

Sugarcane Bioenergy Inquiry 2025

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Wednesday August 27, 2025

Hon. Mr Stephen Bennett MP
Chair
Primary Industries and Resources Committee
Parliament House
Cnr George and Alice Streets
Brisbane Qld 4000

Dear Mr Bennett,

Re: Submission: Inquiry into Sugarcane BioEnergy Opportunities

On behalf of Greater Whitsunday Alliance (GW3), please find following a submission to the Inquiry into Sugarcane BioEnergy Opportunities.

Sugarcane is a vital agricultural commodity for the Greater Whitsunday region and a key legacy industry. We welcome this inquiry and our opportunity to make a submission.

We are excited by the opportunities that sugarcane can deliver to our regional economy and grower-community.

Please do not hesitate to contact me if you have any questions.

Yours sincerely,
GREATER WHITSUNDAY ALLIANCE



Kylie M. Porter
Chief Executive Officer



Submission: Inquiry into Sugarcane BioEnergy Opportunities

Background

The concept of using sugar cane as a feedstock to drive new high value industry is not a new idea for the Greater Whitsunday region (Mackay, Issac, Whitsunday local government areas) — we've been laying the groundwork for a thriving biomanufacturing future for years. The release of Queensland's Biofutures Roadmap in 2016 provided a clear policy signal that Queensland was serious about building a globally competitive industrial biotechnology sector. Since then, Greater Whitsunday has worked closely with all levels of government, research institutions, and industry leaders to position the region at the forefront of this agenda and in 2024 released it's own [Greater Whitsunday Biomanufacturing Blueprint 1.0](#).

Conveniently located near fast-growing Asian markets, and with proximity to North Queensland's broader resource and agricultural supply chains, the Greater Whitsunday region offers a unique strategic advantage. The region is home to abundant and diverse biomass, strong freight and export infrastructure, and a workforce with deep experience in agriculture, processing, and industrial operations. The region's favourable climate — characterised by high annual rainfall, warm temperatures, and consistent humidity — also supports year-round agricultural production and reliable biomass supply, adding to the region's appeal for biomanufacturing. This combination makes Greater Whitsunday exceptionally well-placed to meet the rising global demand for food, fuel, feed, and fibre produced through biomanufacturing processes.

The foundations are now in place in the Greater Whitsunday region to scale and attract investment. The region is already home to critical enabling infrastructure like the QUT Mackay Renewable Biocommodities Pilot Plant a national-scale facility driving research, innovation, and commercialisation in industrial biotechnology. And we're attracting national attention, with the Queensland Government and our region welcoming many potential investors interested in establishing large-scale precision fermentation facilities in region. In addition, the Queensland Government announced in 2024 the Mackay State Development Area targeted at stimulating large scale industrial development, particularly in the bioeconomy sectors.

To date, the region's initial focus has been on products developed through precision fermentation and synthetic biology including future foods, biomaterials (such as bioplastics), personal care and wellness products, food and feed supplements and plant extract — sectors that play to biomass strengths and global market trends. However, as policy settings, capability and investment evolve, the region is well placed to expand into a broader range of biomanufacturing opportunities including low carbon liquid fuels over time.

This is a region that makes smart, strategic choices: defining clear priorities, building on existing strengths, and creating the right conditions for scalable, long-term growth. Biomanufacturing aligns with regional ambitions and offers a powerful pathway to grow new industries, add value to traditional ones, and secure a more sustainable and resilient future.



1. Role and Benefits of Sugar Cogeneration

The Greater Whitsunday region is uniquely positioned to contribute to Queensland's bioenergy future, particularly through sugarcane-based cogeneration and biomanufacturing. With 28% of Australia's sugarcane grown in the region and five operational sugar mills — including Mackay Sugar's Racecourse Mill and Wilmar's Plane Creek Mill — the region offers both scale and infrastructure to support expanded bioenergy production.

Racecourse Mill is already a success story with their 38MW bagasse cogeneration plant powering approximately 30% of Mackay and reducing Queensland's emissions by 200,000 tonnes carbon dioxide equivalents (CO₂e) annually ¹. This demonstrates the viability and environmental benefit of sugar cogeneration as part of Queensland's energy mix. Expansion of cogeneration capacity across other mills could further contribute to grid stability and decarbonisation. However, it should be acknowledged that most mills in the Greater Whitsunday region are either approaching or have surpassed end-of-life and require investment to maximise efficiencies. This principle can be applied to all Queensland sugar mills.

2. Barriers to Increased Bioenergy Production

The Greater Whitsunday Biomanufacturing Blueprint identifies regulatory complexity, infrastructure gaps, and fragmented policy frameworks as key barriers to scaling bioenergy. Streamlined approvals, targeted infrastructure investment, and coordinated planning are needed to unlock commercial potential.

In the past, Australian policy regarding green energy has been fragmented which has restricted investment in cogeneration from millers. Whilst the policy framework in this space is more certain in current times, the 'scars of the past' are still very much front of mind for the industry and significant commitment to policy levers will be required to support future confidence in this space.

3. Alignment with National Security and Defence Fuel Needs

The region's capacity to produce bioethanol and other drop-in fuels — including aviation-grade biofuels — positions it as a strategic contributor to national fuel security.

Wilmar's Sarina BioEthanol distillery produces 60 million litres annually, with potential to expand production for Defence and emergency fuel reserves ². The Wilmar facility has been operational since 1927, however much like the issues of fragmented policy approach as outlined in section 2 (Barriers to Increased Bioenergy Production), the scars of the past are still very top of mind and acting as a barrier to any new investment in capital to increase ethanol production.

¹ <https://greaterwhitsundayalliance.com.au/wp-content/uploads/2024/06/GW3-BiomanufacturingBlueprint2482FinalLowRes.pdf>



4. Policy and Funding Mechanisms

International models such as the U.S. BioMADE initiative and Germany's Bioeconomy Strategy show the value of public-private partnerships, pilot-scale infrastructure funding, and feedstock development programs ³. Queensland could adopt similar mechanisms to de-risk investment and accelerate commercialisation. Whilst the Queensland Government's Sovereign Investment Fund is focused on stimulating investment in Defence, Biomedical and Biofuels, which are strongly aligned to sugar as a feedstock – it should be noted that the technologies used to produce these products are also deployed in future foods, biomaterials (such as bioplastics), personal care and wellness products, food and feed supplements and plant extract production and therefore these categories should be expanded.

5. R&D Agenda

The Greater Whitsunday region may be regional, but it's far from remote when it comes to research capability. We've already laid the foundations to support innovation in emerging industries like biomanufacturing, with infrastructure and academic partnerships in place and growing.

At the heart of our regional research offering is the Mackay Renewable Biocommodities Pilot Plant, operated by Queensland University of Technology (QUT) and located at the Racecourse Mill. As Australia's only publicly accessible biorefinery-scale pilot plant, it's already been a testbed for converting biomass into sustainable fuels and materials. With recent investment from the Australian and Queensland Governments, the plant is now being upgraded to support food-grade processing, opening doors for innovation in precision fermentation and novel foods.

Also located in Mackay is the Resources Centre of Excellence (RCOE) — a research and training facility with strong ties to the region's world-leading METS (mining equipment, technology and services) sector. While originally designed for the resources industry, its collaborative model and infrastructure offer valuable opportunities for cross-sector innovation, including biomanufacturing. A broader innovation ecosystem to support the existing work of the RCOE is being built in region, including the Future Industries Hub in Mackay and the Isaac Resources Excellence Precinct in Moranbah.

Beyond dedicated biomanufacturing and resources research, the Greater Whitsunday region has a strong and diverse education and training ecosystem that reflects its commitment to innovation and future-focused industries. Central Queensland University (CQU) is Australia's only dual-sector tertiary education facility and boasts a major campus in Mackay and additional regional locations. CQUniversity plays a key role in delivering industry-relevant research and qualifications across many disciplines. In addition to CQUniversity's VET offering, the region also has the presence of TAFE Queensland in the northern zone, to deliver vital vocational education and training across multiple campuses, supporting local workforce growth across emerging and established sectors. The Mackay Engineering College (MEC), a purpose-built

³[Growing Australia's Bioeconomy Report](#)



senior secondary training facility, plays a critical role in developing trade and technical skills in partnership with local industry. Together, these institutions create a pipeline of talent and knowledge-sharing that reflects the region's strong culture of research, education, and collaboration across sectors.

Our region's research capability is not an emerging aspiration — it's an established strength. With real infrastructure, skilled researchers, and a track record of translating science into commercial outcomes, the Greater Whitsunday is ready to support the scale-up of bio-energy and biomanufacturing opportunities across the value chain.

6. Strategic Land Use and Regional Development

While the Greater Whitsunday region currently has over 100,000 hectares of sugarcane farmland, there is significant untapped potential for future biomass production. There is clear opportunity to scale up production – if policy and regulatory settings are right and market signals are positive.

One of our key regional advantages is the availability of agricultural land that remains undeveloped. A recent study⁴ identified that up to 88,000 hectares of additional higher-value irrigated broadacre or perennial cropping land could be developed across the region, through proposed regional irrigation schemes. Combined with high rainfall and therefore fewer water constraints than many other agricultural areas, Greater Whitsunday is well-positioned to support new and diversified biomass crops without placing undue pressure on existing systems.

The Racecourse Sugar Mill precinct is a standout example of how existing infrastructure can support emerging industries. As one of the few mills in Queensland with integrated co-generation and bio-processing capacity, it is well positioned for diversification. Ongoing exploration of new uses — including biomanufacturing applications — points to the value of building on legacy assets to create future-focused precincts.

7. Grower Diversification Opportunities

Sugarcane feedstocks — including bagasse, molasses, and green waste — can be converted into biofuels, bioplastics, and biochemicals as well as power cogeneration plants. This creates new revenue streams for growers and supports circular economy outcomes. The Sugar Plus roadmap outlines pathways for diversification into food, energy, and fabrication⁵.

A key barrier is policy and regulatory uncertainty for the grower to expand operations and invest in expensive capital to increase production. Sugarcane's versatility as a renewable feedstock is unmatched. Growers and millers need certainty beyond short-term election cycles to guide strategic investment making. Without the certainty the Queensland sugar industry will remain vulnerable to international commodity price fluctuations.

⁴ <https://greaterwhitsundayalliance.com.au/wp-content/uploads/GW3-Agricultural-Supply-Chains-branded-FINAL.pdf> (page 171)

⁵ <https://sugarresearch.com.au/publication/sugar-plus/>

8. Food vs Fuel Considerations

By 2050, the global population is expected to exceed 9.7 billion, placing unprecedented pressure on food systems worldwide, including Australia. Ensuring food security will require not only increased production but also smarter, more sustainable approaches to how food is grown, processed, and distributed.

The CSIRO's Synthetic-Biology-Roadmap⁶ emphasises that synthetic biology and precision fermentation through biomanufacturing processes offer transformative solutions to this challenge. However, it should be noted that these same technologies can also enable the production of drop-in biofuels, including aviation-grade fuels, from sugarcane and CO₂.

Therefore, it is incredibly important to also invest in these technologies alongside underpinning the performance of mills to support optimum cogeneration output for energy.

Queensland, and regions like the Greater Whitsunday, are well-positioned to lead in this space due to our abundant biomass, advanced research capability, strong agricultural foundations and experience in bioenergy production.

Conclusion

Queensland has the opportunity to lead globally in clean energy, sustainable food production, and advanced biofuels — and it doesn't have to choose between them.

With abundant sugarcane feedstock, proven cogeneration infrastructure like the 38MW Racecourse Mill plant, and strong biomanufacturing interest from other biomaterials proponents, the region is primed to deliver renewable electricity, future foods, and low-carbon liquid fuels at scale.

To make this happen we require strategic investment in pilot infrastructure, streamlined regulatory pathways, longer-term policy settings and targeted support for these opportunities to unlock new industries, diversify grower income, and strengthen sovereign fuel and food security.

With the right policy settings, Queensland can power homes, feed populations, and fuel defence — all from the same paddock.

⁶ <https://www.csiro.au/en/work-with-us/services/consultancy-strategic-advice-services/csiro-futures/future-industries/synthetic-biology-roadmap>