1 November 2024

Opportunities in the Circular Economy – Call for Submissions
Productivity Commission
Locked Bag 2, Collins St East
Melbourne Vic 8003

To Whom it May Concern,

Re: Opportunities in the circular economy – Call for Submissions

On behalf of Greater Whitsunday region, we are pleased to offer our input into the *Opportunities in the Circular economy – Call for submissions*.

Greater Whitsunday Alliance (GW3) serves as the peak independent, economic development organisation for the Mackay, Isaac, Whitsunday regions in Queensland, working in partnership with regional agencies, industry, and local councils to drive economic prosperity. Representing a diverse regional economy with over $74 billion in annual output and a population of nearly 190,000, Greater Whitsunday is a major contributor to Queensland's employment, output, and exports. Key industries such as mining, advanced manufacturing, agriculture, tourism, and construction fuel our growth, underpinned by a commitment to long-term economic development practices.

Located in the strategic heart of Northern Australia, Greater Whitsunday is one of Australia's economic powerhouses, significantly contributing to Queensland's employment, output and exports, underpinned by the strength and depth of its knowledge-intensive mining, advanced manufacturing, agriculture, transport, tourism, and construction industries.
GW3 has a strategic focus on decarbonisation through the delivery of the Decarbonisation Accelerated project, which positions the businesses and sectors of the region to benefit from the competitive advantages of aligning with decarbonisation and capitalising on new revenue stream opportunities. GW3 recognises the significant opportunity for advancing the circular economy in Australia, particularly in the Greater Whitsunday region, given the prominence of mining, agriculture, and manufacturing - three industries identified in the CSIRO report, *Australia's comparative and competitive advantages in transitioning to a circular economy*, as having the most potential to advance the circular economy.

The recently released, *Greater Whitsunday METS Sector – A Revenue Diversification Strategy*, leverages the region's established expertise in METS (mining equipment, technology, and services) to explore new economic opportunities. The strategy identifies seven priority sectors: critical minerals, circular economy, post-mining land use, biomanufacturing, bioenergy, renewables, and space. Many of these sectors operate within circular economy frameworks, positioning the region to deliver new services, products, and innovations that, presents exciting revenue diversification opportunities for the region.

GW3 welcomes the Productivity Commission's *Opportunities in the circular economy – Call for sunmissions*, recognising its role in enhancing materials productivity and economic-environmental alignment. This submission

provides insights, case studies and responses to the information requests outlined in the *Call for Submissions* document and *Terms of Reference*.

We look forward to the opportunity to contribute to further consultations. Please feel free to reach out if additional information or discussions would be valuable.

Kind Regards,
GREATER WHITSUNDAY ALLIANCE

Kylie M. Porter
Chief Executive Officer

GW3 RESPONSE – OPPORTUNITIES IN THE CIRCULAR ECONOMY

GW3 is pleased to provide insight into opportunities in a circular economy in Australia. This submission provides a range of insights, documents, case studies and other relevant information to support the inquiry and help inform policymaking.

GW3's responses are underpinned by key research and evidence developed by the region, including:

- *Greater Whitsunday METS Sector – A Revenue Diversification Strategy*; and
- *Greater Whitsunday Biomanufacturing Blueprint*

Greater Whitsunday METS Sector – A Revenue Diversification Strategy

The *Greater Whitsunday METS Sector – A Revenue Diversification Strategy* released in July 2024, positions the region to capitalise on emerging priority sectors, contributing to the future-proofing of its economic landscape. This strategy is a key deliverable of the Decarbonisation Accelerated project, grounded in robust evidence and shaped by extensive engagement with industry and regional stakeholders. It seeks to identify and leverage the economic opportunities that can be realised by intentionally diversifying into sectors with a strong alignment to the circular economy, including circular economy, biomanufacturing, post mining land use and critical minerals reprocessing, while also guiding the region's proactive pursuit of these opportunities.

The METS (Mining Equipment, Technology and Services) sector is a significant contributor to the Greater Whitsunday economy. Stemming from the region's strong mining presence, a highly skilled and specialised array of supporting activities and businesses have emerged over time. With over 700 businesses providing innovative and unique goods and services, the sector directly employs and supports thousands of jobs across the region. This has created a sizeable and highly skilled workforce, with transferrable skill across various diversification opportunities.

This strategy provides a detailed analysis of each of the seven priority sectors: critical minerals, renewable energy, bioenergy, biomanufacturing, circular economy, post-mining land use, and space. It identifies the size of the opportunities, their relevance to the region, and their alignment with the METS sector. The strategy also explores gaps and challenges, articulating actions to support the region's METS sector in progressing these opportunities. These actions fall into four key themes: supporting skills development and transferability, facilitating partnerships across stakeholder groups, providing insights, information and raising awareness and advocating for regulatory and policy changes.

Key takeaways focused specifically on how the Greater Whitsunday METS Sector Revenue Diversification strategy supports the circular economy:

1. **Unlocking Economic Opportunities**: The strategy identifies the circular economy and other aligning sectors as a critical to creating new economic opportunities by promoting sustainable practices and resource efficiency.
2. **Integration with Other Sectors**: The framework highlights how the circular economy can intersect with other priority sectors, such as renewable energy, fostering collaborative growth and innovation.
3. **Job Creation and Skills Development**: The circular economy aligned sectors supports the creation of new jobs and the development of relevant skills within the local workforce, equipping them to engage with emerging circular economy practices and technologies.

4. **Advocacy for Policy Change**: The strategy includes advocating for regulatory and policy changes that support the implementation and growth of circular economy practices, positioning the Greater Whitsunday region as a leader in sustainability.

These takeaways emphasise the significance of the circular economy within the Greater Whitsunday METS Sector Revenue Diversification Framework.

Access the Greater Whitsunday METS Sector – A Revenue Diversification Strategy HERE.

Greater Whitsunday Biomanufacturing Blueprint

The *Greater Whitsunday Biomanufacturing Blueprint* outlines a strategic roadmap for establishing a thriving biomanufacturing sector in the region. This initiative, driven by the Greater Whitsunday Alliance (GW3) in collaboration with the Queensland Government, aims to leverage the region's abundant natural resources, advanced logistics network, and skilled workforce to create a hub for biomanufacturing. The blueprint identifies key strategies and actions required to activate this sector, focusing on the development and manufacturing of products from plant-based, organic, or waste resources rather than fossil fuels.

The blueprint highlights the region's potential to tap into a global biomanufacturing market estimated to be worth $400 billion by 2040. It emphasises the importance of sustainable practices and innovation in transforming the local economy. By fostering a biomanufacturing sector, the Greater Whitsunday region aims to diversify its economic base, create new job opportunities, and contribute to environmental sustainability. This initiative aligns with broader regional and national goals of advancing biofutures and transitioning to a circular economy.

Read the Greater Whitsunday Biomanufacturing Blueprint HERE.

INFORMATION REQUEST 1

Circular economy success stories and measures of success

In the Greater Whitsunday region, several initiatives highlight the shift toward a circular economy, showcasing collaboration, innovation, and the problem-solving capacity of local businesses, particularly in the Mining Equipment, Technology and Services (METS) sector. These projects exemplify our region's potential to lead in circular economy practices, optimising resource use and setting new sustainability standards. GW3 is committed to fostering a circular economy in the Greater Whitsunday region and we recognise that successful implementation relies on collaboration among industry, government, and research entities.

An important characteristic of the examples provided below are the diversity of interventions, as well as the pursuit of scalable opportunities that stimulate major sector opportunities aligned to circular economy. By supporting innovative projects and initiatives, we aim to enhance local resilience, create jobs, and drive sustainable practices that align with global circular economy trends. The quality and diversity of these projects underscore our belief in the region's ability to become a leader in sustainability and circular economy solutions.

1. Decarbonisation Accelerated

In July 2023, GW3 in partnership with the Resources Centre of Excellence (RCOE) launched the Decarbonisation Accelerated project. This two year pilot project focuses on the way forward to position the businesses and sectors of our region to benefit from the competitive advantages of aligning with decarbonisation practices, remain engaged in supply chain and procurement opportunities, and capitalise on new value stream opportunities, especially those driven by decarbonisation.

Key awareness and development deliverables of the project have included a strong focus on the circular economy at events including a Decarbonisation Accelerated Summit held in May 2024, a dedicated decarbonisation program at the Queensland Mining and Engineering Exhibition in July 2024, and an event focusing on adoption and innovation of climate technology called ZeroIN in October 2023.

In understanding outcomes of the Decarbonisation Accelerated Summit, it's interesting to note that prior to the Summit, 50% of respondents rated their awareness and understanding of decarbonisation as high to very high. Following the Summit, this increased to 80%. There was also a significant increase in the recognition of opportunities stemming from the summit.

As a key deliverable of the Decarbonisation Accelerated project, the *Greater Whitsunday METS Sector – A Revenue Diversification Strategy* was developed and launched in August 2024. One of the key outcomes of this strategy is recognising the circular economy as a significant diversification opportunity for our region. It encourages METS businesses, which are already in the core business of the refurbishment and maintenance of expensive equipment to extend lifecycles, to apply their expertise more broadly. This includes creating circular economy solutions and innovations that can be applied across various industries and offering products as services.

Key takeaways relevant to the circular economy from the Greater Whitsunday Decarbonisation Accelerated Project:

1. Strategic Pathways: The Decarbonisation Accelerated Blueprint outlines a strategic approach to positioning the Greater Whitsunday region's businesses to benefit from aligning with decarbonisation practices, which are integral to the circular economy.
2. New Value Stream Opportunities: The project emphasises the importance of capitalising on new value streams driven by decarbonisation, particularly those that promote resource efficiency and waste reduction associated with the circular economy.
3. Support for Businesses: Decarbonisation Accelerated is dedicated to educating and motivating local businesses and industries to embark on their decarbonisation journeys, highlighting the circular economy as a pathway to sustainable growth.
4. Fortifying Traditional Sectors: The initiative aims to secure and innovate within traditional sectors by integrating circular economy strategies, which can help enhance resilience and sustainability.
5. Collective Responsibility: The initiative reinforces the belief that all businesses play a role in the decarbonisation movement, which aligns with circular economy practices that advocate for responsible resource use and waste management.
6. Vision for a Sustainable Future: The overarching vision of the project highlights the importance of reducing carbon output while diversifying the economic base of the Greater Whitsunday region, emphasising the role of the circular economy in achieving these goals.

2. Queensland Circular Economy (Industry-Research) Innovation Grant

The Resources Centre of Excellence based in Mackay is partnering with the Queensland Circular Economy (Industry-Research) Innovation program to bolster industry-driven research and innovation in the region. This collaboration aims to facilitate the shift from the conventional linear take-make-waste model towards a less wasteful circular economy approach, with a particular focus on designing out waste.

As part of this initiative, six local partnerships have been awarded grants of up to $50,000 each. These grants support a range of exciting and diverse projects offering practical and innovative circular economy solutions, benefitting businesses, local environment, and community.

The six projects include:

- <u>Incorporating crumbed rubber for brick manufacturing</u>
  - Integrating crumbed off the road (OTR) and commercial tyres into brick manufacturing, accelerating a local market for recycled building products and reducing use of virgin clay and sand.
  - Lead: CQUniversity
  - Collaborator: JMJ Tyre Recycling Pty Ltd

- <u>Food waste to feed supplement</u>
  - Creating a new food waste-derived mineral and vitamin livestock feed supplements, which can reduce cost to local livestock producers while substantially reducing wasted food in the region.
  - Lead: NutriCQ
  - Collaborator: Nebo Rural Services

- Whitsunday glass roads
  - Substituting fine aggregates with crushed glass in road base, reducing high impact raw material inputs in asphalt production and waste of a precious finite resource, glass.
  - Lead: CQUniversity
  - Collaborator: Mackay Regional Council

- Ocean trash recycle shack
  - Turning the 7 tonnes of marine debris collected annually by dedicated volunteers into valuable, saleable products such as furniture and art pieces, cleaning the ocean while providing opportunities for skills development in upcycling.
  - Lead: Eco Barge Clean Seas Inc.
  - Collaborator Incredable

- Targeting waste capsicum
  - Creating an export-quality dried capsicum powder product for the food manufacturing and healthcare sectors, reducing food waste to landfill and displacing harmful use of antibiotics in livestock production.
  - Lead: NutriCQ
  - Collaborator: Bioproton

- Sustainable concrete with locally available materials
  - Using red mud and bagasse ash as supplementary cementing materials (SCMs) in concrete production. Red mud and bagasse ash offer great potential as sustainable alternatives to conventional cementitious materials, such as fly ash.
  - Lead: CQUniversity
  - Collaborator: Mackay Regional Council

As a region, we believe the quality of these projects underscores the potential to pioneer circular economy practices, maximising value from Queensland's resources and setting a new standard for sustainability[1].

3. Resources Centre of Excellence and BHP Mitsubishi Pit to Port Circularity Project Phase 1

The RCOE has launched a pilot program with BHP Mitsubishi Alliance to understand the scope for integrating circular principles across the entire value chain. This project is one of the first of its kind nationally and includes a comprehensive material flow analysis of all mining waste to identify impact hotspots and catalytic circular opportunities to drive positive environmental and commercial outcomes. The qualitative and quantitative analysis conducted across the project will provide a robust framework for future actions including an overview of the scalable opportunities. The Bowen Basin Circular Consortium has now been established, with support from the Queensland government and corporate partnerships, to extend the circular economy analysis across more mine sites and support the implementation of recommendations.[2]

[1] https://www.rcoe.com.au/circular-economy-grant-announcement

[2] https://www.rcoe.com.au/pit-to-port

4. An emerging biomanufacturing sector in Greater Whitsunday

Biomanufacturing offers a renewable and environmentally beneficial alternative to conventional chemical and fossil fuel-based processes, making it a crucial component in advancing the circular economy. Utilising feedstocks derived from material disposal within key industries such as mining, METS, and agriculture, it creates new value opportunities by transforming waste into valuable products. This aligns with the increasing push to decarbonise and adopt circular economy models both domestically and internationally.

In the Greater Whitsunday region, the existing value chain supports the development of a biomanufacturing industry, facilitating a transition to more circular, waste-reducing practices. Establishing biomanufacturing capabilities alongside high-quality feedstock within the region reduces travel and logistics requirements, thereby lowering the carbon footprint and contributing to decarbonization efforts. These factors position the Greater Whitsunday region to play a significant role in global biomanufacturing.

Recent developments include support from the Queensland Government's Industry Partnership Program (IPP) for next-generation biomanufacturer Cauldron Ferm to develop a precision fermentation contract manufacturing facility in Mackay[3]. By enhancing traditional industrial production methods, biomanufacturing can bolster national resilience, enhance food security, achieve decarbonization goals, establish new domestic supply chains, and generate jobs through localized production[4].

The diagram below demonstrates the potential circularity of the biomanufacturing value chain in the Greater Whitsunday region.

Greater Whitsunday Biomanufacturing Value Chain. Source: Aurecon Group, Mackay

[3] https://www.cauldronferm.com/

[4] https://www.cauldronferm.com/post/cauldron-receives-queensland-government-support-to-develop-first-of-a-kind-biomanufacturing-facility

5. Local business case studies

Consolidated Engineering Plastics Products

Consolidated Engineering Plastics Products, based in the Greater Whitsunday region, was founded in 1988 with a focus on high quality plastic, rubber and epoxy products. Over the years, the company has gradually broadened their offering to a range of services across fabrication, machining and material processing which are complemented by on-site services. Additionally, circular economy thinking has been implemented by the company in their approach towards repurposing offcuts from conveyor guards into a range of saleable products.

Coolant Recycling Technology

Coolwash is a Queensland-developed solution for reclaiming and recycling spent coolant from mining and industrial sites. Using a Coolant Recycling Technology (CRT) developed by Prochem Group of Companies, the CRT system converts the waste product into a biodegradable, performance-based, safe cleaning detergent, which is then returned to the marketplace for reuse. Developed in partnership with researchers from James Cook University in regional Queensland, Coolwash not only solves an industry-wide waste problem, it adds to the life of assets through its anti-corrosion qualities further extending the life of equipment and plant[5].

Anything Environmental

By turning rubbish into a resource, Greater Whitsunday business Anything Environmental is on their way to leading the way towards a circular economy with the aim of putting this region on the map as a world leading recycling hub. As a container collection site, they saw many people were bringing their containers in for recycling packed in single use plastic bags. They decided to collect the plastic bags as well because they were not prepared to send them to landfill. As a result, they diverted 36,000 tons of single use plastic bags, which according to the NSW environmental department is estimated to be 6.5 million bags, which were then sold for recycling in Brisbane[6].

[5] https://prochemgroup.com.au/coolant-recycling-technology/

[6] https://www.greaterwhitsundayalliance.com.au/transformationregion-blog/a-green-change-of-business-turns-rubbish-into-resource

INFORMATION REQUEST 2

Priority opportunities to progress the circular economy

To effectively advance the circular economy in our region, GW3 recognises three key opportunities:

1. Support for key sectors that are underpinned by circular economy frameworks
2. Integration of circular economy principles across all businesses
3. Delivering place-based solutions

1. Support for key sectors that are underpinned by circular economy frameworks:

There is a need to support the development of large-scale sectors that can generate significant value through circular economy practices, particularly in biomanufacturing, post mining land use (PMLU) and critical minerals reprocessing. These sectors can create substantial economic benefits with a basis in circular economy.

Biomanufacturing & Bioenergy

The forecast size of the global biomanufacturing market is projected to reach more than $700 billion by 2040, with bioenergy having a forecast value of $726 billion by 2050. Biomanufacturing aligns closely with circular economy principles by focusing on sustainable production methods that minimise waste and maximise resource efficiency.

The *Greater Whitsunday Biomanufacturing Blueprint* identifies the Greater Whitsunday region as exceptionally well placed to serve as a catalytic site for the emerging biomanufacturing industry. This is due to our mature agriculture, sugar and mining industries, proximity to Asia-Pacific markets, significant biomass feedstocks, precinct development opportunities, supporting infrastructure, transport and supporting technical skills.

Supporting the development of the biomanufacturing sector demonstrates a macro-level circular economy opportunity that will deliver a number of solutions for repurposing waste and developing more sustainable products across food, fuel, feed and fibre.

Post Mining Land Use, including reprocessing for Critical Minerals

It is projected that the global annual expenditure on mine closure activities by 2030 will be between $4 billion and $8 billion. Additionally, the critical minerals sector is expected to reach over $2.5 trillion in value by 2050. The Greater Whitsunday region currently has over 30 operating mine sites, predominantly producing metallurgical coal. While decarbonisation and the lack of steel alternatives will continue to drive demand for metallurgical coal into the foreseeable future, key mine closures are anticipated across the region in 2040 and 2070.

The Greater region is actively pursuing opportunities to create new economic value from these mine sites, both during rehabilitation and at the end of their operational life, rather than following the traditional path of returning the land to agricultural use. Opportunities currently being explored include tailings reprocessing for the purpose of extracting critical minerals, identifying opportunities to create new value from mine site water[7], as well as new industrial and recreation uses[8].

[7] Mackay Isaac, Whitsunday Regional Water Strategy

[8] https://enviromets.net.au/projects

Post Mining Land Use and Critical Minerals provide a lucrative opportunity for the economy and a natural alignment to opportunities in the circular economy. Further attention and resources are required to better understand and articulate how these opportunities could progress circular economy outcomes.

Circular economy

There is over $6.5 trillion in value to be unlocked from the circular economy by 2030. The Greater Whitsunday region boasts comprehensive and interconnected value chains in key sectors like mining and agriculture. The potential for commercial success in implementing circular solutions hinges on a thorough understanding of a product's entire lifecycle and the circular transition needs of large enterprises.

There are significant opportunities in the Greater Whitsunday region to reconsider how waste products can be eliminated, reduced, or recovered, particularly in the mining sector. Notably, this region is one of the leading purchasers of off-the-road tyres (OTR) in the country, creating opportunities to develop new services that extend their lifespan or find innovative uses for discarded tyres.

2. Integration of circular economy principles across all businesses:

The *Greater Whitsunday METS Sector – A Revenue Diversification Strategy* demonstrates the opportunity in leveraging the existing entrepreneurial strengths and technical expertise of METS businesses to implement circular economy design principles and business models. This approach can be extended to other sectors to identify broader alignments with the circular economy.

Leveraging our expertise in METS

Currently, METS businesses are actively involved in initiatives focused on rethinking, reusing, repairing, repurposing, and recycling. Many of these companies are implementing circular practices internally to achieve cost savings and efficiency improvements, highlighting a significant opportunity for the METS sector to provide circular products and services to the market.

METS businesses in the region take great pride in offering products designed for repair and refurbishment, with a strong emphasis on preventative maintenance. Some companies have gone further by integrating technology to create robust solutions, while others are starting to tap into products as services.

The METS sector possesses a comprehensive understanding of mining value chains, allowing it to leverage this expertise to enhance value by repurposing or substituting materials with more sustainable alternatives.

"METS is the sector that can catalyse the circular economy", according to one of the stakeholders engaged in the *Greater Whitsunday METS Sector – A Revenue Diversification Strategy.*

There is an opportunity to further support businesses to understand the circular economy, adopt circular economy frameworks and deliver circular economy solutions to market.

Specific actions to promote these opportunities in the Greater Whitsunday METS sector include:

- **Promote Regional Insights**: Highlight findings related to the circular economy within the region and disseminate this information to METS businesses to foster a shared understanding of the opportunities available.
- **Enhance Skills Development**: Identify initiatives to elevate lifecycle and circular thinking skills among METS businesses, enabling them to reimagine their processes for improved efficiency and sustainability.
- **Engage Key Stakeholders**: Collaborate with industry stakeholders to identify market demand for alternative business models aligned with circular economy principles, ensuring that METS businesses can pivot effectively to meet these needs.
- **Facilitate Business Connections**: Create pathways for METS businesses to explore circular economy opportunities, providing access to resources and networks that support their transition.
- **Collaborative Advocacy**: Work with relevant stakeholders to champion the adaptation of waste management regulations, enabling innovative repurposing strategies that comply with environmental standards while promoting circular practices.

3. Delivering place-based solutions:

Regional Australia has access to key resources that support circular economy outcomes. The focus should be on understanding the strengths and alignments of specific locations and how they are best positioned to foster and grow the circular economy. This involves aligning interventions with local skills and expertise, ensuring initiatives not only address circular economy opportunities but also enhance regional resilience and capacity.

Through the delivery of the *Greater Whitsunday METS Diversification Strategy* and the *Greater Whitsunday Biomanufacturing Blueprint*, along with other key regional reports such as the *Mackay Isaac Whitsunday Regional Water Strategy* and the Pit to Port analysis, the Greater Whitsunday region has developed a range of evidence-based research. This research clearly articulates the region's strengths in aligning with circular economy opportunities.

The identified place-based opportunities include:

- Biomanufacturing and bioenergy
- Post-mining land use and critical minerals
- Industrial waste management from mine sites
- Enhancing METS sector understanding and capability

In addition to these specific opportunities it is important to consider circular economy opportunities in all major planning, development and industrial projects moving forward.

For example:

The Mackay State Development Area was declared in February 2024 and provides land for development and investment opportunities aligned to new and emerging industries, including renewable energy and biomanufacturing[9]. This provides a significant opportunity from the start to consider how circular economy opportunities could also be integrated into the development of this precinct.

[9] https://www.statedevelopment.qld.gov.au/coordinator-general/state-development-areas/current/mackay-state-development-area

INFORMATION REQUEST 3

Hurdles and barriers to a circular economy

The *Greater Whitsunday METS Diversification Strategy* identifies a range of hurdles and barriers to the circular economy, especially for businesses.

METS businesses bring strong entrepreneurial skills and extensive technical knowledge in their respective industries, along with a significant interest in exploring opportunities throughout the broader value chain. These strengths are crucial for successfully implementing circular economy design principles and business models, such as circular products and services. However, there are shortcomings in lifecycle thinking skills that hinder a deeper understanding of how to eliminate waste and maintain the value of products and materials in circulation.

Additionally, challenges like restricted site access, distance, and logistical issues limit METS businesses' ability to identify and implement circular solutions in mining operations.

Below are the key gaps and challenges identified in the *Greater Whitsunday METS Sector – A Revenue Diversification Strategy* that face METS businesses looking to diversify into the circular economy:

- **Limited Circular System Thinking:** There is a lack of circular system thinking skills within METS businesses, with many businesses focused on the bottom rungs of the 'R ladder' (recycle). The circular economy requires a holistic consideration of the lifecycle of products and materials. Whilst METS businesses possess a high degree of specialisation across various activities in the mining supply chain, applying circular economy principles will require different thinking that takes a broader view of the value chain across mining and broader industries.
- **Understanding Market Demand for Circular Models:** There is a limited understanding about downstream customer interest and demand for products as a service models and the value of circularity more broadly. Whilst METS businesses clearly have the capability to implement circular business models such as product as a service, greater user certainty is required around optimal implementation. While most businesses apply 'circularity' principles internally however, don't understand the broader value of providing this as an offering to the market.
- **Regulatory Barriers to Waste Reuse:** Stringent mine site control practices restrict some waste from mine sites being re-used and repurposed. METS businesses have indicated that their efforts to 'design out' waste from mine sites have encountered several operational and regulatory obstacles. This stems from stringent waste compliance standards that place tight restrictions on suppliers regarding intervening on site, and the returning of materials back to suppliers (e.g. pallets, protective film).
- **Knowledge Gaps Regarding Waste Material Utilisation:** There are knowledge gaps about the potential uses of waste materials into alternative products. METS businesses have a limited understanding of the outputs/end uses that can be produced from waste materials, nor the value of diversifying into circular product and service offerings. Many METS businesses do not understand the regulation and compliance around waste management in the context of reuse and repurposing.

By addressing these gaps and challenges, the Greater Whitsunday region can unlock the full potential of the circular economy, driving sustainable growth and enhancing economic resilience within the METS sector.

The *Greater Whitsunday Biomanufacturing Blueprint*, also articulates a range of areas for attention that will also enhance circular economy outcomes, including:

- Delivering increased research to understand feedstock profiles across agriculture, industry and waste
- Showcasing regional biomanufacturing credentials
- Attracting commercial investment into a sector that is still emerging

INFORMATION REQUEST 4

Government's role in the circular economy

Strong government leadership across all levels (local, state and federal) is essential to enable understanding of the circular economy, and harnessing the opportunities that will arise from its developments.

We note that there has been progress on circular economy policy at all levels of government and are encouraged by the work currently being undertaken to further develop policy.

The activities delivered across the region that align to circular economy principles and frameworks, along with the recommendations outlined in the *Greater Whitsunday METS Sector – A Revenue Diversification Strategy* and the *Greater Whitsunday Biomanufacturing Blueprint* provide insight into key areas for attention to progress the circular economy within Australia.

1. **Financial incentives:**

- Funding to support the development of research to understand place based circular economy opportunities
- Investment to accelerate the development of key sectors that align with circular economy including biomanufacturing (food, fuel, feed and fibre), post mining land use and critical minerals
- Incentivising circular economy adoption within businesses
- Targeted government incentive schemes to encourage innovative post-mining land use outcomes that take advantage of strategic assets created by mining activities
- Support for local supply chains to prepare to service emerging circular economy activities

2. **Information provision**

- Audit and articulate regional circularity credentials and plans
- Connecting businesses with information that enables them to understand opportunities presented in new economic models for post mining land use and any relevant legislative compliance requirements
- Communicate and identify opportunities to increase lifecycle and circular thinking skills among businesses
- Link businesses with information about potential uses of waste materials to create alternative products through mechanisms such as case studies, reports and information sessions

3. **Regulatory changes**

- Adapt waste management regulations to enable the implementation of innovative repurposing strategies while upholding stringent environmental standards
- Clear regulations that support economic diversification opportunities in post-mining land use

4. **Education and training**

- Map specific skills needs and gaps and explore skilling solutions that will unlock opportunities in the circular economy
- Leverage expertise and specialised knowledge of industry, universities and TAFE to develop customised training modules tailored to the needs of businesses aiming to diversify into circular economy aligned industries such as the biomanufacturing sector

5. Facilitating and collaboration

- Develop, in collaboration with Indigenous, community, research, government, investment and industry stakeholders, a regional strategic planning framework to guide potential post-mining land use-based activities
- Identify demand for alternative business models aligned to circular economy principles, and connect with businesses to further explore these opportunities for businesses
- Progress opportunities to develop common user infrastructure for critical minerals processing, including identifying opportunities to establish partnerships to pilot, expand and relocate processing infrastructure across the region as required
- Strong government leadership to enable commercial investment and communicate opportunities of emerging sectors aligned to circular economy, including biomanufacturing

6. Planning and urban regional development

- Integrate circular economy opportunities into the planning and development of new industrial precincts
- Adapt waste management regulations to enable the implementation of innovative repurposing strategies while upholding stringent environmental standards
- A strong regulation framework and agreed set of ethical principles is critical in addressing the issues of public trust and safety in establishing circular economy aligned sectors such as biomanufacturing
- Leveraging ongoing opportunities to drive circular economy expansion, including support for aligned sectors, and unlock regional growth

Additional resources

GW3 encourages the Productivity Commission to refer to the following resources, which informed much of this submission, and to better understand the strengths of the Greater Whitsunday region.

Greater Whitsunday METS Sector – A Revenue Diversification Strategy

Greater Whitsunday Biomanufacturing Blueprint 1.0

Greater Whitsunday Decarbonisation Accelerated project

Decarbonisation Accelerated Blueprint

Mackay Isaac Whitsunday Regional Water Strategy