Sugarcane Bioenergy Inquiry 2025

Submission No:	20
Submitted by:	Bioenergy Australia
Publication:	Making the submission and your name public
Attachments:	See attachment
Submitter Comments:	

Bioenergy Australia (Forum) Pty Ltd
ABN 14 155 856 821
Phone: [redacted]
Email: [redacted]

Bioenergy Australia Submission: Inquiry into Sugarcane Bioenergy Opportunities in Queensland

Bioenergy Australia (BA) is the national industry association committed to accelerating Australia's bio economy. Through targeted advocacy, campaigns, education, industry building and allied sector engagement, we're:

- Enabling decarbonisation of Australia's hard to abate sectors
- Enhancing energy security, supply and supporting the transition of Australia's energy system
- Growing Australia's economy and providing jobs and economic development including for regional Australia
- Enabling the development of Australia's circular economy

This submission from Bioenergy Australia is on behalf of the Renewable Gas Alliance (RGA) and The Low Carbon Fuels Alliance of Australia and New Zealand (LCFAANZ). These alliances were founded to accelerate the development and deployment of Low Carbon Liquid Fuels (LCLF) and Renewable Natural Gas, or Biomethane, in Australia. 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 by leveraging and supporting Queensland's sugarcane bioenergy opportunities.

Bioenergy Australia thanks the Queensland Primary Industries and Resources Committee for the opportunity to contribute to the Inquiry into Sugarcane Bioenergy Opportunities in Queensland. Queensland has significant potential to develop a sugarcane-based bioenergy industry, and any policy or funding measures implemented by the Queensland Government to accelerate this sector would deliver lasting benefits for sugarcane communities.

We recognise the Queensland Government's early support and genuine commitment to the state's clean energy transition and note that initial steps have been taken to lay the groundwork for this transition. While there is clear momentum, further collaboration with industry is needed to realise the sector's full potential. Opportunities for diversification in the Queensland and New South Wales (NSW) sugar industries have recently become increasingly topical.

Key to unlocking Queensland bioenergy potential is maximising Queensland's sugarcane industry to support the development of a local low carbon liquid fuels (LCLF) and renewable natural gas industry.

Low Carbon Liquid Fuels (LCLF): LCLF emit less CO_2 on a lifecycle basis, compared to the fossil equivalents they are displacing.[1] They are currently produced from organic waste materials and biomass. While already technically feasible, in the long term it may also be possible to economically produce LCLF at scale by combining hydrogen from low- or zero-carbon feedstocks with CO_2.

LCLF can be produced using a variety of technology pathways and feedstock inputs, including:

- Sugarcane to ethanol and then ethanol-to-jet fuel (ETJ or AtJ) or ethanol-to-gasoline (ETG).
- Sugarcane bagasse via the Fischer-Tropsch process for biocrude production.
- Sugarcane bagasse gasification to produce methanol for methanol-to-jet (MtJ) pathways.
- Sugarcane tops and trash for gas fermentation or cellulosic ethanol production and supplying feedstock for biorefineries.

Each pathway and feedstock combination differs in terms of emissions abatement potential, production cost, and technology readiness.

Depending on the fuel, some current internal combustion engines can tolerate 100 per cent LCLF as a full replacement for fossil fuels, whereas others will require blending or gradual incorporation.[2] LCLF include:

- Sustainable aviation fuel (SAF)
- Renewable diesel
- Biodiesel
- Ethanol
- Biomethanol
- BioLPG
- BioLNG

Renewable Gas: Renewable and carbon-neutral gases such as renewable hydrogen and renewable natural gas, also known as biomethane, can be used in the same way as natural gas, but do not result in additional carbon emissions to the atmosphere.

- **Renewable Natural Gas (biomethane)** is a near-pure source of methane that is a direct replacement for natural gas. It is produced either by "upgrading" biogas (a process that removes any CO_2 and other contaminants present in the biogas) or through the gasification of solid biomass followed by methanation. It is carbon neutral as it harnesses the energy potential from organic materials such as agricultural residues, waste, as well as landfill gas, wastewater sludge, livestock manure, and curb-side food organics and garden organics (FOGO), supporting the circular economy.
- **Renewable hydrogen** is produced by electrolysis of water using renewable electricity, resulting in lower carbon emissions than conventional production from natural gas
- **BioCNG** is a renewable replacement for compressed natural gas for vehicles. It is 95% pure methane gas, achieved through the upgrading of biogas.

[1] DITRCA, Transport and Infrastructure Net Zero Roadmap and Action Plan (2024)
[2] Future Made in Australia - National Interest Framework

We provide the following comments:

2. Market, regulatory, and infrastructure barriers to increased bioenergy production from sugar.

There are several barriers and uncertainties affecting bioenergy production from sugar. Key systemic challenges in the sugar industry include:

- **Highly distorted and subsidised global sugar markets:** Subsidies (e.g., India) and protectionism (e.g., EU) undermine fair competition and reduce Australia's international competitiveness. Australia is in a global race to develop sovereign industrial capabilities and must match the ambitious policies of countries including China, Brazil, India, the USA, and the EU.
- **Cost pressures:** Cash breakeven is around $0.20/lb, compared with the current price of $0.16 USD/lb.
- **Policy uncertainty:** Although there have been some recent policy commitments, the absence of concrete policy levers supporting both supply and demand for renewable gas and LCLF continues to create market uncertainty. This gap limits investment, sector growth, market development and creates obstacles to establishing a viable business case across the supply chain. At the state level, policies require bipartisan support and alignment with federal initiatives to be effective.
- **Limited supply chain support** relative to other primary industries in Australia.

These challenges have contributed to declining cane supply (from 34 Mt to 29–30 Mt over the past decade) and significant facility closures (from 33 mills in the 1980s to 22 currently). The closures at Mossman and Maryborough illustrate how industrial capacity is being lost and that Government interventions need to be made proactively, rather than after closure decisions have been made.

Clarity on government support and industry direction can help mill owners strategically plan investments, such as those in ethanol production, to align with major stay-in-business capital expenditure milestones - therefore reducing the net-cost of a transition from sugar to ethanol while, importantly, enabling mill owners to make these investments when cashflow and financial conditions allow. Government support is a critical enabler.

Globally, many countries are increasing the value of their agricultural industries by converting crops and by-products into high-value energy and fuels. These specialised products have higher margins, greater industrial capacity and expertise, and allow farmers to extract more value from the same land. By shifting focus from sugar as a commodity driven by global markets and often subsidised abroad, and toward it as a higher-value sustainable product, Australia has a significant opportunity. With clear government support, the industry can maximise total agricultural yield and unlock greater economic value from the sector.

Without policies that support the domestic market, feedstock will continue to be locked into export contracts, processed overseas into low carbon fuels, and potentially re-imported for domestic use—sacrificing significant economic, environmental, fuel security and national balance of payments opportunities.

3. Opportunities to align sugar biofuel production with national security and Defence liquid fuel needs.

Australia's sovereign capability in food, fuel, and energy is now critical to both national security and long-term economic stability.

Sugarcane tops and trash represent significant untapped potential, with up to 9 million tonnes potentially available if supply chain and logistical challenges are addressed. At the same time, international competition adds pressure, with Australia currently exporting around $6 billion in feedstocks.[3] Redirecting these feedstocks into local LCLF and renewable gas production could generate new income for primary producers, strengthen economic stability, encourage reinvestment in local supply chains, and enhance the resilience of regional communities. To strengthen this position, governments need a coordinated approach to industry policy that enables strategic investment and builds domestic capacity in key sectors.

The sugar manufacturing industry presents a clear opportunity to enhance Australia's energy and defence resilience. With targeted support, the sector could play a leading role in scaling the production of LCLF and renewable gas to support the transition to greater fuel self-sufficiency.

Australia's reliance on imported fuels is high, with approximately 80% of total consumption imported, costing around $50 billion annually.[4] The majority of these imports come from Asia, concentrated in just three countries (China, South Korea, and Singapore) supplying diesel and jet fuel.[5] Over the past 12 years, five refineries representing 31,660 ML of production capacity have closed, further increasing reliance on imports.[6] Strategic investment in LCLF refining and infrastructure could reverse this trend. Domestic production has the potential to offset up to 19 per cent of fuel imports by 2040 and 47 per cent by 2050.[7]

The Clean Energy Finance Corporation has identified sugar as a key LCLF feedstock at scale, highlighting its role in strengthening national fuel security.[8] The CSIRO's 2023 Sustainable Aviation Fuel Roadmap similarly points to Queensland's sugar industry as a major feedstock source, stating.

- *"Sugarcane (sugar and bagasse) and sorghum could supply increasing portions of Australia's fuel demand over time…utilising 10% of projected sugar and 40% of bagasse production through to 2050 could produce enough SAF to meet 10% of the fuel demand."*[9]
- *"The opportunity for Queensland to produce SAF from sugar and bagasse is significant. Established supply chains, willing feedstock producers and mature technology options make ATJ an attractive option for SAF production in the immediate to medium term if sugar and bagasse can be liberated from current bioenergy uses at mills and upgraded to an intermediate product and transported economically."*[10]

[3] Securing our Fuel Future: Resilience Through Low Carbon Liquid Fuels (March 2025)
[4] Securing our Fuel Future: Resilience Through Low Carbon Liquid Fuels (March 2025)
[5] Ibid
[6] Ibid
[7] Ibid
[8] CEFC, Refined Ambitions: Exploring Australia's Low Carbon Liquid Fuel Potential (2025)
[9] CSIRO Sustainable Aviation Fuel Roadmap (2023), p.37.
[10] Ibid, p. 39.

- *"Both sugar and bagasse were modelled to understand potential feedstock production and potential jet fuel production. By converting 10% of Australian sugar and 25% of bagasse into jet fuel, there is the potential to produce 988 ML of jet fuel in 2025 comprising 11% of Australia's projected jet fuel consumption."*[11]

Renewable natural gas or biomethane will also play a critical role in strengthening Australia's energy security. By providing a reliable source of energy for both base and peak demand, biomethane helps stabilise the energy market, reduces the risk of shortages and price spikes, and enhances overall resilience for consumers. It offers a sustainable alternative to finite conventional natural gas, which is increasingly under pressure, with AEMO's 2025 Gas Statement of Opportunities projecting potential east coast shortfalls from 2028.[12]

The scale of this opportunity is significant with approximately 400 petajoules of biomethane able to be recovered from a range of existing feedstock sources today[13]—more than twice the annual gas consumption of Australian households—demonstrating the potential of RNG to support industrial decarbonisation and a more secure, self-reliant energy system for Australia. There is strong synergy and complementarity in the use of sugarcane to support multiple bioenergy pathways, including both LCLF and renewable gas. This highlights that there is, and will continue to be, significant demand for this feedstock.

There is also a clear strategic opportunity to enhance national security and Defence capabilities through the production of LCLF and renewable gas from Queensland sugarcane.

The 2023 Defence Strategic Review (DSR) [14] reinforces the urgency of developing sovereign fuel capability, highlighting Australia's reliance on imported liquid fuels as a critical strategic vulnerability. It calls for investment in local fuel production that cannot be disrupted by foreign adversaries during conflict. Around 70 per cent of the Australian Defence Force's (ADF) total fuel consumption is jet fuel, meaning that without access to liquid fuels, the Royal Australian Air Force—and by extension, national defence capability—would be severely compromised.

While strengthening storage infrastructure is necessary, the only enduring solution is to establish domestic fuel production using local feedstocks and resources. Queensland's sugarcane industry alone has the potential to supply all of the ADF's fuel requirements in the event of a disruption to overseas crude oil and fuel imports, demonstrating a tangible pathway to greater energy security and sovereign resilience.

The Defence Future Energy Strategy reinforces this direction, identifying renewable diesel (RD) and sustainable aviation fuel (SAF) as likely alternative energy sources over the short to medium term stating, that *"drop-in replacement fuels have little to no impact on the Defence platform or infrastructure."* [15]

---

[11] Ibid, p. 80.
[12] Unlocking Renewable Natural Gas to Enhance Energy Security and Maintain Australia's Manufacturing Sector (July 2025)
[13] Biomethane Opportunities to Decarbonise Australian Industry report (2025)
[14] National Defence: Defence Strategic Review 2023 | About | Defence
[15] Defence Future Energy Strategy (2024)

Defence has already demonstrated practical application and support for low carbon liquid fuels, with a Seahawk helicopter operating on a SAF blend in 2012, and the Great Green Fleet Rim of the Pacific (RIMPAC) exercise using renewable diesel (F-76) in Royal Australian Navy ships in 2016.[16]

Beyond defence capabilities, bioenergy production from sugar supports broader sovereign capabilities including:

- Food security: Australia produces ~4 million tonnes of raw sugar annually and is among the world's top exporters.
- Regional development: The industry supports over 20,000 jobs in Queensland and NSW communities.
- Bioenergy precincts: Sugar mills and cane rail networks can act as hubs to aggregate bioenergy feedstocks across industries (e.g., forestry residues, agricultural waste).
- Biomanufacturing potential: Opportunities exist in bioplastics and alternative proteins.

In summary, sugar-derived LCLF and biomethane offer significant opportunities to align with Australia's national security and defence requirements while delivering economic, regional, and sovereign benefits.

4. Policy and funding mechanisms to de-risk investment in cogeneration and biofuels by manufacturers and growers, including examples of successful policy implementation from overseas and other industries.

Policy and funding mechanisms to support the local sugar industry and accelerate the development of LCLF and RNG sector include:

Increasing Scale Through Supply and Output:

- **Feasibility and FID funding:** To maintain a sustainable pipeline of future projects, grant funding for feasibility and final investment decision (FID) studies is critical for de-risking early-stage investments. Both the Queensland and federal governments can co-fund the development of this project pipeline to ensure domestic feedstock supply aligns with emerging biofuels demand. Providing targeted funding support to feasibility, concept and FEED stage studies at the early stages of projects, when "at risk" funding is difficult and expensive to raise, can be a highly effective approach.
- **Supply-side investment support:** Supply-side support is critical for de-risking investment in progressing low Carbon fuels projects. This support could include capital and development grant funding for projects, production tax credits, payroll and land tax concessions, contracts for difference, and R&D. Supply-side support is critical for standing up domestic projects as it stimulates innovation, attracts feedstock investment, establishes local production capacity, and derisks investment into the industry. Governments should offer tailored financial

[16] Ibid.

instruments for cooperatives and small operators to enable large-scale bioenergy investments.

- Capital grants: Government can support the required investment in innovation, technology adoption, energy efficiency, and bioenergy transition in sugar manufacturing through co-investment in industrial upgrades and new technologies.
- Grower incentives Grower engagement is critical. Incentives should ensure cane growers share directly in the benefits of the bioenergy transition. Without visible grower participation and support, industry transformation will be more difficult to achieve.
- Cane supply incentives: Governments should provide targeted on-farm infrastructure, adoption of current on-farm best management practices (BMPs) and beyond, and water-use support to encourage cane production and ensure supply chain sustainability.
- Cane Land conversion incentives: Governments can play a transformative role by incentivizing land conversion back to cane (as it is doing in the forestry industry) through on-farm infrastructure grants, improving access to water, and investing in the sugar supply chain, like the existing 4,000km of cane rail and harvesting infrastructure that will underpin the sugar and biofuels supply chain.
- Industrial land incentives: Government can also consider how to provide cost effective leasing access to government owned industrial land and state development areas - this reduces the upfront capital required to develop projects and reduces project risk.
- Biofuels precincts/hubs: Biofuels investments benefit from access to existing fuels infrastructure and assets. Like with hydrogen, clustering biofuels production can bring economies of scale/efficiencies, better access to skills, access to common-user infrastructure to reduce costs, de-risking of land access and procurement, streamlining and de-risking of approvals, lower risks of community opposition and simpler access to markets through the state's existing fuel distribution and storage network. Natural hubs exist along the Queensland coast well suited to these roles. Utilisation of state development areas, existing or past refineries and fuels infrastructure and land previously considered for hydrogen development is low hanging fruit.
- Public-Private partnerships: By partnering on projects, the government can provide investment support while showcasing technology readiness and project feasibility. This also acts as a direct market signal, demonstrating the government's commitment in this area and giving industry certainty that policy levers will be put in place to ensure success.
- Manufacturing R&D Investment: Governments should fund sugar manufacturing R&D focused on adopting advanced technologies from overseas and adjacent industries to modernise processes and increase productivity. Manufacturing R&D has been severely neglected, and the focus should be on adopting technologies from overseas and adjacent industries that would help adopt advanced manufacturing processes in this supply chain.

Developing of LCLF and RNG Markets

Globally, governments are driving low carbon fuel demand side measures. Demand-side mechanisms include:

- Renewable gas targets.
- Mandates tied to carbon intensity introduced over time.
- Low carbon fuel standard.
- Introduction of government procurement targets or term-dated procurement contracts for low carbon fuels. Such measures help the investability of projects for the private sector while also assisting with government decarbonisation goals. It is also a demonstrable commitment to the electorate that the government supports regional industry, jobs, farmers and decarbonisation.

These measures not only stimulate demand but also create the necessary economic incentives to encourage businesses and consumers to transition to low carbon alternatives. By guaranteeing a certain level of demand through policy, this encourages local producers (growers and millers) to expand their production capacities, knowing there will be a consistent market for their products.

An Australian mandate should have a domestic feedstock component. Without this there is a risk of building a biorefining capability that relies on imported feedstocks, undermining jobs and sovereign fuel production. With respect to bioenergy, offtake agreements would help derisk the expansion of cogeneration capacity.

Currently, there is no clear demand to justify investment in developing a pipeline of bioenergy projects. Without this pipeline, if and when demand hits the market, it will be filled by imported feedstocks, including bioethanol from India and Brazil. With the introduction of gradual demand-side mechanisms similar to those implemented overseas, Queensland could potentially develop an industry to supply low carbon fuels for blending into domestic markets across Queensland and Australia, which may not significantly increase the final cost of the fuel blend.

We note that the Federal Government have committed to undertaking regulatory impact analysis of the costs and benefits of introducing mandates or other demand-side measures for low carbon fuels. We highlight the work taking place federally as it is critical for the Queensland Government to align its support in this area to avoid creating inconsistent or conflicting policies. Such inconsistencies not only create uncertainty within the local industry but also risk imposing additional burdens that need to be met by local users.

We note that although jet fuel is regulated at the federal level, the state can encourage production by enforcing and expanding the existing E10 mandate, consider methanol blending in diesel for industrial use, and introduce a renewable diesel blending requirement

Infrastructure and Supply Chain:

- Enhance connectivity & cane rail grants: Improve transportation networks, such as rail and road, to ensure efficient and cost-effective movement of feedstock and low Carbon fuels from production sites to end-users across the state. This could include co-investment in expansion,

safety upgrades, and flood resilience improvements to networks which are not only vital to supporting sugar production but for the aggregation of biofuels feedstocks across Queensland.

- Disaster recovery: Include cane rail infrastructure in national disaster recovery frameworks to support post-disaster recovery, incentivising the maintenance of the cane rail network, and reducing incentives to switch the cane freight task onto public roads.
- Development of workforce strategy: A funded skills & workforce strategy for the sugar industry biofuels/bioenergy diversification agenda.
- Streamline regulatory approvals: Streamlining regulatory approvals for projects can significantly reduce risks to investors and supporting the integration of supply chains can enhance efficiency and reduce overall costs across the state.
- Equipment upgrading: Support may be needed for mills to upgrade boilers to improve efficiency, as they are currently operated to ensure all bagasse is consumed. Higher boiler efficiency would free up bagasse for use in low-carbon fuel production, while maintaining mill operations.
- Standards and certification: Introduction of clear regulatory frameworks that integrate low carbon fuels into national fuel standards and align with international certification schemes. This will provide certainty for investors, support market adoption, and ensure Australian low carbon fuels meet global sustainability and quality benchmarks.

5. The R&D agenda to underpin a world leading sugar-led bioenergy industry.

The sugar industry is transforming to optimise the use of limited feedstocks, producing not only sugar but also a diverse range of products such as fertilisers, molasses, bioplastics, low carbon fuels, renewable gas and electricity. To support this transformation, the sector requires an ambitious R&D agenda aligned with these goals.

A R&D agenda could focus on several key areas:

- Co-optimisation of sugar and energy production: Strengthen R&D to maximise both sugar and energy output from each tonne of sugarcane, generating more food and fuel from every tonne processed.
- Feedstock innovation: R&D support to explore higher-yield sugarcane varieties, breed crops resilient to climate variability, pests, and diseases, and new varieties that support both productivity and sustainability.
- Manufacturing R&D has been severely neglected, and focus should be dedicated to adopting technologies from overseas and adjacent industries that would help adopt advanced manufacturing processes in this supply chain.
- Commercialisation and scale-up: R&D to pilot and progress innovative production methods, including Alcohol-to-Jet (ATJ) technologies, test and optimise technologies at larger scales, and develop cost-competitive processes to bring sugar-led bioenergy solutions to market and support renewable gas and low-carbon liquid fuels supply.

- Transport and logistics development: Support R&D into transport, transport networks, logistics, and infrastructure to maximise the efficient movement of feedstock from farm to sugar mill to refinery and end users.
- On-farm practices: Support innovative agricultural practices and technologies that optimise feedstock production, harvesting, collection, storage, and aggregation.
- Optimising anaerobic digestion (AD): Support R&D to improve the AD process for converting organic byproducts, such as sugarcane bagasse, into energy. Research can focus on enhancing microbial breakdown, maintaining optimal conditions, and developing cost-effective systems to increase energy output from this challenging feedstock.

6. Strategic land use and regional development considerations affecting cane growing and sugar manufacturing capacity.

The long-term growth and resilience of Australia's LCLF and renewable gas industry, using sugarcane as a key feedstock, depends on strategic land use and regional development planning. Protecting, managing, and expanding sugarcane-growing areas is essential to maintain and grow sugar production while securing a reliable feedstock supply for renewable gas and LCLF. Coordinated planning can optimise land use, strengthen logistics to efficiently connect feedstock with production and distribution, and expand regional employment opportunities.

Queensland's extensive sugar industry and broad regional cane base share strong parallels with Brazil, which has developed the world's leading ethanol sector—worth billions annually and employing large numbers of people. Brazil's success is underpinned by decisive policy, including its *Fuels of the Future* and SAF National Program, which have driven research, production, and market uptake. A SAF mandate requiring 1% annual reductions in aviation emissions from 2027, rising to 10% by 2037, alongside US$1.1 billion in National Bank for Economic and Social Development (BNDES) financing, has catalysed significant private investment. This provides a clear blueprint for Queensland and Australia to translate early initiatives into enduring industry growth for regional communities.[17]

Incentivising and supporting the use of sugarcane for low carbon liquid fuels and renewable gas can strengthen regional economies by safeguarding and potentially expanding jobs in Queensland, while stimulating investment in local infrastructure and manufacturing capacity.

7. Benefits for growers in diversification opportunities.

The sugar industry already supports around 23,000 jobs along the eastern coast, from Northern NSW to north of Cairns. For many regional Queensland communities, it serves as the anchor industry, providing the economic impetus for other activities such as engineering services, transport and logistics, and the production of plant and equipment.

[17] https://www.icao.int/sites/default/files/sp-files/environmental-protection/Documents/EnvironmentReport-2010/2025/Envreport2025_50.pdf

Developing a low carbon fuels and renewable gas industry using Australian feedstocks, including sugar, could expand these economic opportunities. The Race for 2030 report identified that, from 2022 to 2050, the adoption of biogas technology could generate over 18,000 full-time jobs, mostly in regional areas, and contribute $50 billion to Australia's GDP[18]. Additionally, an ICF Report highlighted that an Australian SAF industry could create nearly 13,000 jobs across the feedstock supply chain and 5,000 high-value roles in facility construction and operation.[19]

These industries not only support new skills, training, and employment opportunities but also allow traditional energy workers to retain their jobs while transitioning to cleaner energy sources. The 2023 Jobs and Skills Australia report estimated that existing petroleum refining workers (about 1,500 in 2021) could transition easily to biofuel roles, including at the same worksites. Similarly, in the renewable gas sector, existing skills can be leveraged, requiring only minimal upskilling for current gas industry professionals.[20]

Beyond jobs, diversification into LCLF and renewable gas offers multiple economic and strategic benefits:

- Revenue and market diversification: Queensland's sugar sector has the opportunity to expand into LCLF, renewable natural gas, cogeneration, and biomanufacturing. Diversification reduces reliance on volatile global sugar markets, supports Australia's energy transition and fuel security, while also supporting regional jobs.
- Optimised resource use and industrial efficiency: By converting by-products such as bagasse and molasses into energy or fuels, sugar mills can maximise the value extracted from each tonne of cane, improve energy efficiency, and support advanced processing technologies.
- Stronger local supply chains: By integrating into low carbon fuel production, growers strengthen demand for their cane and by-products, supporting consistent off-take agreements and long-term contracts that improve financial security.
- Alignment with national goals: Growers indirectly benefit from government incentives and support for LCLF and renewable gas sectors, such as grants, tax credits, or R&D funding, which can reduce the cost of production and provide opportunities to invest in more efficient and sustainable farming practices.
- Increasing cane supply and outputs: Expanding cane supply secures the future of Australia's sugar industry and supports the bioeconomy agenda. Higher cane volumes improve the utilisation of existing infrastructure, lower production costs, and enhance the viability of both sugar and diversified outputs. Targeted investment in technology adoption, energy efficiency, and steam optimisation further increases value recovery from each tonne of cane, including freeing up bagasse for higher value uses in fuels and energy production. Sugarcane is the most viable and adapted agricultural crops for conditions in the coastal/near coastal areas of the Queensland wet tropics. Diversification reinforces the value of sugarcane in these areas.

[18] Race for 2030, 'Onsite anaerobic digestion for power generation and natural gas/diesel displacement' (2023)
[19] ICF Report, 'Developing a SAF industry to decarbonise Australian aviation' (November 2023).
[20] Jobs and Skills Australia, The Clean Energy Generation: workforce needs for a net zero economy (2023)

For Queensland's sugarcane sector, this represents a significant new market opportunity, diversifying income streams for growers and revitalising regional mills through low carbon fuel and gas production.

8. Consideration of food verses fuel.

Australia is building a renewable fuels industry that works hand-in-hand with the food system. Instead of creating competition, the development of a low Carbon fuels industry can increase food and feed production, enhance energy security and provide a modified industry for regional Australia.

LCLF and renewable gas can be produced from the same harvests that supply food including sugarcane, grains, and oilseeds, with co-products supporting livestock and other parts of the food system. These crops can be grown in rotation with other crops like grains, wheat and barley, so additional supply is delivered through improved yields and agronomic practices rather than expanding farmland or taking land away. Significantly, more than 18 million tonnes of biomass from sugarcane bagasse, tops, and trash are available, demonstrating that low-Carbon fuels can be produced alongside food without affecting the food supply.

While some have raised concerns that low Carbon fuels could compete with food production, a balanced, scale-realistic approach ensures that all sustainable feedstocks — including sugarcane bagasse, sugarcane tops and trash, agricultural crops and residues, and waste oils or other residues where available — can be used to produce energy that complements, rather than compromises, food supply. Emerging technologies and optimising the use of underutilised feedstocks will continue to expand these opportunities in the future.

As an agricultural powerhouse, Australia already produces enough food to feed 60 million people – three times our current population.[21] With more than 80% of all sugar produced in Australia exported as bulk raw sugar, making the country the second-largest raw sugar exporter in the world, low-carbon fuel production offers an opportunity to add value onshore and support domestic energy needs— without affecting food, feed, or fibre production.[22]

Diversifying agricultural resources to support low carbon fuel production can also unlock significant economic development for rural communities while making the maintenance and expansion of the sugarcane/sugar industry more viable. It not only provides farmers and local businesses new revenue streams, but creates additional jobs, helps retain existing ones, and supports local development. Instead of creating competition. The development of a low-Carbon fuels industry can increase food and feed production, enhance energy security, and provide a modified/new industry for regional Australia.

The concern that Australia cannot produce both food and feedstocks does not reflect reality or capabilities. Farmers have been successfully managing both for years, increasing yields and producing more on the same land, all while using increasingly sustainable practices.

[21] https://www.chiefscientist.gov.au/sites/default/files/SmartScience_Agriculture.pdf
[22] https://www.agriculture.gov.au/agriculture-land/farm-food-drought/crops/sugar

Food, feed, fibre – and fuel – is possible.

What the industry is committed to:

- **Balanced feedstock strategy:** Build the industry on a mix of sustainable feedstocks, including sugarcane, crop residues, and waste products, rather than creating a hierarchy that excludes scalable options.
- **Alignment with government policy:** The Government is currently developing the Guarantee of Origin Scheme to ensure low Carbon fuels are produced from sustainable, verifiable feedstocks and the emissions intensity is quantified with rigor.
- **Sustainable farming practices:** Australia's broadacre cropping systems rely on rotations that improve soil health, conserve water, and manage pests and disease — all without the need for new land clearing. The Australian sugarcane industry is committed to growing sustainable crop via a world-class BMP program. This continues to be improved via the introduction of innovative and forward-looking practices and management options as/when these become available.
- **Australian-specific sustainability:** Recognise Australia's world-leading farming practices, such as no land clearing for grains and oilseeds, high soil carbon retention, and efficient water and nutrient use — rather than relying on global averages that don't reflect local conditions.
- **Innovation pathway:** Support the development of advanced and second-generation fuels, alongside near-term pathways that can deliver immediate volumes at scale.
- **Promote co-products and circular economy:** Encourage the production of co-products from low carbon fuel feedstocks, such as animal feed or fertilizers, to ensure that the entire biomass is utilised efficiently and adds value to the agricultural sector.
- **Engage with communities:** Collaborate with the agriculture sector, energy sector, and local communities to ensure that low carbon fuel production aligns with food security goals and benefits all stakeholders.
- **Support Research and Development:** Support research to improve feedstock yields, maximise the co-optimisation of feedstock and energy production, reduce production costs, and enhance the sustainability of low carbon fuel production processes.

The LCLF and renewable gas industry is committed to working with the agricultural, feedstock, and sugar sectors to develop a local industry that optimises existing resources, adds value to an already strong sector, and builds a sustainable industry that supports Australian enterprises and businesses.

Thank you for taking the time to consider our submission. Any questions or request for further assistance are welcome and can be directed to [redacted]

Sincerely,

[redacted]

Shahana McKenzie
CEO Bioenergy Australia