



Enabling the
decarbonisation of
Australia's energy
networks

Policy pathways to advance Australia's biomethane sector: learning policy lessons from international jurisdictions

Background: Biomethane is a low-carbon, circular and renewable drop-in replacement to fossil-based natural gas. It has the potential to reduce Australia's methane emissions, help to decarbonise gas networks and gas-reliant industries, and support national climate and waste diversion targets. Almost all biomethane is produced via upgrading biogas from anaerobic digesters and landfills – a mature technology which has been implemented at scale in many regions. These include Europe and North America, which respectively have 1,500 and 300 biomethane facilities in operation and had at least 950 and 500 facilities in the pipeline as of 2023. In contrast, Jemena's Malabar plant in NSW is the only biomethane project in operation in Australia as of 2025.

Purpose: This report examines policy approaches that could support the development of a biomethane industry in Australia. Policy mechanisms and initiatives employed in a number of international jurisdictions with more mature biomethane industries (US, Canada, Denmark, United Kingdom and Italy) are assessed and compared against the existing policy and regulatory landscape in Australia across the biomethane value chain. Barriers, enablers and gaps within Australia are examined, with potential policy mixes discussed that could be applied to the meet the current challenges in the Australian context.

Approach: A comprehensive desktop review was conducted. Guided by a policy analysis framework, we mapped the key policy strategies, targets, market and financial instruments, and regulations along the supply chain for each case country (**Figure 1**). This was complemented by interviews with industry, government and research stakeholders from Australia and the international countries examined to further identify enablers, barriers, gaps and opportunities. This report provides detailed findings of the research completed between July 2024 to February 2025.

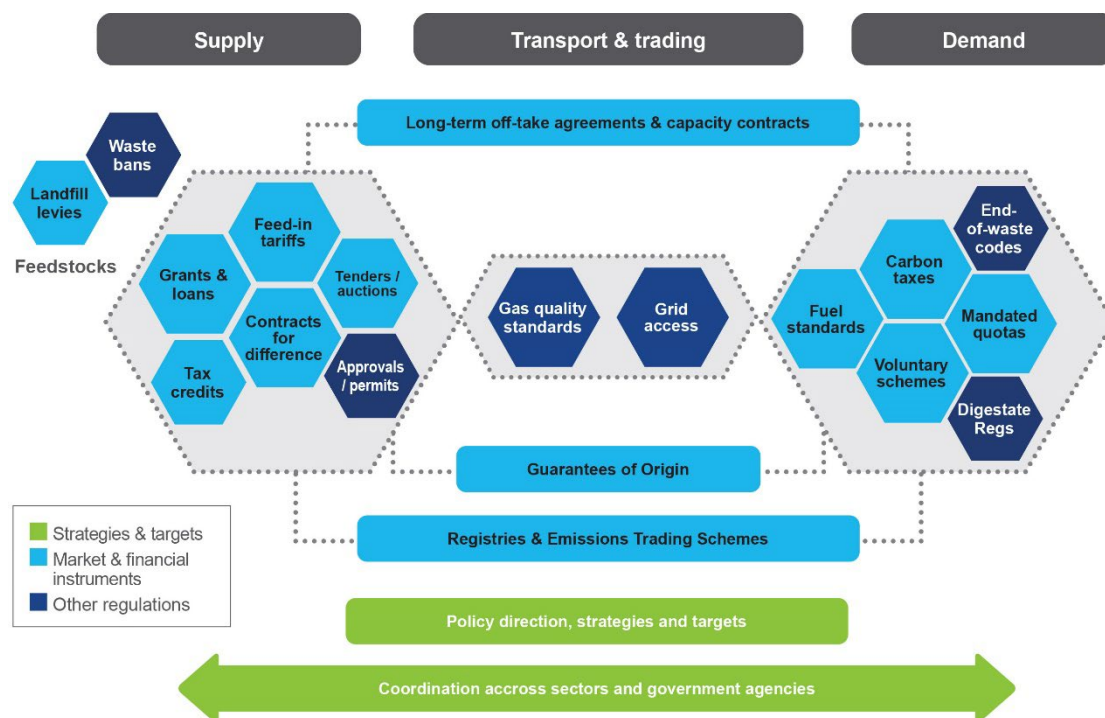


Figure 1. Policy instruments to influence different parts of the biomethane value chain.

Our findings show that: There are multiple drivers of biomethane development in each of the case countries examined. While a primary driver by all countries is to support net zero goals, other drivers were to increase fuel security and sovereignty and to reduce reliance on foreign energy imports – including in the US, and particularly in European countries following the outbreak of war in the Ukraine. In Denmark, the key drivers for biomethane are the need to manage large quantities of livestock waste as well as a high demand for digestate as a biofertilizer necessary for organic farming.

Countries have employed varying policy approaches to create biomethane markets and associated industries. Broadly, in the European countries we examined (UK, Denmark, Italy), the development of biomethane has largely been driven by supply-side financial instruments and investments that incentivise and support biomethane production (i.e. ‘technology-push’ policies). Initially, each country introduced schemes which included government-guaranteed feed-in tariffs based on the amount of biomethane produced, as well as supports for capital costs. As biomethane markets are now maturing in Denmark and the UK, earlier generous ‘all in’ feed-in tariffs are being replaced by more competitive tendering processes and reverse auctions and/or feed-in premiums / contracts-for-difference.

In contrast our North American cases (US and Canada) have employed demand-side regulatory instruments as their main mechanisms, in particular mandated quotas for biomethane placed on gas utilities and transport fuel suppliers (i.e. ‘technology-pull’ policies). These incrementally increasing obligations ensure long-term demand which provide certainty for project developers and investors. The formation of compliance-based markets is supported by biomethane certification and tracking systems that enables biomethane to be traded between producers and suppliers, even though the physical transmission and distribution of biomethane through gas networks is indistinguishable from fossil gas.

United States: Biomethane projects have been driven by two compliance-based market schemes for transport fuels for use as CNG – California’s Low Carbon Fuel Scheme (2011) and the federal Renewable Fuel Scheme since 2014 when biomethane became an eligible technology. Regulations mandate fuel suppliers to blend a percentage renewable fuels (RFS) and reduce the carbon intensity of transport fuels (LCFS) to targets set annually. Biomethane can be produced anywhere in the US (and Canada), distributed through gas networks and monitored through a book-and-claim registry. Producers are issued with certificates that can be traded at negotiated prices with purchasers. Gas dispensed for use in CNG in California can receive both credits. Since 2022, under the *Inflation Reduction Act*, biomethane producers could also receive both production and capital tax credits. The stacking of multiple certificates and credits has made many biomethane projects ‘highly lucrative’ with payback periods as little as three years in some cases. The additional cost of fuels is paid by fuel suppliers but typically passed onto consumers.

Canada: biomethane development has been led by the provinces of Quebec and British Columbia which have 2030 targets of 10% and 15% biomethane as total gas supply as well as Ontario. The main mechanism is based on biomethane programs introduced by the dominant gas utilities in each province which are approved by their respective provincial energy regulators. Under these programs, the regulator approves a price cap that utilities are allowed to procure biomethane for, the rate that utilities can charge their customers for biomethane, the allowable minimum or maximum % of renewable gas that can be injected into the gas network, and how utilities are allowed to recover costs. In BC for example, initial regulations permitted the gas utility to inject up to 1% renewable gas which could be procured at a cost up to ~\$30/GJ. This biomethane could be sold to the utility’s customers who opted in to the biomethane program at a determined acceptable rate of ~\$11/GJ based on market surveys. The difference in cost could be recovered by distributing it across its entire rate base (which in effect, was extremely low, at around \$0.0019/GJ). Unlike market-driven prices in the US that could be highly volatile, Canada’s utilities offered long-term offtake agreements to biomethane producers, which, although sometimes at a lower rate, provided producers and project investors with greater certainty.

Italy, the UK, and Denmark all introduced early generous feed-in tariffs guaranteed for 15 to 20 years to biomethane producers. Member states of the EU are supported and co-funded by a number of large overarching schemes, such as the REPowerEU Plan. Among other aspects, REPowerEU commits to increasing biomethane production to at least 35 billion cubic metres (1,260 PJ) per year by 2030 with a total of €27 billion earmarked for investment, intended to provide an additional 6.3 bcm (230 PJ) of capacity each year.

Italy's biomethane development is in its infancy but growing rapidly – since 2018 it has gone from having just one biomethane plant to 133 plants in 2024 following biomethane becoming eligible for incentives under transport fuel schemes. This resulted in a number of new projects and many biogas plants previously selling biogas for electricity generation to upgrade to biomethane. The New Biomethane Decree of 2022 supports Italy's National Recovery and Resilience Plan approved by the EU. It commits €4.5 billion (~AU \$8 billion) in funding to increase biomethane production to 4bcm (153 PJ) per year by 2026 for a range of uses for new and upgraded facilities, offering 15-year tariffs via a competitive tender process and supports up to 40% of capital costs.

United Kingdom: The two key schemes that account for 90% of biomethane are for biomethane injected into the gas grid schemes: the Renewable Heat Incentive (2014–2021) and its successor, the Green Gas Support Scheme (GGSS, 2021–2025.) A further 10% comes from the Renewable Transport Fuel Obligation. Both HRI and GGSS offer fixed 3-tiered tariff rates, based on production thresholds. The GGSS has reduced the duration of support from 20 to 15 years and is only eligible for biomethane; its tariff rates are designed to encourage larger biomethane plants.

Denmark: is a global leader in biomethane which accounts for ~40% of its gas supply as of 2024, and has a target to reach 100% of green gas by 2030. This is thanks to generous feed-in tariffs and supports for producers in its 2012 Energy Agreement. A high portion is derived from livestock manures and ag wastes.

In addition to these market and financial-based instruments, a number of regulatory and social dimensions are discussed in the report.

Our case studies demonstrate that various policy pathways are possible. We find that both the demand side approach of North America and the supply side support of Europe are both policy options that could be applied domestically. What is common across all cases are ambitious targets and clear policy directions which have been instrumental in the development of these international biomethane markets and associated industries.

Biomethane in Australia: As of 2025, Jemena's Malabar plant in NSW is the only operational biomethane project in Australia. To date Australia has implemented few specific policies for biomethane. Our review of Australia's policy landscape and feedback from stakeholders suggests that Australian governments have shown little interest in biomethane to date, with a large focus on electrification and hydrogen. Biomethane industry development in Australia has been hampered by a lack of policy support as well as attitudinal and economic factors. However, the gas supply crisis in Victoria and the potential delays of hydrogen technologies reaching commercial readiness have led to some states, particularly NSW and Victoria, showing interest and promising policy developments in recent years which has also been driven by the gas industry and increasing demand from end users. These developments include GreenPower certification of biomethane, a market-based accounting method being developed for reporting of carbon abatement under the National Greenhouse and Energy Reporting Scheme (NGERS) framework, and changes to the Gas Rules that accept biomethane as an eligible gas. The Biomethane Package under Australia's ACCU Scheme can enable carbon credit generation for supply-side incentives, while reforms that place strong emissions reductions mandates on Australia's largest emitters under the Safeguard Facility should increase demand. Victoria's recent Renewable Gas Directions Paper, raises the possibility of establishing a state-based biomethane target.

Key lessons for Australia and recommended policy priority areas: The report provides five findings that will enable biomethane technologies to be scaled and deployed within Australia.

1. **Recent policy developments mean that Australia's current policy mix could enable viable biomethane projects now, but significant investment and scale up in projects will require additional policy levers.** State and federal governments could consider taking a more technology-neutral position by expanding the focus to date from green hydrogen to include all renewable gases, including biomethane.
2. **Biomethane in Australia has to date lacked legitimacy as being perceived as an acceptable and feasible solution by governments and policymakers, which in turn has created uncertainty to investors, financiers and project proponents.** Our analysis suggests that part of this stems from a lack of knowledge, understanding and capability about biomethane technologies and its potential benefits, resulting in a lack of policy action. Federal and state governments could consider ways to address this knowledge gap such as by upskilling and educating policymakers on emergent technologies, drawing on research and technical experts or employing staff with a greater diversity of subject matter knowledge. As biomethane cuts across energy, agriculture, and

waste sectors, governments should also look at cross-sectoral coordination mechanisms. Governments could further consider developing a firm policy direction and explicit targets for biomethane which would increase legitimacy and certainty of the technology for investors and project developers.

3. **A robust market structure and financial incentives are needed to make biomethane projects economically viable.** This can be achieved through government support incentives for producers on the supply side, regulatory mandates on gas users or sellers to increase demand or a combination of both. Our findings indicate that there is no one-size-fits-all policy necessary for a biomethane industry. Growth of biomethane has been primarily driven by feed-in tariffs for producers in Denmark and United Kingdom, by mandatory targets on gas utilities for grid-delivered gas in Canada, and by mandatory targets for renewable transport fuels for fuel suppliers in the United States and Italy. What both supply-side and demand-side instruments have in common for success is the guarantee of a long-term predictable returns increasing the viability of projects and increasing cost-competitiveness of biomethane relative to natural gas. Demand-side obligations placed on gas users has the added advantage of ensuring that biomethane will be used to help decarbonise Australian industries and economies. Other important policy design considerations are discussed. Based on Victoria's proposal of a Renewable Gas Target, we recommend similar design features used in Canadian provinces of mandated targets for gas retailers with a cost-distribution model between voluntary customers and a small portion spread across the entire gas customer base to be feasible. The government could also expand existing supports and schemes for hydrogen to include renewable gas.
4. **An enabling regulatory framework must underpin Australia's biomethane market for it to succeed.** We identify key gaps that need to be addressed, drawing on international lessons and best practice. For project developers, operators and investors, establishing a sustainable feedstock supply and valorising digestate are key success factors that can be supported through a number of opportunities identified, many which require regulatory reforms.

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