Bioenergy Australia (Forum) Pty Ltd
ABN 14 155 856 821

Renewable Gas Alliance

## Renewable Gas Alliance Submission - Productivity Commission: Opportunities in the Circular Economy

Bioenergy Australia (BA) is the national industry association committed to accelerating Australia's bio economy. Our mission is to foster the bioenergy sector to generate jobs, secure investment, maximise the value of local resources, minimise waste and environmental impact, and develop and promote national bioenergy expertise into international markets.

*This submission is on behalf of the Renewable Gas Alliance (RGA), an alliance founded to accelerate the decarbonisation of Australia's gas network through increased deployment of biomethane. The RGA has over 100 member organisations, including gas pipeline owners, gas retailers, project developers, technology providers, off takers, research organisations, and state and local government representatives. Individual members of the alliances will be providing more detailed submissions specific to their business and expertise. This submission is a collective response and does not represent the views of any specific member.*

Australia's Bioenergy Roadmap (ARENA, November 2021) outlines how, by the start of the next decade, Australia's bioenergy sector could contribute to around $10 billion in extra GDP per annum and 26,200 new jobs (predominately regional), reduce emissions by about 9 per cent, divert an extra 6 per cent of waste from landfill, and enhance fuel security. Now is the time to capitalise on these opportunities through the development of Australia's domestic biomethane industry.

Bioenergy Australia thanks the Productivity Commission for the opportunity to provide feedback on the Opportunities in the Circular Economy paper. Over the past 12 months, we have seen significant developments within Australia's biomethane sector, including the proposal to introduce market-based reporting arrangements for renewable gas as part of the NGER Scheme 2025 updates, the release of the Future Gas Strategy, the announcement that biomethane and biogas will be included in the Guarantee of Origin scheme, and the progression of several state-based policy consultations, such as the NSW Renewable Fuel Strategy and Victoria's Renewable Gas Directions Paper.

While these are important steps forward, greater recognition and policy support for this critical industry are still needed.

Australia's biomethane industry is a significant waste-to energy solution that will support a circular economy. Biomethane production utilises waste that would otherwise end up in landfills, decay in fields, be burned off, or remain as waste, transforming these materials into high-value, sustainable energy that can be utilised to decarbonise Australia's hard-to-electrify sectors, while capturing the GHG emissions that would usually be released during decomposition.

Biomethane is a renewable and carbon-neutral replacement for natural gas that can aid in the decarbonisation of Australia's gas network and hard-to-abate industrial processes. It is compatible with existing gas infrastructure, pipelines, and transmission assets and does not require new infrastructure to be created and installed, or for existing infrastructure to be retired. This compatibility enables decarbonisation while allowing existing assets to fulfill their operational lifespans, supporting a circular economy by extending the life of current resources and reducing the need for premature replacements.

Biomethane can be produced from a variety of wastes such as agriculture residues, livestock manure, landfills, organic fraction of MSW, FOGO and wastewater sludge. Anaerobic digestion (AD) is a proven method for biomethane production, with over 200 AD facilities currently operating in Australia and additional projects planned for expansion.[1] Comparatively, Germany has nearly 10,000 operating digesters, with some communities achieving near fossil fuel-free status as a result. [2]

This established technology not only supports the recovery and utilisation of energy, nutrients, and heat from organic matter but also diverts large volumes of agro-industrial, domestic, and commercial waste from landfills, thus reducing methane emissions generated by these practices. At full potential, AD can deliver ~50% of the global methane pledge by 2030 through:

- Avoided landfill emissions (from food waste disposal).
- Avoided emissions from manure management.
- Avoided burning emissions.[3]

AD not only reduces methane emissions, but generates critical co-products including biogas, biomethane, bioCO2, digestate fertilisers and other valuable bioproducts. Specifically, digestate is a safe, cost-competitive, nutrient-rich organic fertiliser that captures and utilises GHG emissions that would otherwise be released during decomposition, to support that enriches and replenishes the soil, while offering a circular solution to managing increasing amounts of organic waste.[4]

Furthermore, the technology to upgrade to biomethane and inject it into the grid has been successfully implemented worldwide. By the end of 2022, over 1,200 biomethane plants were officially registered in the leading European biomethane-producing countries, with about 90% connected to the grid, contributing 37 TWh of biomethane injected into the grid.[5]

Currently, the Jemena Malabar Biomethane Injection Plant in New South Wales is Australia's first project to produce and inject biomethane into the gas network. It captures methane from sewage sludge at the Malabar Wastewater Treatment Plant in Sydney[6], which is then injected into the gas network, replacing natural gas for about 6,300 homes.[7] This is a key example of a biomethane project that is actively contributing to our circular economy.

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[1] Race for 2030, 'Onsite anaerobic digestion for power generation and natural gas/diesel displacement' (2023)

[2] American Biogas Council, 'Biogas Market Snapshot' (2023)

[3] World Biogas Association, Biogas Insight 1, 'Delivering the Global Methane Pledge'

[4] World Biogas Association, Biogas Insight 1, 'Delivering the Global Methane Pledge'

[5] World Biogas Association, Biogas Insight 1, 'Delivering the Global Methane Pledge'

[6] https://www.jemena.com.au/future-energy/future-gas/Malabar-Biomethane-Injection-Plant/

[7] Clean Energy Council, 'Bioenergy' website

A policy environment that supports biomethane grid injection will play a crucial role in addressing the supply challenges in the east coast gas market. The Australian Bioenergy Roadmap highlights that biomethane could be scaled up quickly to supply 23% of Australia's total pipeline gas demand by 2030.[8] This contribution could help alleviate supply pressures, improve price stability, and enhance domestic energy security.

Prioritising the development and adoption of biomethane presents a significant opportunity to advance a circular economy in Australia. Biomethane is a complete circular economy solution. It converts waste into a critical energy source while producing valuable by-products such as digestate, which can support feedstock growth. The residuals from these feedstocks can recirculate back into the system.

## Information request 5.2 Recognising the benefits of biogas in carbon reporting

### Introduction of market-based reporting for biomethane under National Greenhouse and Energy Reporting (NGER) Scheme

The introduction of this market-based reporting approach serves as one of the most important enablers for supporting Australia's biomethane market. It allows anaerobic digestion projects to be optimally located where feedstock and infrastructure are available, better connects biomethane producers with manufacturing and industrial customers, provides investors with greater confidence to invest in the sector, and offers hard-to-abate gas users a pathway to reduce emissions without needing to overhaul equipment or cease operations.

A market-based reporting arrangement will allow NGER reporters to claim the lower emissions intensity attributable to biomethane purchases, even when the gas is distributed through common infrastructure. This reporting approach is crucial not only for enabling entities to reduce emissions and meet their obligations under the Safeguard Mechanism, but also for reducing abatement costs and supporting demand for biomethane. For many large gas users, the displacement of natural gas with renewable gas is one of very few viable options to reduce direct emissions. However, the current location-based accounting approach under the NGER Scheme, which does not allow the full emissions reduction benefit to flow to the buyer of renewable gas when the gas is supplied via shared infrastructure, effectively removes the incentive.

This limitation is placing Australia's manufacturers and industrial gas users at a significant competitive disadvantage compared to foreign peers, deterring growth by making manufacturing prohibitively expensive, and could even result in manufacturing shifting overseas to remain viable.

This approach is a necessary step to enable the successful investment and uptake of renewable gas and renewable gas projects in Australia. Without this, Australia's renewable gas industry risks falling even further behind global peers in Europe, Asia and North America, where thriving biomethane markets have long been changing the face of energy and abatement for years.

[8] Australia's Bioenergy Roadmap, ARENA, 2021

The introduction of the market-based reporting arrangements for biomethane and hydrogen has been proposed as part of the NGER Scheme 2025 updates. This approach has been widely supported, both across the industry and by the Climate Change Authority, which recommended this approach in its December 2023 NGER review report[9] and is expected to be implemented from 1 July 2025.

## The need for a national biomethane certification scheme

A nationally recognised certificate for biogas is crucial for supporting the growth of Australia's renewable gas industry. By certifying biomethane, gas users can track their use of this zero-emission, carbon-free energy source toward their emissions abatement targets, creating a clear path for transitioning to cleaner energy.

Certification also ensures biomethane is recognised and verified as a legitimate renewable and low-carbon energy source, enabling it to compete on equal terms with other energy sources in the market. This fosters a more level playing field and accelerates the adoption of biomethane. Moreover, certification enhances market confidence, attracts investment, and drives demand—all essential for the long-term expansion of the biomethane sector. By establishing clear sustainability criteria and robust tracking of environmental benefits, the certification ensures that emissions reductions and waste recovery are properly attributed to the appropriate producers and users, strengthening the overall integrity of the market.

The Australian government has committed to extending the Guarantee of Origin (GO) scheme to include biomethane, solidifying its role in the nation's energy future. While the methodology for the biomethane sector is still being finalised, RGGO certificates are already being issued through the GreenPower Renewable Gas Certification scheme. This provides commercial and industrial gas customers with the opportunity to match their gas use with renewable gas certificates, laying a solid foundation for the continued growth and development of the biomethane market.

The recognition and support for biomethane under the GO Scheme represents a significant step in advancing Australia's net-zero ambitions. This move will not only attract critical investment for project development and expansion, incentivise its use to reduce emissions, and reinforce customer confidence in the value of this product, but also demonstrate the Australian Government's commitment to achieving its emissions reduction objectives.

## The benefits of biomethane reporting and certification

- Supports Circular Economy: Biomethane operates within a closed-loop system, converting organic waste into renewable energy, capturing methane and other greenhouse gas emissions, and producing digestate that enhances soil health. This process cycles nutrients back into the ecosystem, contributing to a more sustainable and resilient economy.

[9] Climate Change Authority's 2023 Review of The National Greenhouse and Energy Reporting Legislation

- Increases Access to Renewable Energy: Certification allows gas customers to purchase and use biomethane regardless of their proximity to production sites. This broadens access, boosts demand, incentivises production, and supports the growth of Australia's biomethane market.
- Reduces Emissions: Biomethane can replace natural gas, reducing emissions from traditional fuels. In Australia, replacing natural gas with biomethane can result in an 8–31% reduction in emissions, depending on policy support. Additionally, it helps reduce methane emissions, a greenhouse gas 86 times more potent than $CO_2$ over 20 years. Biomethane is a key pathway to help Australia meet its commitment to reduce carbon emissions by 43% by 2030 and achieve net-zero by 2050.
- Captures Methane Emissions: Biomethane production helps manage agricultural waste by reducing emissions from organic materials. Certification aligns with waste-to-energy policies, prevents the decay or burning of feedstock, and strengthens waste diversion strategies, contributing to a circular economy.
- Supports Digestate Production: Biogas and biomethane plants produce digestate through Anaerobic Digestion (AD). This green fertiliser reduces the need for mineral fertilisers, avoiding the emissions associated with their production. The carbon in the biomass is absorbed by the soil, rebuilding humus and making the soil a carbon sink, ultimately reducing overall carbon emissions.
- Provides a Cost-Effective Emission Reduction Solution: Biomethane production is more cost-competitive than renewable hydrogen, and it can be seamlessly integrated into existing natural gas systems. The transport and storage of biomethane further enhance its cost-competitiveness due to its compatibility with established pipeline infrastructure.
- Promotes Domestic Energy Security: Biomethane certification encourages the growth of a domestic industry, reducing reliance on fossil fuels and imported energy resources, thereby enhancing Australia's energy security.
- Addresses Australia's Waste Challenge: Australia is one of the highest per capita waste generators in the world, highlighting the significant feedstock available for biomethane production. Australia generated an estimated 74.1 million tonnes (Mt) of waste in 2018-19, with 27 per cent going to landfill (20.5 million tonnes).[10] There is a clear opportunity to divert this waste for biomethane production. Diverting organic waste from landfill by processing it through anaerobic digestion (AD) aligns well with circular economy principles and overall decarbonisation objectives and provides significant potential not yet tapped into, with currently only 2% of organic waste in Australia processed via AD (DCCEEW, 2022a) which is significantly lower than many comparable countries.
- Supports Economic Opportunities: The adoption of biogas technology could create over 18,000 full-time jobs in Australia by 2050, particularly in regional areas, and contribute $50 billion to the national GDP, according to the Race for 2030 report.
- Attracts Clean Energy Investment: As demand for renewable energy increases, certification under the GO scheme can assure investors of biomethane's green credentials, encouraging investment in the domestic biomethane market.

[10] https://cdn.revolutionise.com.au/cups/bioenergy/files/jsgqguyb1zftkx6c.pdf

- Supports International Climate Commitments: Certifying biomethane as a renewable and low-carbon energy source under the GO scheme helps Australia demonstrate its commitment to international climate agreements like the Paris Agreement, enhancing the nation's global reputation as a responsible actor in tackling climate change.

By including biomethane as a product within the GO Scheme, biomethane is acknowledged as a renewable and low-carbon energy source. When the GO Scheme recognises and certifies biomethane as a legitimate product, it not only provides a clear market signal to consumers and investors but demonstrate the Government genuine commitment to fulfil its domestic and international commitment to the clean energy transition.

## Information request 5.3 Reforming regulations to support the recovery of value from organic waste

A major regulatory barrier impacting projects focused on the recovery and use of organic waste is the lack of recognition and policy support for biomethane. Biomethane is a crucial pathway for converting organic waste into renewable energy. However, these projects face significant risks due to the nascent nature of the biomethane industry in Australia. To mitigate these risks and attract investment, there needs to be stronger policy support and formal recognition. Key regulatory issues hindering progress include:

- Insufficient supply-side support, creating an uneven playing field compared to traditional fossil fuel alternatives. Supply side policies could include capital and development grants, production credits or tax incentives, contracts for difference and R&D support. One of the most straightforward opportunities to address this is including biomethane as a priority area within the Future Made in Australia initiative with targeted funding allocated under the Future Made in Australia Innovation Fund.
- Lack of biomethane certification under the Federal Guarantee of Origin Scheme. While this has been committed to and is in progress, fast-tracking its development is critical.
- Absence of market-based reporting that recognises renewable gas certification, such as the GreenPower Renewable Gas Guarantee of Origin Certificates, within the National Greenhouse and Energy Reporting (NGER) Scheme. This is expected to be address from 1 July 2025.
- Market and investment uncertainty that hinders project development and investment.
- Need for supportive regulation and incentives that address fair access and connection costs to enable grid connection for biomethane plants.
- Inconsistent and unclear regulations for anaerobic digestate across states is preventing this valuable by-product from achieving its full potential and providing associated benefits. To support its uptake and maximise its benefits, clearer regulatory guidelines and a streamlined approval process are needed.
- Lengthy and complicated planning approval processes delay biomethane project development, introducing uncertainty, inefficiencies, and increased costs. Streamlining regulatory approvals for biomethane projects can enhance efficiency and reduce overall costs across the state

- Lack of equal support for biomethane compared to other alternative energy sources, which may be less practical, feasible or available for large energy users. This disparity of support is impacting the widespread recognition and investment certainty for biomethane projects.
- Lack of adequate support, recognition, and enabling regulations is delaying the development of the domestic market in Australia. In contrast, other countries with thriving biomethane industries benefit from supports such as targeted capital funding, premium feed-in tariffs (FIT), and guaranteed access to the pipeline network at low, regulated rates.
- The need for a National Feedstock Strategy: To effectively support the entire biomethane supply chain, policy should be designed to stimulate both production and demand, with a specific focus on organic waste feedstocks that are essential for scaling Australia's domestic biomethane industry. Prioritising the development and diversion of organic waste for biomethane production will be key to unlocking the full potential of this renewable energy source.

Thank you for taking the time to consider our submission. Any questions or request for further assistance are welcome

Sincerely,

Shahana McKenzie
CEO Bioenergy Australia