P., Hayward, J., Foster, J. and Havas, L. 2020, GenCost 2019-20, Australia

²⁰ Ogge, M., Swann, T., 2020. Gas fired backfire: why a "gas fired recovery" would increase emissions and energy costs and squander our recovery spending. The Australia Institute.

realistic.²¹ Even historically low global gas prices and the coronavirus pandemic reducing LNG demand have not brought gas prices under \$6 across Australia. A gas-fired recovery is not the panacea to Australia's electricity price issues. In fact, it is renewable energy technologies, not gas which have been lowering electricity prices.²²

4. Gas, jobs and royalties

A large gas industry doesn't result in jobs for the Australian people, nor substantial contributions through taxes to the Australian Government.

While Australia's gas industry may be the largest exporter of LNG globally, the Petroleum Resource Rent Tax which generates royalties for the Australian Government, sees only a tiny fraction of revenue generated by the industry paid out in royalties. For example in 2017/18, LNG companies in Australia generated \$30 billion in revenue, but paid only \$1 billion in royalties.²³ This compares to Qatar who was the second largest LNG producer, generated more than \$26 billion in royalties. This royalties arrangement has also meant that major oil and gas companies in Australia like Chevron, ExxonMobil, BP and Shell aren't paying any royalties. With oil and gas companies in Australia only pay around \$1 billion in royalties, they make up a tiny fraction of the Federal Government's revenue, which in 2019-20 was \$514 billion²⁴.

Providing jobs is a major priority in stimulating the economy in response to the COVID-19 economic crisis. The gas industry is one of the least labour intensive industries in the entire economy, with less than 0.2% of the Australia workforce or 18000 jobs in the oil and gas industry.²⁵ Additionally, the gas industry is the lowest industry for labour intensity. For every \$1 million in sales generated, only 0.4 jobs are created in the gas industry.²⁶

A gas-fired recovery isn't going to create a jobs boom, nor is it going to lead to substantial revenue for the Australia Government. A gas-fired recovery fails to stimulate the Australian economy and get the hundreds of thousands of Australians out of work into jobs. Jobs in renewable energy (26850) already dwarfs the number of workers in the fossil fuel industry (8065), despite fossil fuels generating the vast majority of the nations electricity.^{27,28} Renewable energy technologies are job rich, while jobs in gas are heavily automated and job poor.

²¹ Energy Source and Distribution, 2021. Origin director says "someone's been smoking something" over east coast gas price targets.
<https://esdnews.com.au/origin-director-says-someones-been-smoking-something-over-east-coast-gas-price-targets/>

²² Australian Energy Market Commission, 2018. Residential Electricity Price Trends, Final report, 21 December 2018.

²³ Bruce, M, 2019. The LNG industry is booming. So why are we not getting the royalties? Accessed 25th February 2021.

²⁴ Parliament of Australia, 2020. Revenue: Budget review 2019-20 Index. Accessed 26th February 2021.

²⁵ ABS, 2020. 81550DO002_201718 Australian Industry, 2017-18,
<https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8155.02017-18?OpenDocument>

²⁶ ABS, 2020. 81550DO002_201718 Australian Industry, 2017-18,
<https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8155.02017-18?OpenDocument>

²⁷ ABS, 2020. Employment in Renewable Energy Activities, Australia, 2018-19,
<https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4631.02018-19?OpenDocument>,

²⁸ ABS, 2016. Census - Employment, Income and Education

5. Gas and climate

Gas is primarily made up of methane which is a highly potent greenhouse gas. It has a warming potential 84 times greater than CO₂ over a 20 year period.²⁹ When methane is burnt, carbon dioxide is produced. Conventionally, depending on the type of gas power station (open cycle gas turbine vs combined-cycle gas and steam turbine), gas power stations are approximately 30-50% more efficient than coal-fired power stations in the emissions they produce. However, during the extractive process unintended gas leaks from pressurised equipment can occur, this is known as fugitive emissions. Due to the high warming potential of methane, only a small proportion of gas needs to leak for it to become a major emissions issue. It is these fugitive emissions which challenge the idea that gas is a 'cleaner' fuel than coal, as it only takes 2-3% of methane fugitive emissions to be produced for gas to have a higher warming potential than coal.³⁰ Fugitive emissions in the United States have been shown to range between 2-17% of production.³¹ Additionally, there was no methane emissions baseline prior to the start of the LNG industry in Australia.³² Gas has the highest Scope 3 emissions intensity of different fossil fuels and renewable energy sources.³³ Scope 3 emissions include all emissions produced during the extraction, transportation, processing and burning of gas across the supply chain.

Globally, methane levels are now 2.5 times higher than they were prior to industrialisation.³⁴ Our understanding of methane is dynamic, with evidence in 2016 showing that methane is 20-25% more potent than previously understood and modelled.³⁵ Although, there are suggestions that this remains a significantly understated figure.^{36,37} As research develops, this has significant implications for policy. In June 2020, the Federal Government changed laws to reflect scientific consensus around the warming potential of methane;³⁸ with amendments likely to increase Australia's annual reported emissions by 3%. This is likely an understated figure as alluded to above.

Gas is another fossil fuel and our understanding of its warming potential continues to evolve. A gas-led recovery is a disaster for the climate, which has severe implications for Australia. Australia is already one of the most vulnerable nations to climate change impacts. Climate

²⁹ IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

³⁰ <https://ieefa.org/origin-pulls-the-plug-on-gas-exploration-in-the-northern-territory-whos-next/>

³¹ Lafleur, D., Forcey, T., Saddler, H. and Sandiford, M., 2016. A review of current and future methane emissions from Australian unconventional oil and gas production. *Melbourne: Melbourne Energy Institute*. Available online: <http://energy>.

³² Lafleur, D., Forcey, T., Saddler, H. and Sandiford, M., 2016. A review of current and future methane emissions from Australian unconventional oil and gas production. *Melbourne: Melbourne Energy Institute*. Available online: <http://energy>.

³³ Acil Allen Consulting, 2014. Emission factors: review of emission factors for use in the CDEII. Australian Energy Market Operator.

³⁴ Ed Dlugokencky, NOAA/GML (www.esrl.noaa.gov/gmd/ccgg/trends_ch4/)

³⁵ Etminan, M., Myhre, G., Highwood, E., Shine, K., 2016. Radiative forcing of carbon dioxide, methane, and nitrous oxide: A significant revision of the methane radiative forcing. *Geophysical Research Letters*, 43(24), pp.12-614.

³⁶ Etminan, M., Myhre, G., Highwood, E.J. and Shine, K.P., 2016. Radiative forcing of carbon dioxide, methane, and nitrous oxide: A significant revision of the methane radiative forcing. *Geophysical Research Letters*, 43(24), pp.12-614.

³⁷ Sarofim, M.C., 2012. The GTP of methane: modeling analysis of temperature impacts of methane and carbon dioxide reductions. *Environmental Modeling & Assessment*, 17(3), pp.231-239.

³⁸ *National Greenhouse and Energy Reporting (Measurement) Amendment (2020 Update) Determination 2020*

change has severe effects for Territorians, with the NT already a place of climate extremes. The NT is expected to experience a significant increase in extreme heat. By the end of the century Darwin is forecast to experience 288 days a year above 35°C, compared to the historical average of 47.³⁹ Droughts are predicted to be more intense in the Northern Territory, there will be fewer frosts, fewer but more intense cyclones and wild fires will become more frequent and harsher.⁴⁰ Additionally, the sea-level is expected to rise by more than half a metre by the end of the century and coastal waters are anticipated to have warmed to 1.6-4.1°C depending on the emissions scenario by 2100.⁴¹

6. The gas-fired recovery and the Territory

The gas-fired recovery has the potential to have substantial and dire impacts upon the Territory with little to gain. A gas-fired recovery for the Territory may result in the opening up of the Beetaloo sub-basin, new pipeline infrastructure sprawled across the regions, an expansion of gas developments across Central Australia and a petrochemical plant at Middle Arm in Darwin. As emphasised above, a gas-fired recovery will not bring the jobs the Territory needs, in addition gas from the Territory isn't going to lower electricity prices for the rest of Australia. Instead, it will bring devastating impacts to remote and very remote areas of the NT, with the impacts to be disproportionately placed upon Aboriginal communities.

ALEC and the ECNT strongly oppose the development of fracking in the Beetaloo sub-basin. The project poses significant threats to water, culture, land and climate. The fracking of the Beetaloo may have severe implications for groundwater resources across the region. A recent report emerging out of the baseline assessments in the region discovered at least 11 new species of stygofauna, in addition to providing more evidence of the high connectivity of aquifers some 260km apart.⁴² The risks posed by fracking if a spill event occurs, may impact areas hundreds of kilometres away from the epicentre.

ALEC and ECNT strongly oppose fracking in the NT and the proposed associated infrastructure, such as the Northern Gas Pipeline expansion, the Amadeus to Moomba Gas Pipeline and the Beetaloo to Darwin gas pipeline. These pipelines are key to facilitating the opening up of new fossil fuel basins, in addition to enabling invasive species access into remote and very remote regions of the Territory. We oppose any other associated developments with fracked gas such as the petrochemical plant for Middle Arm in Darwin.

³⁹ CSIRO, 2020. Climate Change in the Northern Territory: state of the science and climate change impacts.

⁴⁰ CSIRO, 2020. Climate Change in the Northern Territory: state of the science and climate change impacts.

⁴¹ CSIRO, 2020, p.25-26. Climate Change in the Northern Territory: state of the science and climate change impacts.

⁴² Rees GN, Oberprieler S, Nielsen D, Watson G, Shackleton M, Davis JA (2020) Characterisation of the stygofauna and microbial assemblages of the Beetaloo Sub-basin, Northern Territory. CSIRO, Australia. Copyright

ALEC and ECNT strongly support an economic response to the COVID-19 pandemic which prioritises people, culture, the environment and quality, long-term, lowcarbon jobs for Territorians.

Alexander Vaughan - Policy Officer at the Arid Lands Environment Centre

A handwritten signature in black ink, appearing to read "AVaughan". The signature is written in a cursive, flowing style.