Australian Policy Recommendation Report

AGI

**Recommendations**Recommendation – National Renewable Gas Feed-in Tariff (RNG FiT)

The goal is to establish a long-term, bankable price mechanism for renewable natural gas injected into the gas grid or supplied as transport fuel, similar to successful FIT programs in Europe and America. This would provide producers with guaranteed revenue per MWh of energy supplied, stimulating investment in production capacity and grid-connection infrastructure.

This could be achieved through one of the following policy pathways:

National Approach:  
Introduce a Federal RNG Feed-in Tariff modelled on the German EEG and French Biomethane Injection Tariff, with fixed rates per MWh indexed to inflation, guaranteed for 10–15 years. Rates should be scaled by plant size and feedstock type to reward waste-to-energy projects with higher emissions abatement.

OR

State-based Pilot:  
Establish a Queensland RNG FiT under a mechanism similar to the ACT Large-scale Feed-in Tariff Act, using competitive reverse auctions or fixed-rate contracts-for-difference to guarantee a top-up payment where market prices fall below the tariff.

Australian Recommendation:

·       AUD 180–220/MWh for waste-derived RNG injected into the grid or used as transport fuel.

·       AUD 140–160/MWh for crop/energy-crop-based RNG.

·       Both indexed annually to CPI.

·       Contracts guaranteed for 10–15 years.

These rates are based on the average of international examples outlined in the chart below.

Figures:

·       AUD 900 million–1.1 billion total committed payments over 5 years of rollout.

·       Start with a 200 MW RNG-equivalent build-out in the first 5 years (~1,600 GWh/year energy output).

·       Annual FIT cost: 1,600,000 MWh × AUD 200/MWh ≈ AUD 320 million/year at full capacity.

·       Ramp-up:

o   Year 1–2: ~25% capacity.

o   Year 3–4: ~60% capacity.

o   Year 5: 100% capacity.

This policy would:

·       Guarantee long-term price certainty, enabling project financing and bankability.

·       Drive regional investment in bioenergy infrastructure, particularly from agricultural waste.

·       Create a direct incentive for fossil gas displacement in both stationary energy and transport.

·       Align with the Safeguard Mechanism and state renewable gas strategies.

Impact Analysis Statement – State proposal (FIT)

Queensland needs faster, lower-cost abatement from heavy transport and fossil gas displacement. Emerging RNG projects face two bankability gaps: (1) long-term offtake price certainty and (2) grid connection costs for injection/transport fuel supply. Current programs (voluntary certificates, one-off grants) don’t deliver durable, investment-grade revenue. A fit-for-purpose, time-limited FiT can de-risk first movers, crowd-in private capital, and accelerate waste-to-energy build-out. (Problem identification is an explicit IAS requirement. )

Objectives

* Provide a bankable, inflation-indexed revenue floor for RNG from waste feedstocks for 10–15 years per project.
* Deliver ~200 MW (1,600 GWh/yr) RNG output by Year 5, displacing fossil gas and diesel in transport and stationary use.
* Achieve cost-effective abatement aligned with state and national targets, with transparent evaluation and sunset.

Options considered

1. Option A – State RNG FIT (reverse auction CFD / fixed tariff) (preferred): Contracts for 10–15 years; CPI-indexed; size/feedstock-scaled rates.
2. Option B – Capital grants only: One-off capex support; no long-term revenue guarantee.
3. Option C – Status quo: Rely on voluntary markets/general schemes.

Impacts (high-level)

* Benefits: Bankability; faster build-out; regional jobs; methane abatement; fuel security; lower lifecycle CI in transport.
* Costs: FIT top-up payments; admin/compliance; potential competition effects in gas/fuels (to be assessed under CPA).
* Order-of-magnitude fiscal envelope:
  + Build to ~1,600 GWh/yr by Year 5 (≈200 MW).
  + Indicative FiT rates (AUD/MWh): waste-derived 180–220, crop-based 140–160, CPI-indexed, 10–15 yrs.
  + Annual steady-state cost: 1,600,000 MWh × ~200/MWh ≈ $320m/yr; $900m–$1.1b total committed over the first 5 years of rollout as capacity ramps (25%/60%/100%).
* Method: Full IAS will use a cost–benefit analysis with sensitivity tests, plus the direct costs calculator for reporting compliance burden. (CBA is preferred; compliance costs must be reported; proportionality applies. )

Consultation (plan)

* Stakeholders: RNG developers, agri/process-waste producers, gas network operators, heavy transport fleets, fuel suppliers, regional councils, environmental groups, consumer advocates, financiers.
* Approach/timing: Publish a Consultation IAS for ≥28 days (preferably 60 days), then Decision IAS summarising feedback and responses. (Consultation timing/requirements. )

Recommended option & why

Option A – State RNG FiT via auctions/CfDs delivers the greatest net benefit: it directly solves bankability, accelerates abatement where Queensland has comparative advantage (agri-waste), and limits fiscal risk via caps, auctions, and sunset. (IAS must identify the option with the greatest net benefit. )

Implementation, compliance support & evaluation

* Delivery agencies: Energy & Public Works (program owner), Treasury (oversight), economic regulator (contract/admin), network operator (technical compliance).
* Risk mitigations: Tranches; price caps; deliver-or-pay milestones; penalties; dispute resolution; CPI indexation guardrails.
* Monitoring & evaluation: Annual performance indicators (GWh delivered, tCO₂-e abated, private capex mobilised, $/t), data strategy, mid-term review at Year 3, Post-Implementation IAS within 2–3 years if Cabinet requires, and program sunset/review ≤10 years.

Expanded Recommendation

Queensland’s heavy transport and gas sectors require faster, cost-effective decarbonization. Current support (voluntary certificates, one-off grants) has proven insufficient for renewable natural gas (RNG) projects, leaving two key “bankability” gaps unaddressed: (1) the lack of long-term price certainty for RNG offtake, and (2) high upfront costs to connect RNG production to end-use (gas grids or fuel distribution). These gaps discourage private investment despite abundant waste feedstocks and strong climate targets. The recommended policy is a time-limited Feed-in Tariff (FiT) program – delivered via competitive reverse auctions or Contracts-for-Difference (CfD) – tailored to RNG. This will provide projects a bankable, inflation-indexed revenue floor for 10–15 years, directly tackling price risk, while also facilitating solutions for grid injection costs (e.g. shared infrastructure or grants). The FiT de-risks first movers, crowds-in private capital, and accelerates waste-to-energy build-out, yielding faster greenhouse gas abatement in transport and stationary energy.

**Why a FIT/CFD?** Fixed-price contracts have a proven record of rapidly scaling new renewables by guaranteeing investors a stable revenue per MWh of output. Unlike status quo approaches, a Queensland RNG FIT would create investment-grade revenue certainty, enabling projects to secure finance and proceed to construction. It directly addresses the market failure of insufficient long-term offtake agreements for RNG, something voluntary markets alone have not solved. Moreover, by structuring the FIT as a reverse auction or CFD, Queensland can leverage competition to keep costs efficient, paying only the minimum “top-up” needed to make projects viable. The FIT would be time-limited and capacity-capped, focusing on jump-starting the industry and achieving ~200 MW (~1,600 GWh/yr) of RNG output by Year 5, after which the program can be reviewed and phased out if the market matures. This approach targets where Queensland has comparative advantage – RNG from agricultural and organic wastes – and ensures emissions reductions occur in sectors that are hard to abate (heavy transport fuels and pipeline gas). It aligns with state and national climate commitments and can be designed with transparency, sunset provisions, and evaluation requirements to ensure it delivers net benefits.

**Precedent Schemes in Other Jurisdictions**

**Global experience strongly supports a targeted RNG FIT.** Many jurisdictions have implemented similar mechanisms with great success, demonstrating their effectiveness in scaling up renewable gas and biofuel production:

* Europe (Feed-in Tariffs for Biomethane): Several European countries launched biomethane FITs in the 2010s to kickstart production. France, for example, introduced a 15-year guaranteed purchase tariff in 2011 for biomethane injected into the gas grid. Under this system, gas utilities are obligated to buy RNG at a fixed tariff rate set by the government, and the government offsets the cost difference via a levy on gas (TICGN tax). This policy greatly stimulated investment in French biomethane – by 2018 France’s injected biomethane output reached ~1,200 GWh and has grown further with increased tariffs recently to keep pace with costs. Denmark saw an even more dramatic impact: a generous FIT introduced in 2012 led to a rapid build-out of biogas upgraded to biomethane. As a result, around 80% of Danish biogas is now upgraded and injected into the gas network, and by 2023 roughly 40% of Denmark’s gas consumption was met by biomethane – on track for 100% green gas by 2030. This was achieved by 20-year FIT contracts that made projects highly bankable, in combination with Denmark’s strong agricultural waste resources. Denmark’s program was so successful that it closed to new applicants after 2018 (having achieved its aims) and is now transitioning to competitive tenders for new capacity.

*Denmark’s biogas output has soared since a 2012 subsidy scheme began (teal area indicates upgraded biomethane injected into the gas grid). By 2023 about 40% of gas in Denmark was renewable biomethane, demonstrating the transformative impact of a stable long-term tariff.*

Several other EU countries also leveraged FIT-style support for RNG. Germany – Europe’s biggest biogas producer – historically focused on a feed-in tariff for biogas-to-electricity (under its Renewable Energy Act), which indirectly encouraged some biomethane upgrading but left non-electricity uses underdeveloped. Learning from this, newer programs in Europe explicitly target grid-injected biomethane. Italy, for instance, launched a scheme in 2018–2022 offering a combination of capital grants and premium tariffs for biomethane, specifically to supply the transport fuel market (as part of Italy’s biofuel mandate). The United Kingdom recently implemented the Green Gas Support Scheme (GGSS), a dedicated FiT for biomethane injection. The GGSS provides 15-year, inflation-indexed tariff payments for each MWh of biomethane injected into the grid, on top of any market gas sales revenue. It is funded by a levy on gas suppliers and offers tiered tariff rates to support a range of project sizes. This policy, launched in late 2021, is expected to bring online enough biomethane to heat ~250,000 homes and has been extended to 2028 due to strong industry interest. These examples show that long-term tariffs (typically 10–20 years, indexed to inflation) give investors confidence to build RNG facilities, resulting in significant capacity growth.

* **Competitive Auctions and Premiums:** As RNG industries mature, some regions have shifted from fixed tariffs to auctioned feed-in premiums or CfDs to minimize costs. The Netherlands since 2011 uses a feed-in premium (SDE+ scheme) for grid-injected biomethane – a sliding subsidy that tops up the market gas price to a guaranteed level, adjusted for feedstock type and carbon savings. This competitive scheme has driven Dutch biomethane growth (2,226 GWh in 2018) and is now evolving to include mandates and targeted capex grants for advanced gasification projects. **Denmark** too has moved to a tender-based premium: new Danish RNG plants bid for a subsidy such that, when added to the gas market price, it covers their production cost. Denmark caps the premium at about €13.4/GJ (~A$50/MWh) to contain expenses. These auctioned Contracts-for-Difference (CfD) models ensure price stability for producers while safeguarding government budgets – when gas market prices are low, the project receives a subsidy up to a fixed “strike price,” but if gas prices rise above the strike price, the subsidy tapers off (or producers pay back the difference). Queensland’s proposed FiT can be designed similarly: a reverse auction where developers bid the lowest price at which they can supply RNG, with contracts locking in that price (indexed) for ~15 years. This approach draws on best practices from overseas, balancing investor certainty with cost-effectiveness for the state.
* Transport-Focused Incentives: Where Europe’s policies largely support pipeline injection, others have targeted RNG use in transport fuels. California is a leading example: while it does not offer a traditional FiT, California’s Low Carbon Fuel Standard (LCFS) and the U.S. Renewable Fuel Standard (RFS) create strong price signals for RNG used as vehicle fuel. Under these programs, RNG that has a low carbon intensity (especially from dairy manure or landfill gas) earns high-value credits. The credit revenue effectively boosts the price per unit of RNG to levels that make projects lucrative. This market-based system has driven dozens of new RNG projects in the U.S. and made California the largest RNG-for-transport market. However, it relies on volatile credit prices and has led to developer uncertainty in securing long-term offtake contracts. California recognized this issue and supplemented the LCFS with capital grants and mandated utility programs: for example, state law AB 2313 provides up to US$3–5 million (~A$4–7.5m) per project to offset pipeline interconnection costs for dairy RNG projects, directly addressing the same “grid hookup” cost barrier Queensland faces. California’s Public Utilities Commission also approved pilot programs where gas utilities build and rate-base certain RNG interconnection infrastructure for clusters of dairy digesters. The lesson is that price incentives plus infrastructure support are both crucial. Queensland’s FiT program can encompass both: a stable price (FiT contract) to guarantee revenue, and complementary measures to reduce connection costs (e.g. upfront grants or requiring network operators to cover part of the injection facility cost, with regulatory approval).

Overall, precedent schemes confirm that Queensland’s objectives are achievable with the right policy design. Feed-in tariffs have a track record of rapidly scaling renewables by overcoming investment barriers. Nations that provided stable long-term revenue for biomethane saw not only increased renewable gas supply but also broader benefits – reduced waste methane emissions, new jobs in regional areas, energy security gains, and decarbonization of transport and heating. Notably, producers strongly favor FIT-type support: in a Europe-wide survey, 65% of renewable gas producers indicated a preference for feed-in tariffs over other incentive types. This is because FITs dramatically improve bankability, whereas purely relying on volatile market premiums or short-term grants leaves projects difficult to finance. By learning from these models (France’s purchase obligation, the UK’s GGSS tariffs, Denmark’s capacity ramp-up followed by auctions, California’s infrastructure grants for RNG), Queensland can **design a best-in-class RNG FIT** that is *investment-grade for developers yet cost-efficient for the public*.

**Scope: Both Grid Injection and Transport Fuel Use**

The FIT program will support RNG end-use in both pipelines and vehicles, ensuring flexibility and maximum emissions abatement across sectors. Eligible projects would include those injecting upgraded biomethane into the gas distribution network and those producing RNG for direct use as transport fuel (e.g. compressed or liquefied renewable gas for trucks and buses). Supporting both pathways recognizes that RNG can displace fossil gas in homes/industry and fossil diesel in heavy transport. Precedents show the value of a dual approach: Sweden and Italy, for example, have successfully used incentives to promote biomethane for transport, leveraging existing CNG/LNG vehicle infrastructure. Queensland can similarly leverage its nascent biogas projects and heavy transport fleets (e.g. trucking, mining vehicles) by guaranteeing a revenue floor for RNG whether it flows to a pipeline or a fueling station. In practice, this means a project injecting into the grid would receive the FiT top-up per MWh injected (on top of any wholesale gas sales), while a project selling RNG as vehicle fuel would receive the FiT per MWh sold for use in transport (on top of any fuel sales revenue or environmental credits). Both uses will be measured in energy terms (e.g. MWh or GJ of RNG supplied) to administer FiT payments. By being end-use agnostic, the program lets the market direct RNG to wherever it achieves the highest value and carbon benefit – some projects might find it optimal to inject into underutilized gas pipelines in regional areas, while others may supply dedicated truck refueling hubs. This flexibility will help deliver the targeted 1,600 GWh/yr of RNG by Year 5 in the most efficient manner, tapping multiple demand streams. It also future-proofs the policy: if gas grid demand declines faster than expected but clean fuel for transport is still needed (or vice versa), the FiT-supported projects can pivot to either usage. Administrative rules will ensure no “double dipping” (e.g. if a transport-RNG project already monetizes LCFS or similar credits, the FiT rate could be adjusted so total support remains at the needed level). Ultimately, including both sectors broadens the investor and off-taker base for RNG and helps decarbonize two challenging sectors in parallel.

**Implementation Plan and Timeline**

A well-structured implementation roadmap will be critical to the FIT program’s success. The following stages outline the proposed rollout and governance:

**1. Program Design and Consultation (Year 0):** The lead agencies – Department of Energy & Public Works (as program owner) in partnership with Treasury (for funding/oversight) – will refine the FIT scheme design in consultation with industry and stakeholders. An initial Consultation Impact Analysis Statement (IAS) will be published for public comment (minimum 28 days, ideally 60 days) to gather feedback on key design choices: tariff contract length (10 vs 15 years), auction format, feedstock eligibility (waste-only vs including crop-based gas), caps and safeguards, etc. Stakeholders including RNG project developers, farmers (feedstock suppliers), gas network operators, heavy transport fleet operators, fuel providers, local councils (who manage waste), environmental groups, and financiers will be invited to comment. This step ensures transparency and stakeholder buy-in, and fulfils Queensland’s IAS process requirements for problem identification and option assessment. Following consultation, the government will release a Decision IAS addressing feedback and confirming the final design. By the end of Year 0 (e.g. 2025), enabling legislation or regulations should be in place to authorize the FiT auctions and payments (including appropriation of funds or establishment of a levy if applicable).

**2. Pilot Auction and Initial Projects (Year 1**): Launch the first reverse auction for RNG FiT contracts early in Year 1. This pilot round may set a modest procurement volume (e.g. ~20–50 MW of capacity) to test the process. Projects will bid the lowest indexed tariff (AUD/MWh) they would accept for their RNG output. To account for different costs, auctions could be split into categories (e.g. waste-only feedstock projects might compete separately from those with crop-based feedstock, or small vs large projects) with ceiling prices announced (for example, an upper limit of $220/MWh for waste-derived RNG, $160/MWh for crop/co-digestion projects, per the indicative rates identified) to contain costs. The auction results in winning projects signing contracts for ~12–15 years where the state (or a nominated regulator or agency) pays them the difference between the strike price and the market price of gas or equivalent. Contracts will be indexed to CPI to provide a real revenue floor. The pilot should also finalize processes for grid connection support – e.g. a cost-sharing agreement with the network operator for any pipeline injection facility needed, or a grant from a connected infrastructure fund to cover, say, 50% of connection costs (learning from California’s ~$3–5m interconnection grants). By the end of Year 1, the first batch of projects should reach financial close, backed by FiT contracts. Government may provide early-stage compliance support at this phase, such as guidance on permitting and integrating with the gas network or vehicle fuel standards, to help projects reach construction smoothly.

**3. Scale-up and Main Auction Rounds (Years 2–5):** Based on the pilot’s experience, Queensland will hold regular auction rounds (e.g. annually or biannually) in Years 2 through 5 to procure additional RNG capacity. The volume in each round can ramp up to meet the goal of ~200 MW total by Year 5. For instance, if Year 1 awarded 20 MW, Year 2 might award an additional ~50 MW, Year 3 another ~60 MW, and Year 4–5 the remaining ~70 MW (adjusting as needed to reach ~1,600 GWh/year total output). Auction frequency and size will consider market response – if there is very strong interest, the government could accelerate procurement, whereas if projects are slow to develop, the pace can be adjusted. Tranche caps will be used to manage fiscal exposure; e.g. committing no more than ~$900 million in total FIT payments for projects coming online through Year 5 (the rough estimate given for the full rollout). Treasury will oversee the FiT payment fund, which might come from general revenue or a dedicated mechanism. If funded by a levy (as in the UK model) or via electricity/gas market charges, that will be implemented in this period with regulatory support from the economic regulator. To ensure the scheme remains cost-effective, each auction round can incorporate a price review: if global RNG costs are falling, the government may lower the price caps or tighten eligibility to maintain pressure for innovation. International trends indicate that as technology matures and carbon prices rise, support levels can be tapered. For example, France periodically revised its biomethane tariff down as costs dropped, and Denmark moved to auctions to reduce the subsidy per GJ. Queensland’s FIT auctions will emulate this by harnessing competition for lowest cost. During Years 2–5, emphasis will also be on construction and commissioning of awarded projects: the program implementation team must coordinate with network operators for timely grid hookups or compression facilities for transport RNG, streamline any environmental approvals, and monitor project milestones. Contracts will include “deliver-or-pay” clauses or milestones – e.g. a requirement to commission the project within 18–24 months of contract signing, or face penalties/default – to ensure that capacity is delivered on schedule and the program’s emissions benefits are realized without undue delay.

**4. Mid-Term Review (Year 3):** An independent mid-term review will be conducted around Year 3 of the program (once the initial projects are underway and perhaps two auctions have been completed). This review will assess whether the FiT scheme is meeting its objectives (uptake of projects, $/tCO₂ abatement, private investment leveraged, any unintended consequences on energy markets) and evaluate stakeholder feedback. Key questions may include: Is the $/MWh support level in line with expectations? Are certain feedstocks or regions not benefiting as expected (requiring program tweak)? What is the average abatement cost per tonne CO₂ so far, and how does it compare to alternative policies? The review will draw on data from the first projects and market responses. If needed, adjustments will be recommended – for example, altering future auction designs, adjusting the 200 MW target (up or down), or extending support to new use-cases like bio-hydrogen if that emerges. This mid-term check insures policy flexibility and accountability, preventing overspend or under-delivery from continuing unchecked.

**5. Full Rollout and Sunset (Years 5–10):** By Year 5, the program aims to have contracted the full ~1,600 GWh/year of RNG production capacity, with most projects operational by Years 6–7. At this point, no further auctions would be needed unless the government decides to expand the target. The FiT would thus shift to a maintenance and monitoring phase: ensuring contracted projects receive payments as due, and compliance monitoring that they continue to produce RNG from eligible feedstocks and achieve emissions outcomes. It’s envisioned as a time-limited scheme, so no new contracts would be offered beyond a certain date (e.g. end of Year 5 or Year 6). However, to avoid a hard stop that could destabilize investor confidence before the private market fully takes over, the sunset could be managed with an option to hold contingency auctions if the 200 MW target isn’t quite met or if new transformative technologies arise that need support (subject to Cabinet approval). By Year 10, a Post-Implementation Review IAS will be completed (if required by Cabinet or legislation) to formally evaluate the program’s net economic outcome and regulatory burden. At that stage, Queensland can decide whether to let the program sunset entirely (allowing all FiT contracts to simply run their course over their remaining terms) or to integrate RNG support into broader schemes (for example, into a national emissions trading scheme or a clean fuel standard, should those exist by then). Importantly, the FiT contracts awarded will continue honoring the 10–15 year term for each project even after the program stops taking new entrants – meaning the last contracts (awarded in Year 5) could run until Year 20. Fiscal planning will account for this tail of payments so there are no surprises. The sunset simply means no additional obligations are taken on, in line with the program’s role as a first-mover support.

Throughout implementation, risk mitigation measures will be in force. These include:

* **Price Caps and Budget Control:** Each auction round is constrained by a maximum strike price and a predefined subsidy budget, ensuring the government doesn’t overpay even if there’s low competition. The overall committed funding ($900m–$1.1b over first 5 years) is tracked closely by Treasury. If market gas prices spike (reducing required FIT payouts), savings can be banked or reallocated to future rounds. Conversely, if market prices rise above the FiT strike price (as could happen during a gas shortage), the CFD mechanism means producers would pay back or forgo subsidy during those periods, protecting public funds.
* **Feedstock and Sustainability Rules:** To ensure cost-effective abatement, the FiT will likely offer higher support for waste-derived gas (which has very low lifecycle emissions, often even net-negative when avoiding methane) and lower support for purpose-grown energy crops. This is reflected in the indicative rates ($180–220/MWh for waste, $140–160 for crop-based). Clear sustainability criteria will be set (e.g. a cap on any crop content, as Denmark implemented to keep its biogas truly climate-positive). Projects will report feedstock mix and GHG performance annually, and serious deviations (like using disallowed feedstocks) could trigger penalties or loss of contract.
* **Performance Guarantees:** Each project must maintain a certain output (or capacity factor) or risk having payments reduced. “Deliver-or-pay” provisions mean if a project fails to deliver promised RNG volumes (without valid technical excuse), it might have to compensate the government or surrender its FiT contract to another project on a waiting list. This prevents entities from locking up FiT awards and then underperforming.
* **Market Interaction and Competition Law:** The program’s design will be vetted under the Competition Principles Agreement (CPA) to ensure it doesn’t unduly distort gas or fuel markets. By displacing a relatively small fraction of overall gas supply initially, the risk is low, but the IAS will explicitly assess any competition impacts (e.g. whether giving certain producers a subsidy could lessen competition in the gas supply market). Appropriate mitigations (like ensuring open auctions and non-discriminatory grid access) will be implemented.

**Monitoring, Compliance, and Evaluation**

Robust monitoring and evaluation will underpin the FIT program from day one, to track outcomes and enable continual improvement:

* **Key Performance Indicators (KPIs):** The program will track annual RNG production (MWh injected or used as fuel), greenhouse gas emissions abated (tonnes CO₂-e avoided, including methane avoided from waste decomposition), private capital invested in projects (AUD), jobs created (particularly in regional areas), and the effective subsidy cost per tonne abated ($/tCO₂). For example, a target KPI may be achieving an abatement cost below $150 per tonne CO₂ by Year 5, trending downwards as technology scales (noting that high methane-avoidance RNG can even have negative abatement costs when considering social benefit). Another KPI is fuel security enhancement – measured by fossil gas/diesel displaced by RNG (e.g. 10–15 PJ of fossil fuel replaced by Year 5).
* **Data Reporting and Transparency:** FIT contract holders will be required to provide regular data on production and operations. The energy regulator (or scheme administrator) will publish annual reports aggregating this data to show progress. This could include a public dashboard of how many projects are online, their locations (mapping regional distribution of new RNG plants), total energy produced, and emissions reduced. Transparency will also extend to financials: the total FIT payments made each year, and the average tariff level can be reported, demonstrating value for money. Queensland can look to the UK GGSS, which publishes quarterly deployment statistics, or to France’s CRE, which reports on biomethane FIT expenditures (e.g. ~€100m in 2018, covered by green energy levies), as models for public transparency.
* **Compliance Support:** Especially early on, the government will provide guidance and support to FIT participants for compliance. This includes helping navigate network injection standards (gas quality requirements, metering), environmental licensing for waste processing, and certification for RNG used in transport (to ensure it meets any fuel quality regulations or can earn federal renewable fuel credits in parallel). A dedicated RNG Program Office could act as a one-stop shop for project developers, aligning efforts of various departments (energy, environment, agriculture, transport) and the regulator. This reduces administrative burden and is in keeping with regulatory best practice (proportional compliance reporting, not unduly onerous especially for smaller projects).
* **Mid-Term and Post-Program Evaluation:** As noted, a formal mid-term review at Year 3 will evaluate if the policy is on track. This will involve stakeholder interviews, cost-benefit re-analysis with actual data, and public release of findings. The policy can then be tweaked for the second half of implementation. After program sunset (around Year 10 or when the last auction is done), a Post-Implementation Review (PIR) will be conducted to fully assess outcomes versus the initial objectives and the Regulatory Impact Statement (RIS) criteria. The PIR (or Decision IAS if required) will quantify the net benefits achieved (or any shortfalls), including a retrospective look at the realized abatement cost, industry growth (did a self-sustaining RNG industry emerge?), and any lasting market effects. This evaluation not only provides accountability to Cabinet and the public, but also informs future climate policy – for instance, whether an ongoing incentive is needed or if the RNG sector can compete without subsidy going forward.

**Conclusion and Recommendation**

**Option A: A State-backed RNG FIT via competitive auctions is the recommended option** because it delivers the greatest net benefit among the options considered. By directly solving the bankability problem with a long-term revenue floor, it unlocks private investment and accelerates emissions reductions in sectors where Queensland has both a need and an advantage (abundant organic waste, heavy transport demand). The FIT is superior to one-off capital grants (Option B) because, while grants defray upfront costs, they do not provide ongoing revenue certainty – projects remain exposed to volatile gas or credit markets and may still struggle to obtain financing. A FIT, on the other hand, ensures that if a project produces RNG, it will earn a predictable income per MWh, which banks can underwrite. Option C (status quo of relying on voluntary markets or general schemes) has clearly proven inadequate – few if any large-scale RNG projects have progressed under the status quo, due to the twin risks of uncertain revenue and high connection costs. In contrast, the FIT de-risks first movers, enabling Queensland to capture methane from wastes and use it productively as renewable fuel, thereby delivering emissions cuts faster and cheaper than waiting for carbon prices alone to incentivize action.

Importantly, the recommended FIT program is designed to be fiscally responsible and temporary. It uses competitive bidding and caps to ensure cost-effective abatement (with an expected levelized cost roughly in the $100–200 per tCO₂ range initially, falling over time). It also includes a built-in sunset and review – this is not a perpetual subsidy but a time-limited boost to establish an RNG industry that can eventually thrive with lower or no subsidies (much as solar PV or wind saw steep cost declines after initial FITs). By Year 10, Queensland can reassess the need for further support or let the market and federal policies drive any additional growth. The FIT program also positions Queensland to capitalize on any future national or international carbon credit opportunities: RNG produced under the scheme could generate Australian Carbon Credit Units (ACCUs) or other environmental credits, which could eventually reduce the required state top-up as those credits gain value.

In summary, the FIT option (with competitive CFD-style awards) best meets the policy objectives: it provides a bankable revenue floor (inflation-indexed) to RNG projects, it targets ~200 MW of new RNG supply by Year 5 displacing fossil fuels, and it does so in a cost-effective, transparently evaluated manner with a clear end date. Precedents from Europe and North America validate this approach – from France and Denmark’s swift biomethane expansion under FITs to California’s success in spurring RNG for transport (while highlighting the importance of price stability). By implementing a Queensland-tailored RNG FIT now, the state can lead Australia in renewable gas development, creating regional jobs and investment while cutting emissions (including potent methane) and enhancing energy security. This recommended option thus delivers the greatest net benefit for Queensland, aligning economic development with environmental sustainability, and is strongly endorsed for Cabinet approval.

**Background**  
Australia has implemented multiple systems to achieve its goals:

* **Net Zero Goal:** 2050 (net zero greenhouse gas emissions)
* **2030 Goal:** 43% reduction in emissions below 2005 levels

However, these support schemes have dramatically overlooked the decarbonisation of fossil fuels through renewable replacements — a field where Australia’s competitors have already capitalised.  
To catch up, we as a country must re-evaluate:

**The Australian Carbon Credit Unit (ACCU) Scheme**  
This national crediting system awards carbon credits for verified abatement, primarily focused on land-sector sequestration activities such as reforestation and soil carbon projects.  
While the scheme’s crediting framework and methodologies are mature, even by international standards, it currently offers limited pathways for renewable fuel producers. In particular, the absence of a mechanism to credit the displacement of fossil fuels in the transport sector creates a critical gap in support for low-carbon energy alternatives in hard-to-abate sectors.

**Current Renewable Fuel Standards**  
Schemes such as the RGGO (Renewable Gas Guarantee of Origin) track the production, emissions intensity, and renewable origin of gases like biomethane and renewable hydrogen, and recognise the displacement of fossil fuels. However, they are currently voluntary and cannot provide the demand necessary to meet Australia’s goals.  
Even when they are compliance-based — such as the NSW RFS, which operates by creating tradable certificates for eligible fuel producers that fuel suppliers must surrender to meet annual obligations — they only cover specific fuels such as hydrogen-derived products, which alone are not sufficient to reach our national targets.

From this, it is clear that Australia’s current lack of incentives around the decarbonisation of transport fuels represents a sizable opportunity that the country can capitalise on. Whilst electrification has laid out a strong blueprint for change, heavy freight and logistics still remain among the most challenging areas to decarbonise. State-wide schemes that incentivise investment into low-emissions gaseous fuels such as renewable natural gas (RNG) offer a proven, scalable pathway to accelerate emissions reductions in this sector.

Precedent Credit Schemes

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AI-generated content may be incorrect.  
United States – Renewable Fuel Standard (RFS)  
The U.S. Renewable Fuel Standard is one of the world’s largest biofuel mandates. Established by the Energy Independence and Security Act (EISA) of 2007, the RFS requires fuel suppliers (oil refiners and importers) to blend increasing volumes of renewable fuels into gasoline and diesel.

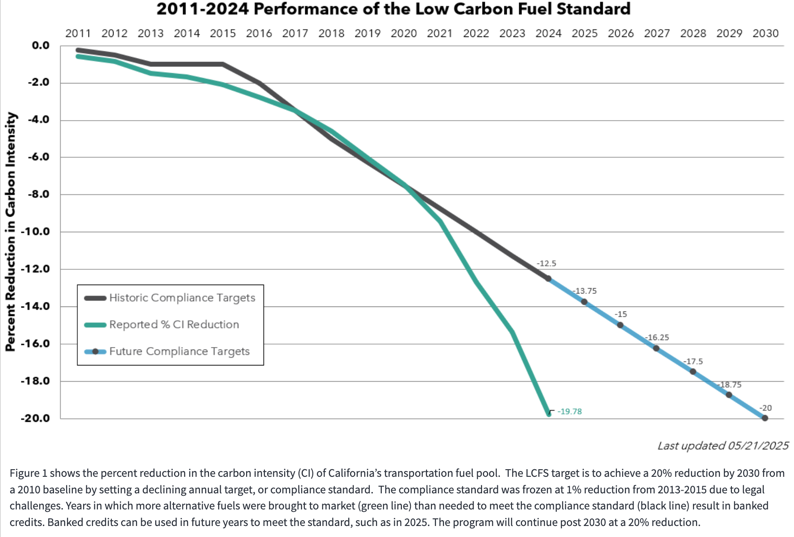
Fuel producers generate tradable credits called RINs (Renewable Identification Numbers) for each unit of renewable fuel. If suppliers cannot blend enough renewable fuel, they must purchase RIN credits to comply.

* A diagram of green and white circles

  AI-generated content may be incorrect.One RIN is allocated for each 'ethanol-equivalent gallon' of energy content in a given fuel. RNG and other 'cellulosic fuels' have a 1:1 exchange ratio per gallon, which is less energy-efficient, however they are classified as 'D3' RINs, the most valuable available, and can fetch around US$3 per RIN.
* This is an example of a Federal compliance-based fuel standard that mandates a conversion away from fossil fuels. However, the USA has further, State specific systems that further the incentive provided to Renewable fuel producers, such as the Californian-low Carbon Fuel Standard.

California – Low Carbon Fuel Standard (LCFS)

California’s Low Carbon Fuel Standard is a leading example of a performance-based fuel policy. Rather than mandating a specific volume of biofuel, the LCFS requires a progressive reduction in the carbon intensity (CI) of transportation fuels in the state (with a target of about 20% CI reduction by 2030 compared to 2010 levels). Fuel providers can meet this by producing or blending low-carbon fuels, or by buying credits from others who do.

* Carbon Intensity Benchmark: Each year, California sets a tighter CI benchmark as outlined by the descending line in the Performance Graph. Fuels with CI lower than the benchmark (e.g. biodiesel, ethanol, electricity, biomethane) generate credits. Fuels with higher CI (e.g. conventional diesel) incur deficits.
* This means that RNG producers are rewarded proportionally for the superior emissions savings their fuel generates, incentivising Producers to generate greener fuels rather than meeting a set goal.
* A graph of fuel prices

  AI-generated content may be incorrect.Again, looking at the above Performance Graph, the program has led to an above-expectation reduction in fuel-based emissions from 2020 onwards. This reflects a rapid inflow of investment into the sector, subsequently decarbonising California.  
  this also demonstrates a exponential increase in the uptake from these programs, a snowball effect of initial government capital, that grows into a much greater private capital investment.

United Kingdom – Renewable Transport Fuel Obligation (RTFO)  
The UK’s Renewable Transport Fuel Obligation is another major compliance program. The RTFO requires transport fuel suppliers above a certain size to ensure an increasing percentage of their fuel sales are from renewable sources. They demonstrate compliance by acquiring Renewable Transport Fuel Certificates (RTFCs), which are earned by supplying eligible renewable fuels.

1 RTFC is allocated for each litre or petrol/litre-energy-equivalent of renewable fuel. To be eligible, a fuel must have a net emissions lifecycle at least 65% lower than the fossil fuel baseline.

* However, if a fuel exceeds this threshold, it does not receive additional compensation.
* Biomethane is fully eligible for RTFCs. If it is produced from certain wastes or residues, it may qualify for double certificates. In practice, this means a trucking company or bus operator using bio-CNG or bio-LNG can generate 2 RTFCs per unit of fuel energy, which fuel suppliers value for meeting obligations.
* This is another example of a compliance-based fuel standard that rewards the displacement of fossil fuels.

**New South Wales – Renewable Fuel Scheme (RFS)**  
Similar to these systems, Australia’s NSW RFS is a compliance-based program designed to incentivise the production and use of renewable fuels; however it is focused on renewable hydrogen and hydrogen-derived fuels. It operates by creating tradable certificates for eligible fuel producers, which fuel suppliers must surrender to meet annual obligations.

* **Eligibility:** Currently limited to renewable hydrogen and hydrogen-based fuels, with no explicit pathway for RNG/biomethane.
* **Compliance Obligation:** Fuel suppliers in NSW must meet a legislated renewable fuel percentage target by acquiring and surrendering Renewable Fuel Certificates (RFCs).
* **Certificate Allocation:** One RFC is generated per gigajoule (GJ) of eligible renewable fuel produced and supplied for use in NSW transport.

**Current Gap:** RNG, despite being recognised internationally in similar schemes from above, is excluded-removing a key decarbonisation tool for heavy transport and freight in NSW. This presents an opportunity for Australia, inclusion of RNG would expand the scheme’s impact beyond hydrogen, enabling faster emissions reductions in the freight sector while supporting regional bioenergy industries.

Policy Recommendation:

**Recommendation**

Australia should establish a compliance-based incentive to reward the displacement of fossil fuels in transport with renewable alternatives. This could be achieved through one of the following policy pathways:

* **Reform the ACCU scheme** to include methodologies that credit methane abatement through fuel displacement in transport—particularly for projects using biomethane or RNG to replace diesel or petrol.

**&**

* **Elevate the RGGO scheme** from a voluntary registry to a compliance-grade mechanism, enabling its integration into emissions reporting frameworks such as the Safeguard Mechanism and allowing credit stacking where appropriate.

**International Precedent**

Several jurisdictions have already implemented compliance-based systems that reward the displacement of fossil fuels in transport:

**United States – Renewable Fuel Standard (RFS)**  
Mandates the blending of renewable fuels into the national fuel supply. RNG qualifies for D3 RINs—the most valuable category—creating a secure and tradable market for biomethane in transport.

**California – Low Carbon Fuel Standard (LCFS)**  
Credits fuels based on their lifecycle carbon intensity (CI). RNG, particularly from waste or manure, receives disproportionately high rewards due to its negative or ultra-low CI.

**United Kingdom – Renewable Transport Fuel Obligation (RTFO)**  
Requires transport fuel suppliers to procure a share of renewable fuels. Biomethane earns tradable RTFCs, with double certificates awarded for RNG derived from waste—directly recognising fossil fuel displacement.

These examples demonstrate that compliance-grade crediting for renewable transport fuels is both technically feasible and highly effective in accelerating fuel switching and investment.

**Opportunity for Australia**

Introducing a national compliance fuel standard—or reforming existing frameworks to recognise fuel displacement—would:

* Unlock a new market for renewable gas in transport.
* Create a viable decarbonisation pathway for freight and heavy vehicles.
* Support regional and agricultural producers through value-added uses of organic waste.
* Align with the Safeguard Mechanism and national emissions targets.
* Bring Australia into alignment with global best practice, without the need for wholesale policy reinvention.

**Proposed Next Steps**

To advance this proposal, we recommend:

* Initiating a **feasibility review** under the Department of Climate Change, Energy, the Environment and Water (DCCEEW).
* Conducting **targeted consultations** with stakeholders across the energy, transport, agriculture, and waste sectors.
* **Piloting the scheme** in partnership with an existing registry (e.g. Clean Energy Regulator or AEMO) to test value stacking between ACCUs, RGGOs, and transport fuel credits.

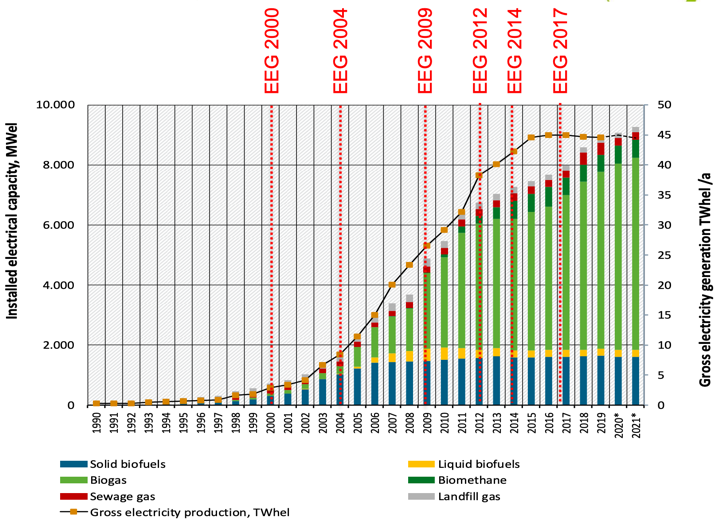
Feed-In-Tariff recommendation

**1. Germany – Renewable Energy Act (EEG) Feed-in Tariffs**  
**Mechanism:** Guaranteed 20-year fixed payments per kWh of electricity generated from biogas under the EEG (2000–2014).  
These contracts were released in batches, with rates ranging from €90 to €200 per MWh depending on the size of individual plants.  
Post-2017, the scheme evolved into competitive auctions, where contracts were bid on — signalling the maturity of the market and its ability to survive without direct subsidies.

As seen below, this programme led to huge growth in German RNG production:

* Gross electricity production rose from <5 TWh in 2000, to 30 TWh in 2010, and 45 TWh by 2019
* Installed electrical capacity grew from <1,000 MW in 2000, to ~6,000 MW in 2010, and ~9,000 MW in 2019
* Over 10,000 AD plants were in operation by 2020

As the industry matured, growth rates have slowed, but it is undeniable that these FITs were instrumental to the rapid expansion of Germany’s biofuel industry.



### 

### 1. **France – Biomethane Injection Tariffs**

* **Tariff Mechanism**:
  + RNG producers injecting into the gas grid receive a **fixed payment per MWh**, guaranteed for **15 years**.
  + Base rate: approx. **€45–€139/MWh** depending on plant size and feedstock.
  + Indexed annually to inflation.
* **Eligibility & Bonus Structure**:
  + Higher tariffs for smaller projects (e.g., farm-scale <25 GWh/year).
  + **Additional bonuses** for using manure or agricultural waste.
  + Tariffs reduced slightly for large-scale plants or crop-heavy inputs.
* **Objective**:
  + Support the national biomethane target of **10% of gas supply by 2030**.
  + €1.5 billion committed via 2024 CFD auction scheme.

# A graph with a line going up AI-generated content may be incorrect.France **ACT Large‑scale Feed‑in Tariff (LFiT)**

**What it was**

* **Legislative basis:** Delivered under the *Electricity Feed‑in (Large‑scale Renewable Energy Generation) Act 2011* (ACT).
* **Mechanism:** A series of **reverse auctions** awarding **20‑year** revenue support to new large‑scale renewable projects (initially solar PV, later wind).
* **Policy goal:** Lock in enough low‑cost renewables to (a) decarbonise the ACT’s electricity supply and (b) do it at least cost and with bankable, long‑dated contracts.

**How it paid (the CfD logic)**

* **Strike price set by auction:** Each winning project bid a **strike price** (a $/MWh tariff).
* **Settlement:** Operated as a **contract‑for‑difference (CfD)** against the relevant wholesale reference price.
  + If **wholesale price < strike price** → the ACT paid the **difference** on each contracted MWh.
  + If **wholesale price > strike price** → the project **paid back** the difference to the ACT (avoiding windfall gains).
* **Tenor & indexation:** **20‑year** term with **inflation indexation** on the strike price (index details varied by round).
* **Volume cap:** Contracts specified an annual **MWh cap** (or capacity cap with expected output), limiting ACT’s exposure.
* **Cost recovery:** Costs (net of any paybacks) were **smeared across ACT consumers** via regulated network/retail charges—transparent and relatively small on bills.

**Auction/contract design features that made it bankable**

* **Competitive reverse auctions:** Price discovery via competition; the lowest compliant bids won.
* **Firm offtake signal:** The CfD converted volatile merchant revenue into a **stable, financeable cash flow**, unlocking cheaper debt.
* **Clear eligibility & milestones:** New‑build, Australian‑located projects; delivery milestones, performance reporting, and default remedies.
* **Risk allocation:**
  + **Market price risk:** Hedged by the CfD.
  + **Construction & performance risk:** Sits with the proponent.
  + **Policy/credit risk:** Mitigated by a Territory‑backed instrument and legislation.

**What got built / outcomes**

* **Utility‑scale solar:** The early rounds underwrote multiple ACT‑supported solar farms (e.g., Royalla, Mugga Lane, Williamsdale), helping drive Australia’s first wave of big PV.
* **Wind (out‑of‑territory):** Later rounds procured **wind capacity** (e.g., portions of **Hornsdale** and **Ararat**) that contracted output into the ACT scheme even though the assets sit in SA/VIC.
* **System impact:**
  + Brought forward **hundreds of MW** at falling strike prices as technology costs dropped.
  + Delivered **budget certainty** (paybacks occurred in high‑price years), and helped the ACT claim **near‑100% renewable electricity** ahead of the national curve.
  + Established a **clear Australian precedent** for government‑backed, long‑tenor, CfD‑style “FITs” at utility scale.

**Why this precedent matters for RNG**

* **Transferable architecture:** The same reverse‑auction + 15–20‑year CfD structure can be applied to **biomethane/RNG** measured in **MWh or GJ** injected to the gas grid.
* **How it could map:**
  + **Bid a strike price** ($/MWh or $/GJ) for **certified RNG** meeting sustainability criteria.
  + **Settle as a CfD** against a transparent **gas reference price** (e.g., Wallumbilla hub) or a **carbon‑intensity benchmark** if you want LCFS‑style performance signals.
  + **Volume caps** per project to manage fiscal exposure; **indexation** to CPI; **clawbacks** when market prices exceed the strike.
  + **Cost recovery** via gas network tariffs (state/territory scheme) or through a national compliance obligation on fuel suppliers.
* **Stacking with credits:** Allow **stacking** with a compliance‑grade **RGGO/ACCU transport‑displacement credit**, just as LRET projects stacked energy + LGC revenue—subject to no double counting.

**Practical lessons to lift straight from ACT**

* **Start with reverse auctions** to reveal price and avoid overpaying.
* **Keep contracts standardised** (bankability wins).
* **Include payback provisions** (public value protection in high‑price periods).
* **Require local benefits** (jobs, training, regional waste valorisation), as the ACT did with local‑industry criteria.
* **Publish outcomes** (strike prices, capacities) for transparency and durable political support.

If you want, I can draft a one‑pager called “ACT LFiT → RNG CfD: How to Stand Up a Bankable Biomethane Tariff in 12 Months,” with strike‑price setting options, reference index choices, sample settlement math, and a tidy schematic you can reuse in decks.