

28 June 2023

Northern Territory Environmental Protection Authority

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Dear Sir /Madam

**Re: Submission on the Santos Darwin Duplicate Pipeline Project**

I am a long- term resident of Darwin who has chosen to live in Darwin because of its beautiful natural environment and outdoor lifestyle.

I am highly concerned by the development of the Santos duplicate pipeline and its associated CCS project and gas developments. I see the Santos initiatives in Middle Arm as posing an unacceptable environmental risk, not only for the immediate Darwin/ Palmerston environment and communities but to the Tiwi Aboriginal communities and to Australia as a whole, through impacts on marine, land, and sea eco systems as well as significantly contributing to climate change.

The duplicate pipeline cannot be assessed in isolation. It must be seen in the context of the whole Santos Darwin Middle Arm development, the proposed Carbon Capture Storage (CCS) project and Santos associated gas fields. The purpose of building the pipeline is not just to enable the development of the CCS project but to enable Santos to continue expanding its gas developments in the NT and to develop a new fossil fuel resource field, the Barossa gas field (projected to be one of the highest fossil fuel emitters of Co2 in Australia).

**Specific concerns**

- The new Barossa gas field will increase enormously Co2 emissions levels in the NT, making it one of the biggest fossil fuel Co2 emitters in Australia.
- The risks to increasing global warming and climate change are far too high and is dependent on achieving high success rates through CCS, an approach where the jury is still out.
- Details provided by Santos as to how the CCS project will operate is not strong enough to justify the extreme level of risk to the environment and climate change.
- The risk of a catastrophic spill, involving pipelines used to transport CCS, are far too great.
- The process of building the dual pipeline and associated industrialisation of Darwin harbour poses an unacceptable risk to marine life and ecosystems.

To look at each of these.

**Barossa's carbon emissions will be enormous, resulting in an exponential increase in Co2-e levels in the NT.**

- Santos in their own SER estimate that the life cycle emissions of the Barossa project will be 296MT Co2-e. This will result in an exponential increase in the level of Co2 emissions in the NT. (To compare the Co2-e levels in the NT in 2018 were less than 18mt.)
- The Barossa gas field has an extremely high Co2 content at 18%. This would make it one of the biggest gas Co2 emitters in Australia.
- Santos in its SER has been deceptive about the levels of Scope 1, on site emissions occurring in the NT. They have counted Darwin LNG's operation as scope 3 emissions claiming the owners

are different, when in fact Santos owns 50% of Barossa and 43% of Darwin LNG and are operators of both fields.

- The levels of Co2 emissions from the proposed Barossa gas field are far too high and at these levels will significantly contribute to increasing the level of emissions in the NT and Australia as a whole, with likely catastrophic impacts on the environment and climate change.
- The Barossa gas field places reaching NT and Australian Government commitments to reduce greenhouse emissions to net zero by 2050, and the Australian Government commitment to 43% reduction in emissions by 2030 at risk, (with emission levels likely to go in the wrong direction).

**The jury is still out on the success of Carbon Capture Storage (CSS) projects in reducing Co2 emissions.**

- The dual pipeline is seen as facilitating the proposed Santos CCS project. The CSS facility proposed for the Darwin harbour is designed to collect, capture and transport carbon dioxide through pipelines from nearby onshore and offshore gas fields.
- International research to date shows no evidence that CCS is a proven and effective technology for reducing greenhouse emissions. In fact, climate bodies such as the Australian Climate Council see CCS as delaying the rapid transformation required to reduce global warming and as providing a licence for fossil fuel industries such as gas companies, to continue production of high greenhouse emission activities for decades to come.
- The continuation and expansion of fossil fuels has also led to the expansion of other by product industries that contribute to environmental damage and climate change, such as petrochemical industries and the rapid expansion of plastics.
- The rate of CCS project failure is very high. No CCS project anywhere in the world has delivered on time and captured the agreed amount of carbon. A recent study of all CCS developments in the USA found that more than 80% had ended in failure and Chevron's Gorge Gas Plant in WA, which is the biggest attempt at a CCS project in the world, has after 5 years of operation captured less than half the emissions needed to make the CCS project viable.

**Details provided by Santos on how the CSS project will operate is not strong enough to justify the extreme level of risk to the environment and climate change.**

- There is no evidence that Santos is serious about pursuing its CCS project. Santos have stated they are willing to use offsets to meet their requirements under the Safeguard mechanism until Bayu Undan CCS is in operation, but there is no evidence of Santos pursuing the required approvals to realise the CCS project.
- Santos in its SER does not detail the expected amount of Co2 to be captured, the additional emissions created, and net emissions reduction anticipated from a CCS project. Previous analysis of potential for CCS at Bayu Undan has suggested no net reduction in emissions because of the high level of emissions involved in transporting and compressing carbon dioxide. If this is the case the project is unnecessary and poses unacceptable risks.
- There is no confirmation that the existing pipeline infrastructure is appropriate for transporting carbon dioxide, which requires reengineering to avoid corrosion and other effects of concentrated Co2. At the time of publishing the SER, Santos is still awaiting a Statement of Conformity to establish the possibility of using the existing infrastructure for CCS.

**The risk of a catastrophic spill especially of pipelines used to transport CCS, are far too great.**

- Significant risks of environmental damage and health impacts exist for CCS projects, which are over and above those for gas pipelines. CCS is contained at very high-pressure levels and

extremely low temperatures, which can lead to corrosion of the pipelines increasing the risk of leakage, ruptures and running fractures. The impact of explosions through accidents are extreme. Explosive decompression of a CCS pipeline releases more gas more quickly, and spreads more quickly over a wider area, than an explosion from a gas pipeline. The WA Chevron CCS project has been plagued by leaks and cracks and is frequently evacuated.

**Construction of the dual pipeline and associated industrialisation of Darwin harbour poses an unacceptable risk to marine life and ecosystems.**

- The construction phase will result in over 550 vessels transitions in Darwin harbour. Marine megafauna in the area will be threatened by the increase in vessel activity and associated light and noise impacts as well as possible collisions.
- The project will require sea clearing/ dredging; an estimated 40m width of cleared seabed to lay the pipe. Sea clearing in this manner can result in temporary or permanent habitat loss. Additionally, there is risk that disturbance of the sediments may mobilise contaminants including arsenic, which is found above the levels in the National Assessment Guidelines for Dredging screening levels.
- Many marine mammals are found in the Darwin harbour project area, including the false killer whale, Australian humpback dolphin, Australian snubfin dolphin, Indo- Chinese bottlenose dolphin and dugongs. Darwin harbour forms part of the Biologically Important Area for the three dolphin species. Dolphin numbers in the Harbour are already decreasing and would be at risk of further decline if this industrialisation goes ahead. Six species of marine turtles are also found in the project area.
- Santos has not attempted to collect baseline data on dolphin numbers and there is an overall data deficiency in relation to marine megafauna and ecosystem dynamics in the Harbour, which will make ongoing risk assessment and management difficult.

**Conclusion**

The environmental risk of the dual Darwin pipeline project must be seen within the context of the Santos Middle Arm and CCS development as well as its associated gas fields. The dual Darwin pipeline project will both enable the transportation of gas from the new fossil fuel Barossa field to the Darwin LNG plant and will facilitate the proposed CCS project. The lifecycle emissions from the new Barossa field will be enormous and is projected to be one of the highest fossil fuel emitters of Co2 in Australia. The operation of the CCS project is not well articulated by Santos and evidence elsewhere shows limited success in producing the levels of CCS required to mitigate the extreme levels of risk to the environment and climate change by the production of such large- scale emissions. As such, the risks to the environment and climate change are far too high to justify allowing the dual pipeline project, its associated CCS project and new Barossa gas field to proceed.

Yours Sincerely