

Emissions from the Tamboran NT LNG facility

The NT LNG facility aims to produce up to 20 million tonnes of LNG per year for export using gas fracked from the Northern Territory's Beetaloo Basin.

The domestic emissions produced by the Tamboran facility are equivalent to building 3 new coal-fired power stations in Australia.

The annual lifecycle emissions from the project are equivalent to the annual emissions of 12 Australian coal-fired power stations.

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BACKGROUND

Tamboran Resources is an oil and gas company with large unconventional gas tenements in the Northern Territory's Beetaloo Basin,¹ backed by oil and gas interests in the United States.² In June 2023, Tamboran announced plans to build a liquefied natural gas (LNG) export facility in the planned Middle Arm "Sustainable Development Precinct" on Darwin Harbour in the Northern Territory.

¹ Tamboran (2023) *Tamboran's pure focus is on its acreage portfolio in the Beetaloo/McArthur Basin in the Northern Territory*, <https://www.tamboran.com/assets/>

² Paproth (November 2021) *Tamboran Resources welcomes US oil & gas giant as cornerstone investor*, <https://www.proactiveinvestors.com.au/companies/news/967016/tamboran-resources-welcomes-us-oil-gas-giant-as-cornerstone-investor-967016.html>

Tamboran is targeting first LNG production by 2030³, the year Australia is due to meet its Paris Agreement target – a reduction in Australia’s emissions of 43% on 2005 levels.

This project is additional to over 100 new coal and gas projects listed by the Australian Government as “under development” in its Resources and Energy major Projects (REMP) list.⁴

The proposed facility, called the Northern Territory LNG (NTLNG) project, would have an annual capacity of 6.6 million tonnes (Mtpa) of LNG.⁵ However, Tamboran’s Managing Director and CEO Joel Riddle has described this as just the “first phase” of a much larger 20 Mtpa LNG development.⁶

Tamboran’s announcement came after an earlier announcement by the Northern Territory Government that Tamboran Resources had been allocated land for its LNG facility at Middle Arm along with four other companies.⁷

The Middle Arm “Sustainable Development Precinct” itself is being facilitated by a \$1.5 billion subsidy from the Australian Government.⁸

Despite claims by the Australian Minister for Infrastructure, Catherine King, that the Federal Government’s investment in Middle Arm is “not a subsidy for fossil fuels”, documents obtained under Freedom of Information (FOI) revealed that the Government sees Middle Arm as a “key enabler” for the export of gas from the Beetaloo Basin.⁹

³ Listcorp (2023) *Tamboran granted exclusivity at Middle Arm for Potential LNG*, <https://www.listcorp.com/asx/tbn/tamboran-resources-limited/news/tamboran-granted-exclusivity-at-middle-arm-for-potential-lng-2884321.html>

⁴ *Department of Industry, Science and Resources (2022) Resources and energy major projects: 2022*, <https://www.industry.gov.au/publications/resources-and-energy-major-projects-2022>

⁵ Tamboran Resources (9 June 2023) *Tamboran secures land at Middle Arm Sustainable Development Precinct for proposed Northern Territory LNG (NTLNG) Development*, <https://www.investi.com.au/api/announcements/tbn/c2224152-5fb.pdf>

⁶ Tamboran Resources (14 June 2023) *AusbizTV interview*, https://twitter.com/tamboran_tbn/status/1668800685402468354?s=46&t=yuyMG_q8m-DL1QYjsp_mMA

⁷ Fyles (9 June 2022) *Building the Territory’s Future at Middle Arm with cleaner energy and more jobs*, <https://createsend.com/t/t-3F06A88F03EFB95E2540EF23F30FEDED>

⁸ King (2022) *\$2.5 billion infrastructure boost for the NT*, <https://minister.infrastructure.gov.au/c-king/media-release/25-billion-infrastructure-boost-northern-territory>

⁹ Cox (May 2023) *Darwin’s ‘sustainable’ Middle Arm development is key to huge fossil fuel projects, documents show*, <https://www.theguardian.com/environment/2023/may/18/darwins-sustainable-middle-arm-development-is-key-to-huge-fossil-fuel-projects-documents-show>

ESTIMATING TAMBORAN EMISSIONS

An estimate of the emissions from the Tamboran development can be made from an earlier study by commercial energy consultancy, Reputex.¹⁰ Reputex estimated the total emissions of extracting, processing and using gas from the Beetaloo Basin at 72.9 grams of CO₂ equivalent per megajoule of energy produced (gCO₂e/MJ). This includes ‘upstream’ production emissions (mining energy use and methane emissions), ‘downstream’ combustion (from use by gas customers) as well as LNG processing, transport emissions and regasification at its destination.

Table 1: Reputex estimates of Beetaloo Basin greenhouse gas emissions

Stage	Emissions (gCO ₂ e/MJ)
Upstream gas extraction	13.0
LNG processing	6.0
NT/Aus emissions from exports	19.0
Transport emissions	1.6
Regasification emissions	0.8
Downstream combustion	51.5
Customer country emissions	53.9
Export lifecycle emissions	72.9

Source: Reputex (2021)



Table 1 shows that emissions that occur and are accounted for in the NT (and therefore Australia) consist of upstream emissions, largely methane emissions from extracting the gas, and emissions from LNG processing at the proposed NTLNG facility at Middle Arm. Reputex estimates the emissions from these processes at 19.0 gCO₂e/MJ. This can also be expressed as 19,000 tonnes of CO₂e per petajoule of gas (see Table 2 below).

Once the LNG is processed, it will be exported. Emissions will result from transporting the gas by ship, regasification at import terminals and the final combustion of the gas in customer countries. Reputex estimates the emissions from these processes at 53.9 gCO₂e/MJ. This includes some rounding from Reputex figures and is expressed as 53,949 tonnes of CO₂e per petajoule of gas in Table 2 below.

¹⁰ Reputex (October 2021) *Analysis of Beetaloo Gas Basin Emissions & Carbon Costs*, https://www.reputex.com/wp-content/uploads/2021/10/REPUTEX_Analysis-of-Beetaloo-Gas-Basin-Emissions-and-Carbon-Costs_Oct21F.pdf

In total, gas fracked in the NT and exported as LNG is expected to create 72.9 gCO₂e/MJ, or 72,949 tonnes of CO₂e per petajoule.

The Tamboran project’s emissions can be estimated by converting its LNG production capacity measured in tonnes (a 6.6 Mtpa pilot stage and the planned 20 Mtpa expansion) to energy units, and then applying the Reputex estimates of pollution per energy unit. Table 2 below shows these calculations.

Table 2: Annual emissions from Tamboran LNG exports, initial phase & full capacity

Stage	Unit	Initial phase	Full capacity
Capacity (Volume)	Mtpa LNG	6.6	20
Volume to energy	PJ/Mt LNG	54.4	54.4
Capacity (Energy)	PJ/year	366	1,108
Conversion of energy unit to NT/Aus emissions from exports	t CO ₂ e/PJ	19,000	19,000
NT/Aus emissions from exports	Mtpa CO ₂ e	6.9	21.0
Conversion of energy unit to customer country emissions	t CO ₂ e/PJ	53,900	53,900
Customer country emissions	Mtpa CO ₂ e	19.7	59.8
Total lifecycle emissions	Mtpa CO ₂ e	26.7	80.8

Source: Author’s estimates based on Reputex (2021)



Table 2 shows that the 6.6 Mtpa pilot stage of the project will result in emissions of 6.9 Mtpa CO₂e in the NT, and 19.7 Mtpa CO₂e in customer countries, a total of 26.7 Mtpa CO₂e.

The 20 Mtpa LNG full capacity period would see NT emissions of 21.0 Mtpa CO₂e and customer country emissions of 59.8 Mtpa CO₂e, a total of 80.8 Mtpa CO₂e.

Gas fields ramp up production over time to full capacity and then tail off in later years. Reputex’s analysis of potential development scenarios for Beetaloo Basin gas used a high production scenario that reached 1,240 PJ/year at full production, similar to the full capacity scenario in Table 2 above. Reputex estimated a 1,240 PJ/year scenario would result in around 1.4 billion tonnes of emissions over 20 years assuming a typical production curve.¹¹ As such, Tamboran’s plans for 20 Mtpa LNG (the 1,108 PJ/year scenario) would result in well over 1 billion tonnes of emissions over 20 years.

¹¹ Reputex Ibid. Figure 6, page 11.

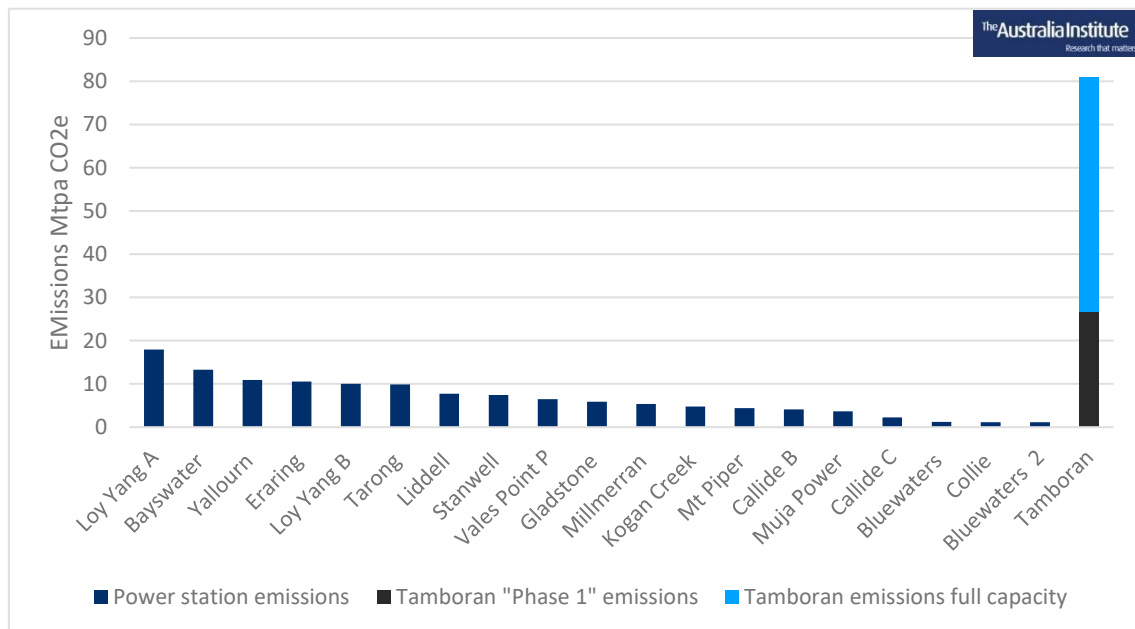
TAMBORAN EMISSIONS IN CONTEXT

Comparison with Australian coal power stations

Australia’s nineteen coal fired power stations emitted 128 Mt in 2019-20, an average of 6.5 Mt each.¹² This means that the annual 81 million tonnes of emissions from Tamboran’s 20 Mtpa LNG scenario is equivalent to the emissions of twelve average Australian coal-fired power stations.

The domestic emissions from Tamboran – that is the emissions that will occur in Australia – will be the equivalent of the three average coal-fired power stations.

Figure 1: Annual emissions from coal power stations v Tamboran



Source: Clean Energy Regulator (2023) *Electricity sector emissions and generation data 2021–22*; Tamboran (2023), Interview AusbizTV

¹² Authors calculation of average emissions of Australian coal fleet from: Australian Government, Clean Energy Regulator (2023) *Electricity sector emissions and generation data 2021–22*, <https://www.cleanenergyregulator.gov.au/NGER/National%20greenhouse%20and%20energy%20reporting%20data/electricity-sector-emissions-and-generation-data/electricity-sector-emissions-and-generation-data-2021%E2%80%9322>

CONCLUSION

At full capacity, the NT LNG project would create 81 million tonnes per year of greenhouse emissions, over one billion tonnes over the life of the project. The annual emissions from the project are equivalent to the emissions of twelve Australian coal power stations and greater than the collective emissions of all Pacific Island nations.

The Australian Government was elected with a strong mandate to act on climate change. Facilitating and subsidising large-scale gas expansion does not align with this mandate or Australia's commitments to reduce emissions.