



CEFC Explainer

The renewable gas opportunity

This CEFC explainer outlines the opportunity for renewable natural gas (RNG) to support Australia's transition to a net zero economy. It explains what RNG is, why it matters, and how it can help decarbonise hard-to-electrify sectors. It also examines the challenges facing the emerging RNG industry in Australia and highlights the role of policy, investment and collaboration in unlocking its potential at scale.

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Australian Government



Unlocking the RNG opportunity

Renewable natural gas (RNG), also known as biomethane, has the potential to play a significant role in Australia's decarbonisation journey. On a lifecycle emissions basis, RNG can reduce emissions by up to 90 per cent compared with its fossil fuel equivalent, depending on the feedstock and production pathway.¹

RNG is produced from organic waste streams but has the same chemical properties as conventional natural gas, meaning it can be injected into existing gas networks and used in existing equipment without modification.

While the technology to produce and distribute RNG is mature and widely deployed in markets such as Europe and North America, its use in Australia is still emerging. Unlocking this opportunity will require coordinated action from policy makers, gas network operators, industrial users, feedstock providers and capital providers.

The CEFC has long played a critical role in supporting emerging industries that are essential to Australia's transition to a net zero economy. By investing early, the CEFC helps overcome market barriers, de-risk new sectors and crowd in additional capital. Through targeted finance and collaboration with industry, government and investors, the CEFC helps accelerate commercialisation, build investor confidence and scale solutions.

Today we see RNG as an important industry on the cusp of an exciting future in Australia. We have developed this paper to explore the challenges and opportunities in expanding the use of RNG in Australia, and how to overcome the barriers to its broader adoption.



RNG in Australia

Gas is a critical input to Australia's manufacturing industries, providing energy, heat and feedstock for sectors such as aluminium, chemicals, cement, bricks, and foods and beverages.

Many of these processes require continuous, high-temperature heat or a chemical feedstock that is difficult or not commercially viable to electrify with current technologies. RNG offers a way to decarbonise these hard-to-abate sectors by replacing fossil fuel-based gas with a renewable alternative that can deliver the same performance.

RNG has the same chemical composition as conventional natural gas, enabling it to be blended into or fully substitute existing gas supplies. It can be used in current pipelines, industrial equipment and household appliances without the need for expensive retrofit or replacement, providing a practical, "drop-in" pathway to decarbonise gas use.

The technology to produce RNG already exists, and it is widely used in other markets. In 2024, Europe produced 5.2 billion cubic metres of biomethane,² with Denmark's national gas network already comprising roughly 40 per cent biomethane and targeting 100 per cent RNG early next decade. North America now has more than 600 RNG facilities in operation, as a result of clear policy direction and investment signals. New Zealand commissioned its first RNG-to-grid facility in late 2024 and expects to commission a second facility in early 2027.

Despite its promise, the RNG industry in Australia remains in its early stages, with only one facility – the Malabar Wastewater Treatment Plant – currently injecting RNG into the grid. Another facility, the Salisbury plant by Delorean in South Australia, is under construction, while two new projects, Griffith Biohub and Wasleys RNG facility, have recently been announced. There are several small behind-the-meter facilities processing nearby waste, many of these supported by CEFC financing, however, this limited activity highlights the nascency of the sector and the significant opportunity for growth and development in the coming years.

In order to expand its usage in Australia, greater collaboration among RNG developers, gas infrastructure providers, policy makers and capital providers is required. The CEFC is working to advance the use of RNG in Australia by fostering industry collaboration and developing financing solutions to address market gaps and facilitate investment in the sector.



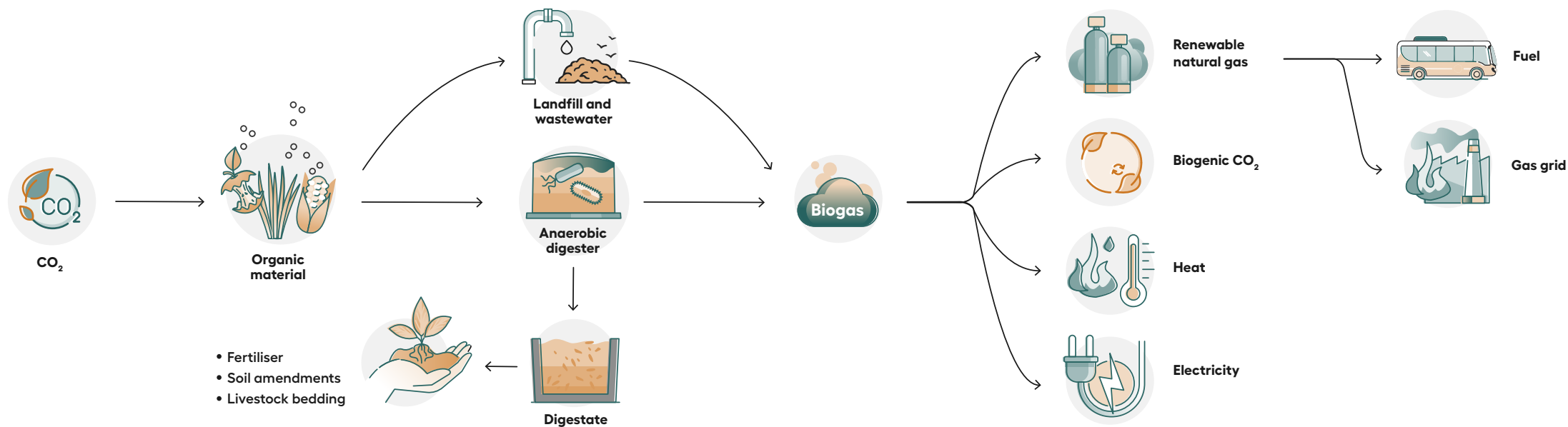
2. European Biogas Association, 15th *Statistical Report* of the European Biogas Association unveiled, 10 December 2025.

What is renewable natural gas?

RNG is a lower-emissions gas produced from organic material such as green waste, wastewater, food industry by-products, agricultural residues and industrial organic waste. These feedstocks are placed in large, enclosed tanks or lagoons that are free from oxygen, known as anaerobic digesters. Inside these sealed digesters, micro-organisms break down the organic material in a process similar to how a stomach digests food, releasing biogas.

This biogas is then cleaned and upgraded to remove moisture, impurities and carbon dioxide, leaving high-quality methane. RNG can also be produced by capturing methane-rich landfill biogas from municipal landfills and upgrading it to pipeline quality through a similar process.

When processed to the required standard, the result is a renewable fuel that produces lower emissions over its lifecycle, which is chemically identical to fossil natural gas. By-products of this process include biogenic CO₂ (a renewable alternative to fossil-derived CO₂ for those commercial, industrial and agricultural sectors that use CO₂ as an input), and digestate (a natural fertiliser).



Why does this matter?

Up to ~23Mt of carbon emissions reductions per year

Substituting RNG for pipeline natural gas could remove up to approximately 23 million tonnes of carbon emissions per year.³ Further abatement could also result from avoided methane emissions from the natural decomposition of the organic waste.

\$100b of economic activity

Gas is critical for Australia's \$100 billion manufacturing industry as an energy source and raw material. Industries such as brickmaking, steel production, paper and packaging, and cement production require round-the-clock, high-intensity heat that variable renewable electricity alone cannot currently provide at scale.

60% of household waste is organic

Organic material makes up around 60 per cent of household waste, providing a strong and consistent feedstock base for landfill gas production. Australia also has a large and concentrated landfill footprint, with more than 1,000 sites receiving more than 20 million tonnes of waste each year, around 75 per cent of which is handled across approximately 40 major landfills.⁴



70% of Australia's gas demand

Australia could produce around 400 PJ of RNG each year – enough to meet more than 70 per cent of Australia's total end use gas demand (i.e. excluding electricity generation), or more than the total gas demand from the hard-to-abate manufacturing and mining sectors.

86Mt of agricultural residues

Australia generates 86 megatonnes of agricultural residues from farming each year.⁵ If a portion of this is diverted for use in RNG production, it would support regional economic development. This would include creating new income streams for farmers, creating permanent jobs across regional value chains and reducing reliance on landfilling or open burning of waste.

50+ new policies

Global policy momentum for RNG has grown in recent years, with more than 50 new policies introduced around the world since 2020. RNG deployment has also been accelerating globally, with output projected to double between 2023 and 2027.⁶

What about methane emissions?

- The process of producing RNG from landfill gas or anaerobic digestion uses methane that would otherwise be emitted to the atmosphere.
- Methane, which is at least 28 times more potent than carbon dioxide in trapping heat in the atmosphere, is responsible for 25–30 per cent of global warming since pre-industrial times.⁷ When methane is captured and combusted, it is converted to carbon dioxide, which has a much lower global warming impact than methane.
- Australia committed to the Global Methane Pledge in 2022, aiming to reduce global methane emissions by 30 per cent by 2030.

3. Based on ~400 PJ p.a. recoverable RNG supply (Blunomy, *Biomethane Opportunities to Decarbonise Australian Industry*, report to Energy Networks Australia, July 2025) and approximate lifecycle emissions reductions of up to 90% (DCCEEV NSW, 2025).

4. B McCabe and W Clarke, *Explainer: how much landfill does Australia have?*, The Conversation, 2 June 2017, accessed 19 August 2026.

5. Blunomy, July 2025.

6. International Energy Agency, *Outlook for Biogas and Biomethane*, May 2025.

7. Climate Council of Australia, *Dangerously Overlooked: Why We Need to Talk About Methane*, 2024.

What are the challenges?

While the opportunities for RNG are significant, a number of challenges need to be addressed to drive real momentum in the sector. The CEFC has highlighted four areas for change as well as potential solutions.

1

Commercially viable cost structures

As an emerging industry in Australia, RNG projects currently face higher production and deployment costs than conventional gas. To reach scale, early projects need targeted policy support and mechanisms that address the cost differential.

2

Nationally supportive policy settings

Elements of renewable gas policy are currently determined on a state-by-state basis, creating a patchwork of regulations and incentives and limiting investment into only those states with supportive policies. A national renewable gas policy and more consistent, supportive policy settings across jurisdictions would provide clearer signals for project developers and investors. The Federal Government's release of a Discussion Paper on a proposed National Renewable Gas Policy on 14 August 2026 represents a significant step towards achieving this objective.

3

Connecting RNG to the gas grid

RNG needs to be connected to existing gas transmission and distribution networks. Projects require reasonable proximity to the gas grid, as well as investment in the necessary upgrading, compression and injection infrastructure. Coordinated planning between project developers, gas network operators, gas network regulators (The Australian Energy Regulator and the Economic Regulation Authority Western Australia) and capital providers will be essential to ensure that promising projects are not constrained by a lack of connection capacity.

4

Raising awareness and generating demand

Awareness of RNG's potential remains relatively low. Many feedstock providers are not yet aware of the value embedded in their waste streams, and many industrial users do not realise that a low-emissions, drop-in gas alternative is available. Targeted engagement with farmers, food processors, municipal councils, industrial users and the broader community is needed to build understanding of RNG and stimulate demand for it.



Addressing the challenges

The opportunity for RNG in Australia is huge. However, realising it will require concerted effort to overcome several, interrelated challenges.

To bring these opportunities to fruition, market participants, policy makers and capital providers need to work together to scale up the industry.

On the following pages we outline some of these challenges and potential solutions, drawing on global case studies and examples of work the CEFC has undertaken to date.

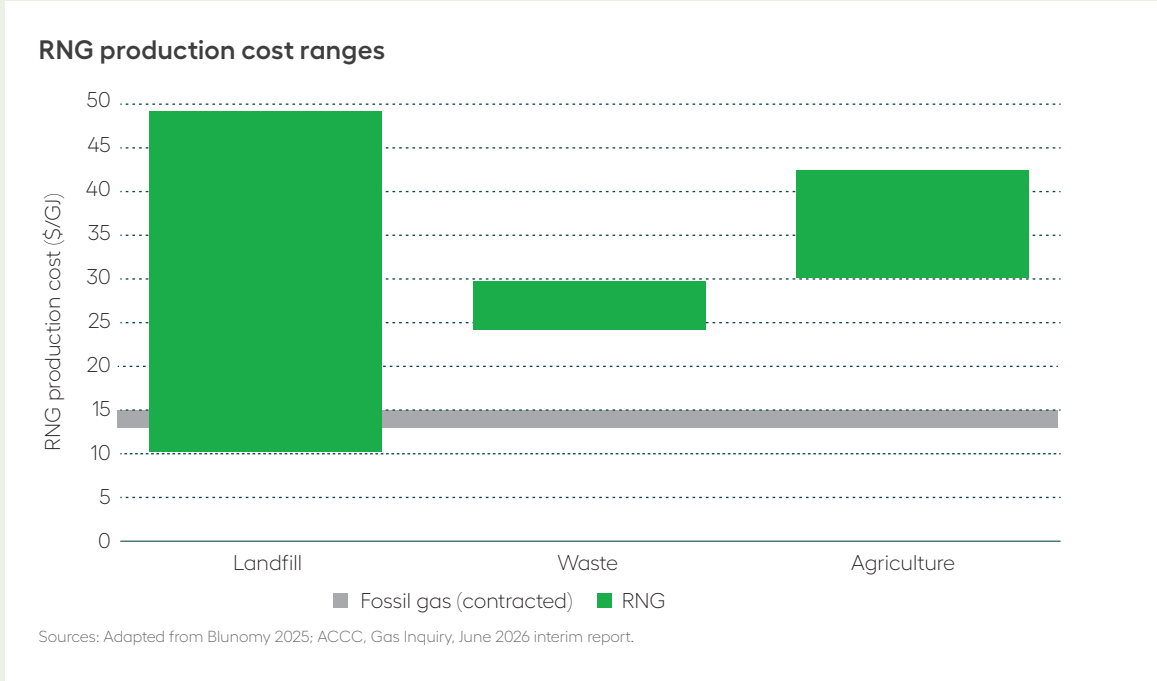
Challenge Commercially viable cost structures

To reach scale, early projects need targeted policy support and investment mechanisms

Key stakeholders
Governments, RNG providers, feedstock suppliers, capital providers

Financing solutions
Concessional financing to enable commercially viable projects

The cost to produce RNG is currently higher than the average contracted price of fossil gas. International experience shows that a combination of initiatives can overcome this price differential. Clear price signals (such as contracts for difference or feed in tariffs), long-term feedstock and offtake arrangements, concessional financing and recognition of the environmental attributes of renewable gas can all help unlock investment.



Case study Helping Richgro to grow

The CEFC’s investment in Perth-based Richgro is an example of catalytic finance contributing to the financial viability of a pioneering technology. Richgro, a major garden product supplier, built and now operates an anaerobic digestion plant for the company’s Jandakot operations in partnership with Delorean Corporation. It was the first of its kind in Australia, demonstrating the potential for producing energy from organic waste, using a scalable technology with a solid track record overseas. The benefits of the Richgro anaerobic digestion plant included estimated abatement of more than 140,000 tCO₂-e over a 20-year lifespan, enough energy to power Richgro operations at Jandakot, and sell surplus energy into the power grid.

The \$6.6 million anaerobic digestion plant was financed with a \$2.2 million loan from the CEFC, successfully repaid in 2016.



Challenge

Nationally supportive policy settings

A national renewable gas policy and more consistent policy settings can support the growth of RNG

Key stakeholders

Local, State and Federal governments, RNG providers



Case study

Denmark leads the world in RNG adoption

Denmark's renewable gas target is to achieve 100% green gas coverage by early next decade. Its policy settings have created one of the most advanced biomethane markets in the world, by combining long term strategic planning, financial incentives, and deliberate gas system reform.

Denmark's approach rests on a clear national strategy to reduce natural gas use, shift households to electric heat pumps, and reserve RNG for hard to electrify industrial sectors. This is supported by a comprehensive "gas package" that provides a stable framework for green gas development through to 2050. These targeted measures have enabled RNG to scale from local injection to now supplying roughly 40% of the national gas grid.

Denmark's reforms also include supportive pricing structures, sustainability standards, and coordinated planning across energy, agriculture and waste sectors. As a result, RNG is positioned to replace fossil gas almost entirely in the coming decade.

For Australia to learn from Denmark, the focus needs to shift from "can RNG help?" to "where, how much, and what settings are needed?". This includes:

- **Defining the future gas system**, not just today's problems.
- **Giving investors long term certainty** through clear targets and integrated policy.
- **Designing markets and networks** so that renewable gas can scale and trade like fossil fuel gas.



Challenge

Connecting RNG to the gas grid

Investment is needed to connect RNG to existing gas transmission and distribution networks

Key stakeholders

RNG providers, gas network operators, capital providers

Financing solutions

The CEFC has the capacity to finance the infrastructure required for connecting RNG to the grid or the infrastructure required to upgrade a transmission connection.



Case study

Smart CEFC financing enables grid connection

The CEFC provided a \$160 million concessional loan to Powerlink to build transmission infrastructure to unlock greater renewable generation capacity in the Southern Downs Renewable Energy Zone (REZ) in Queensland. Powerlink, a Queensland Government Owned Corporation, needed financing to build a connection asset that would be shared by multiple renewable electricity generators but initially utilised by only two. It would have been cost prohibitive for the two foundation generators to cover the entire cost of the connection asset. The CEFC therefore provided concessional financing to support 'oversizing' the connection asset for future generators while keeping connection costs competitive for the foundation generators.



Challenge

Raising awareness and generating demand

Targeted engagement and education is needed to raise awareness of the benefits of RNG

Key stakeholders

RNG providers, gas users, capital providers, feedstock providers

Financing solutions

Concessional funding to support education programs as part of a larger facility



Case study

CEFC supports investment in behaviour change

The CEFC is working with Cleanaway, Australia's largest waste management company, to demonstrate how Australians can use clean energy technologies to tackle the problem of waste emissions and play a vital role in Australia's clean energy transition.

CEFC finance is supporting Cleanaway's sustainable waste management activities, along with a range of educational projects, including initiatives to show Australians how to improve recycling levels and reduce landfill waste and emissions. This includes the Greenius online education platform, and research into Australia's changing attitudes and behaviours around recycling.



Case study

Fuel for Thought demystifies RNG

The *Fuel for Thought* YouTube docuseries introduces RNG to a broad audience by showing how biomethane is produced from everyday organic waste and how it can be used as a low emissions substitute for fossil gas. The series highlights real world examples from farms, factories and wastewater facilities, with industry experts explaining how RNG works, why it matters, and how it fits into a circular economy.

By presenting these stories in an accessible, narrative format, the series helps demystify renewable gas technologies and builds public understanding of RNG. It also addresses common misconceptions and highlights international examples, making it easier for the public to see RNG as a credible, scalable and practical part of Australia's future energy mix.



Case study

Jemena's Malabar project shows the potential of RNG

Jemena's renewable gas project at Malabar is Australia's first large scale demonstration of producing biomethane and injecting it directly into an existing gas distribution network, showing how renewable gas can substitute fossil gas in practice.

Located alongside Sydney Water's Malabar Wastewater Treatment Plant, the facility upgrades biogas from wastewater into pipeline quality RNG and injects it into the New South Wales gas network.

The project demonstrates the technical and commercial viability of RNG by proving that biomethane can meet gas quality specifications, be transported through existing pipelines, and support a circular economy by turning waste into energy.

As Australia's first biomethane to grid project, it provides foundational insights for scaling renewable gas infrastructure nationally, with Jemena's commissioning report highlighting the project's role in establishing the processes, standards and operational learnings needed for broader adoption.



