

Managing Greenhouse Gas Emissions At Pluto LNG

Pluto LNG Greenhouse Gas Abatement Program (2025 – 2030) Ministerial Statement 1208 Condition 12-8 Summary¹

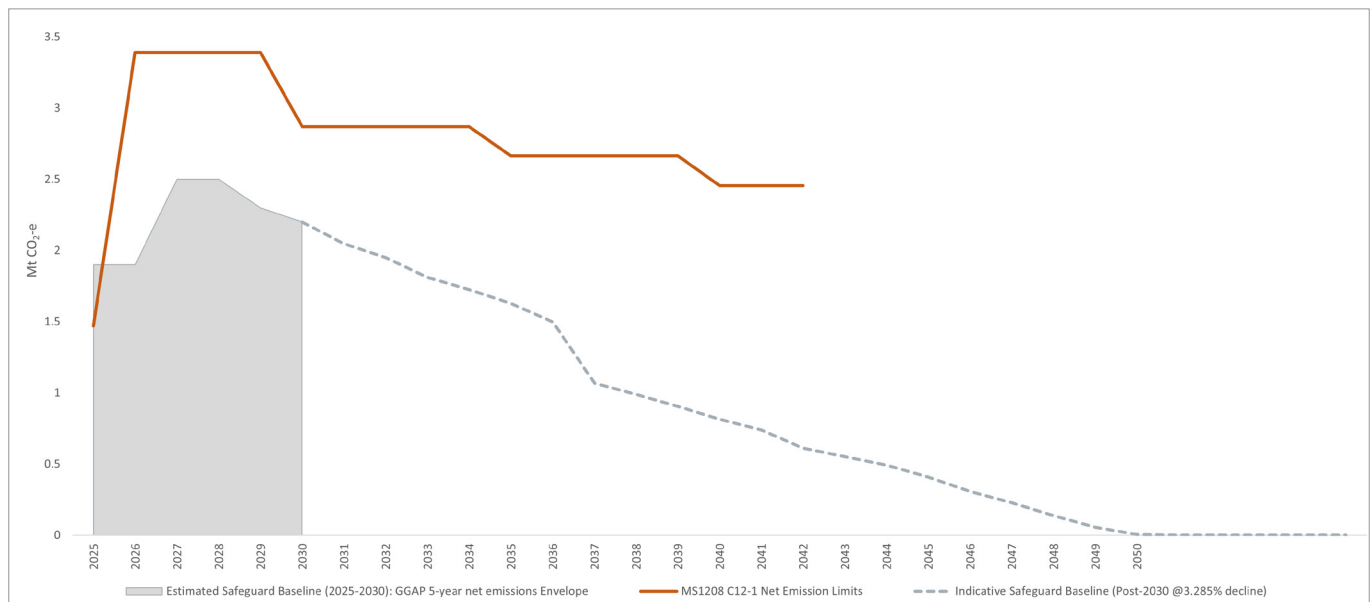
Pluto LNG Facility² is well placed to achieve net zero emissions by 2050. Woodside's most recent Pluto Greenhouse Gas Abatement Program (GGAP) was granted regulatory approval in June 2025. The GGAP demonstrates how the Pluto LNG Facility will manage emissions by adhering to the Safeguard Mechanism.

Woodside is currently developing the Scarborough gas resource through new offshore facilities connected by an approximately 430 km pipeline to an approved expansion of the existing Pluto LNG onshore facility (Pluto LNG Plant³). Expansion includes modifications to the existing Train 1, construction of a second gas processing train (Pluto Train 2) and additional domestic gas infrastructure. Scarborough gas would primarily be processed through Pluto Train 2.

The Scarborough reservoir contains less than 0.1% carbon dioxide and combined with processing design efficiencies at the floating production unit (offshore) and at Pluto Train 2 (onshore), the project is expected to be one of the lowest carbon intensity sources of LNG delivered into north Asian markets.

Safeguard Mechanism & Net GHG Emissions Requirements

The Pluto LNG Facility's Scope 1 emissions are regulated in accordance with the *National Greenhouse and Energy Reporting (NGER) Act* by the Safeguard Mechanism (SGM), a Federal Government mechanism for reducing emissions at industrial facilities, in addition to Ministerial Statement (MS) 1208 Condition 12-1 net Greenhouse Gas (GHG) Emissions requirements. The SGM sets limits, known as baselines, on the GHG emissions of certain industrial facilities. These baselines decline, predictably and gradually, on a trajectory consistent with achieving Australia's emission reduction targets of 43% below 2005 levels by 2030 and net zero by 2050. The SGM decline-rate is 4.9% each financial year until FY 2030 after which the default decline rate is proposed to be 3.285% per year. Further detail on the SGM is provided in Section 3.5 of the Pluto GGAP Revision 4.



Pluto GGAP Rev 4 Figure 3-5: SGM Baseline and Trajectory of Net GHG Emissions Under SGM and MS1208 C12-1⁴

¹ This summary has been prepared in compliance with Ministerial Statement 1208 Condition 12-8, which requires a summary of the matters specified in conditions 12-3(1) to 12-3(5). This summary is not intended to serve as a substitute for reading the Pluto LNG Greenhouse Gas Abatement Program (Pluto GGAP) Revision 4 in full. This summary necessarily condenses and simplifies the underlying content, and readers are strongly advised to refer to the complete Pluto GGAP Revision 4.

² Pluto LNG Facility as defined under Federal NGER Act Section 9: this includes Pluto offshore extraction facilities, offshore Pluto-A Platform, subsea transmission systems, onshore Pluto LNG Plant, and supporting materials facility/laboratory.

³ Pluto LNG Plant is defined as the facilities and infrastructure located at, or to be developed within, the Pluto LNG Park which are used for processing feedstock gas and for the production, storage, handling and loading of LNG and other products, and includes storage facilities and loading Facilities as defined in MS757/MS1208.

⁴ From 2025 to 2036, non-Proposal emissions (such as emissions from Pluto Alpha offshore platform) included in Pluto LNG Facility NGER scope represents 0.4% of total Safeguard Facility emissions, and 0% thereafter.

The Pluto LNG Plant is anticipated to be operating beyond 2050, subject to obtaining relevant approvals, with net zero GHG emissions in accordance with SGM requirements as set out in Section 3.1 and Section 3.2 of the Pluto GGAP Revision 4.

Pluto LNG Greenhouse Gas Abatement Program (Pluto GGAP)

The 2025 Pluto GGAP (Revision 4) replaces Revision 3a of the Pluto GGAP dated June 2021. This revision incorporates the revised conditions set out in Ministerial Statement (MS) 1208 Condition 12, published 15 August 2023. Since publication of MS 1208, the State Government released its updated "Greenhouse Gas Emissions Policy for Major Projects" on 15 October 2024. The updated policy responds to reforms to the SGM which establishes a nationally consistent approach to reducing GHG emissions.

As at the date of publication of Revision 4 of the Pluto GGAP, the Pluto GGAP is reviewed and updated every five years (as a minimum) as part of an adaptive management review, so that there is a consideration of whether actions are adequately addressing the relevant key risks and meeting the objectives of current and future State and Federal legislation and policy.

Pluto LNG Facility Emissions (Two-Train Operations)

Estimated GHG emissions for the Pluto LNG Facility are summarised below. The basis for this estimate is two LNG trains in operation with an upper estimated LNG production capacity of approximately 11 Mtpa.

Pluto GGAP Rev 4 Table 3 1: Current Estimated Proposal GHG emissions⁵

Scope 1 (Covered Emissions)			Scope 2	Total
Base	Non-Reservoir Emissions (Mt CO ₂ -e)	Reservoir Emissions (Mt CO ₂ -e)	Electricity (Mt CO ₂ -e)	Proposal GHG Emissions (Mt CO ₂ -e)
Annual (estimated peak)	3	0.3	0	3.3
Total for the life of the proposal (estimated)	75	3	0	78

The Pluto LNG Facility electrical power system is optimised to support maximum energy efficiency and sparing across the facility. Due to several variables that influence the emissions intensity of LNG production, net emission intensities will vary across the life of the Pluto LNG Facility primarily due to cyclical turnaround (shutdown) maintenance periods, and process utilisation changes depending on availability of unprocessed natural gas supply from offshore reservoirs and upstream facilities.

Further information of common assumptions, uncertainties and limitations applicable in developing emissions estimates are included in Appendix A of the Pluto GGAP Revision 4.

Pluto GGAP Rev 4 Table 3 2: Current estimated Proposal GHG Emission Intensity (Scope 1 and 2)^{6,7}

Period	Estimated range of emissions intensity (tCO ₂ -e/t LNG annual period averages)	
	Non-Reservoir	Reservoir
2025 – 2030	0.31 - 0.33	0.03 – 0.04
Post-2030	0.28 - 0.35	0.004 – 0.006

The Pluto LNG Facility’s GHG emissions intensity is projected to be approximately 0.35 t CO₂-e/t LNG in 2025. Following the commissioning of Pluto Train 2, the combined Pluto LNG Facility intensity in steady-state operations is estimated to be 0.33 t CO₂-e/t LNG, prior to implementing any potential emission reduction measures. The benchmarking performance of the Pluto LNG Facility is favourably positioned relative to the average GHG emissions intensity of LNG facilities with similar technology, geographic constraints, and climatic conditions. Further details on benchmarking are included in Section 3.4 of the Pluto GGAP Revision 4.

⁵ Based on upper-estimated potential production and associated emissions, subject to reservoir outcomes, other resource owners, emission reduction initiatives.

⁶ Excludes any emission reduction opportunities (abatement/offsets) executed during the period.

⁷ Intensity metric is based on LNG intensity, excludes condensate and domgas.

Mitigating GHG Emissions at Pluto LNG

Pluto LNG Plant plans to achieve its net emissions baselines and limits in three ways:

- Avoiding GHG emissions through design
- Reducing GHG emissions through operations
- Offsetting GHG emissions as required

Avoiding and reducing GHG emissions is a priority⁸.

AVOID

The best practice design of the Pluto LNG Plant was subject to regulator and independent peer reviews in 2007, 2011 and 2019. These reviews occurred prior to the construction phases of the LNG trains in accordance with Environmental Protection Act approval processes and consistent with MS 757 and the GGAP current at the relevant times. The Pluto GGAP Revision 4 focuses on operations of the Pluto LNG Plant as a two-train LNG facility and potential emission mitigation measures in the operations phase.

REDUCE

Woodside uses an adaptive management approach that embeds a continuous cycle of monitoring, evaluating and implementing change (where appropriate), while maintaining ongoing reporting so that relevant future improvement opportunities, not yet identified, will be able to be captured and actioned. Several GHG reduction measures and opportunities are included in Section 3.3.1 of the Pluto GGAP. For example, the Pluto LNG Plant has been modified to receive power from the proposed Woodside Solar project, displacing existing onsite electrical power generation. The modifications are substantially completed and are ready for grid connection. It will enable the import of up to 50 MW of solar power subject to FID, commercial arrangements, regulatory & JV approvals and third-party activities (which may or may not proceed).

OFFSET

The Pluto LNG Facility utilises certified carbon credits which meet the regulatory requirements to offset Scope 1 GHG emissions during a specified period after design out and operate out measures have been adopted. The Pluto LNG Facility utilises offsets to meet these regulatory requirements, while asset and technology decarbonisation opportunities are matured and viable measures implemented. Carbon offsets can be sourced through carbon market purchases, purchased from the Federal Government through the Cost-Containment Measure, through issuance of SGM Credits (SMCs) from the Clean Energy Regulator (CER), or through development of carbon origination projects. The Pluto LNG Facility has and will continue to use a combination of these sources.

Stakeholder Consultation

The various revisions of the Pluto GGAP have been publicly available on Woodside's website since 2011 in accordance with MS 757.

Woodside has been a part of the regional north-west WA communities for more than 40 years and during this time it has promoted and encouraged stakeholder input and feedback. Consistent with the EPA's broader principles for environmental impact assessment (EPA, 2023), Woodside has consulted with a broad range of stakeholders regarding GHG emissions from the Pluto LNG Plant operations.

Stakeholders consulted previously on the GGAP are listed in previous revisions of the GGAP (most recently Revision 3a dated June 2021).

In accordance with MS 1208 Condition 12-3(1)-(5), Revision 4 of the GGAP has been prepared in consultation with Murujuga Aboriginal Corporation (MAC). Table 6-1 of the GGAP summarises consultation activities and key topics discussed.

It is anticipated that consultation with MAC and other stakeholders will occur on an ongoing basis. Where consultation takes place over the life of the Proposal, consultation outcomes that Woodside considers relevant will be incorporated into future versions of the GGAP, which is anticipated to be updated on a five yearly basis as set out in Section 4.1 of the Pluto GGAP Revision 4.

MS 757 (As replaced by MS 1208) Condition 12 Requirements

Relevant MS 757 Condition 12 (as replaced by MS 1208) requirements are outlined below⁹:

Excerpt from Pluto GGAP Rev 4 Table 2 1: MS 757 Condition 12 Requirements

Condition	Requirement	Section addressed in Pluto GGAP Revision 4
12-3	Prior to 31 December 2024, or such greater time approved in writing by the CEO , Woodside must revise in consultation with the Murujuga Key Stakeholders , and submit to the CEO a revision of the Rev 3a GHG Abatement Program that:	This GGAP DWER approved extension to 30 April 2025 noting s46 inquiry underway: Letter received 18 December 2024
12-3 (1)	is consistent with the achievement of the Net GHG Emissions limits in condition 12-1 (or the achievement of Net GHG Emissions reductions beyond those required by those limits);	Section 3.2
12-3 (2)	specifies the estimated Proposal GHG Emissions, Reservoir Emissions, Non-Reservoir Emissions, Total Emissions Intensity, Reservoir Emissions Intensity, Non-Reservoir Emissions Intensity for the life of the proposal;	Section 3.2
12-3 (3)	include a comparison of the estimated Proposal GHG Emissions, Reservoir Emissions, Non-Reservoir Emissions, Total Emissions Intensity, Reservoir Emissions Intensity and Non-Reservoir Emissions Intensity for the life of the proposal against other comparable facilities;	Section 3.2
12-3 (4)	identifies and describes any measures that Woodside will implement to avoid, reduce and/or offset (including offsets developed in consultation with Murujuga Key Stakeholders) Proposal GHG Emissions, Reservoir Emissions and/or Non Reservoir Emissions and/or reduce the Reservoir Emissions Intensity, Non-Reservoir Emissions Intensity and/or Total Emissions Intensity of the proposal; and	Section 3.3 Section 3.7
12-3 (5)	provides for the future review of the program to: (a) assess the effectiveness of measures referred to in condition 12-3(4); and (b) identify and describe options for future measures that Woodside may or could implement to avoid, reduce and/or offset Proposal GHG Emissions, Reservoir Emissions and/or Non-Reservoir Emissions and/or reduce the Reservoir Emissions Intensity, Non-Reservoir Emissions Intensity and/or Total Emissions Intensity of the proposal.	Section 4

⁸ Implementation is subject to technology maturity, technical and commercial feasibility, commercial arrangements, regulatory & JV approvals and third party activities (which may or may not proceed).

⁹ Pluto GGAP Rev 4 Table 2-1 does not include all MS 1208 conditions, only those relevant to the contents of the GGAP.