



Gympie Bioeconomy Forum

19 April 2024



VENUE DETAILS

Gympie RSL, 217 Mary Street, Gympie

Friday 19 April 2024, 8.30am-5.15pm

Followed by networking function
(sponsored by Regional Development
Australia Wide Bay Burnett)



EVENT SPONSOR

Gympie Regional Council



EVENT PARTNER

Queensland Government



EVENT SUPPORTER

HQ Plantations



EVENT TICKETING

\$55 inc GST to be booked by
Friday 5 April 2024. Book now at
www.eventfinda.com.au/2024/gympie-bioeconomy-forum/gympie

Event Overview

The inaugural Gympie Bioeconomy Forum 2024 is an industry event focused on showcasing the bioeconomy and associated current and future opportunities within the Gympie and neighbouring regions. The forum seeks to bring together prospective participants of a local bioeconomy, along with government, industry leaders and early adopters, to highlight opportunities, stimulate discussion, share ideas and further develop our local industry. This ultimately aims to bring recognition to the importance of the bioeconomy and its potential to influence economic, social and environmental development in the Gympie region.

At the forum, you'll hear about:

- What the bioeconomy is
- Biomass and bioeconomy potential in the forestry, agriculture and food manufacturing industries
- Research, innovation and emerging technology in the bioeconomy
- Gympie Regional Council's initiatives in the circular economy
- Opportunities for Queensland in the Bioeconomy – a statewide perspective.

You'll also have the opportunity to meet and network with other participants in this industry, with the potential to establish important supply chain relationships.

The event will bring together key stakeholders from industry, government and academia focused on the promotion and future growth of the regional bio-based economy, helping to address the global, national and community demand for more sustainable energy, processes and products.

Bioeconomy in the Gympie Region

With its strong agricultural industries, large plantation forests and established food manufacturing facilities, the Gympie region has at its disposal considerable sustainable feedstocks with potential for conversion into a diverse range of bioproducts. Bioenergy in particular is a growth area of the Gympie region with current working examples including:

Nestle

The Gympie plant uses locally sourced sawdust and waste coffee grounds to fuel a boiler used to provide energy for its processing facilities.



Laminex

The heat plant at Laminex Toolara produces 40 Mega Watts per hour by burning process waste and biofuel to produce heat for the presses.



Other potential bioeconomy focus areas include methane reduction options in stock feed, implementing pasture-based carbon sequestration practices, and establishment of agroforestry systems. Investment in the reduction and reuse of waste will also help the region tap into the growing circular economy movement.



What is the Bioeconomy?

The bioeconomy refers to an economic system that utilises renewable biological resources from living organisms or their byproducts to produce goods, services, and energy. It encompasses a wide range of sectors, including agriculture, forestry, fisheries, biotechnology, and various related industries. The bioeconomy aims to reduce dependence on finite fossil fuels and non-renewable resources while promoting sustainable and environmentally friendly practices.

Who Should Attend?

The forum will target current and prospective participants of a local bioeconomy including:

- growers/feedstock suppliers
- processors
- innovators
- end users of biomass
- researchers
- government agencies
- those with an interest in the circular economy.

Why Attend?

The forum will help you to:

- Understand what the bioeconomy is and its potential for circular economies in the Gympie and neighbouring regions.
- Learn about industry best practice and bioeconomy initiatives.
- Network and build connections with potential bioeconomy partners.
- Explore how regions like ours can lead the way with bioenergy.



Forum Themes

1. Defining the Bioeconomy

The bioeconomy is a complex and rapidly evolving field, that has the potential to make a significant contribution to the local, regional and Queensland economies. This theme looks at the bioeconomy from regional and statewide perspectives.

2. Forestry

Timber plays a pivotal role in the bioeconomy by serving as a renewable and versatile resource and feedstock.

The Gympie region has a large timber industry, with state forests managed for plantation timber production covering 84,000 hectares of the Gympie region's land base, from which approximately 600,000m³ of plantation timber is harvested each year.

This significant resource base provides considerable opportunity for timber to play a major role in the bioeconomy of the Gympie region, which this theme will explore.

3. Food and Food Waste

Gympie is one of Australia's most productive food producing areas. During 2021/2022, the sector generated 21.1 per cent of the region's export value (\$261m), value added (\$186m) and supported 1373 local jobs and 1233 businesses.

As such, it is no surprise that the region is home to some of our most recognised food manufacturers and processors, including Nestle, Nolan Meats and Suncoast Gold Macadamias.

With numerous opportunities to use food and food waste as biomass to create valuable products, including biofuels, biogas, biobased materials and chemicals, this theme explores opportunities for the Gympie and neighbouring regions to play an increasingly important role in creating a more sustainable future.

4. Emerging Technology

Emerging technologies are playing a key role in the development of the bioeconomy, by providing new ways to produce and use biological resources more efficiently and sustainably. This theme takes a look at a few examples that will amaze you!



Agenda

8:30am	Registrations open
9:00am	Acknowledgement of Country
9:05am	Forum welcome by Glen Hartwig, Mayor, Gympie Regional Council
THEME ONE – DEFINING THE BIOECONOMY	
9:15am	Opportunities for Queensland in the Bioeconomy: Professor Ian O'Hara, Deputy Dean of the Faculty of Engineering, Queensland University of Technology
9:40am	Queensland Government Policy Around the Circular Economy: Kylie Hughes, Director (Waste Policy and Legislation), Queensland Department of Environment and Science
10:05am	Resource Recovery in Local Government: Alex Stengl, Manager Environment and Resource Recovery, Gympie Regional Council
10:30am	Panel session
10:45am	MORNING TEA AND NETWORKING
THEME TWO – FORESTRY	
11:15am	Biomass from Local Commercial Forestry: Adan Taylor, Managing Director, GMT Logging Pty Ltd
11:25am	Assessment of the Volumes of Woody Biomass Residues and Their Potential Uses and Markets: Mick Stephens, CEO, Timber Queensland
11:40am	Biomass Recovery from Commercial Timber Plantations in SEQ - a Grower's Perspective: Ian Last, Science Manager, HQPlantations
11:55am	Private Small Scale Forest Management and Potential Sustainable Biomass Resource: Bill Schulke, Forestry / GLM Specialist, Private Forestry Service Queensland (PFSQ)
12:10pm	International Development in Biomass Supply Chains and Biohubs: Where We Sit in South East Queensland: Professor Mark Brown, Professor of Forestry Operations and Director Forest Research Institute, UniSC
12:30pm	Panel session
12:45pm	LUNCH BREAK AND NETWORKING
THEME THREE – FOOD AND FOOD WASTE	
1:30pm	The Wide Bay Burnett Plant Extractives Study: Deb Archbold, Director, Deborah Wilson Consulting Services
1:55pm	Future Direction in Food Innovation and Maximising Food Resource: Russel Rankin, Director, Food Innovation Partners
2:20pm	100% Carcass Utilisation: Nikita Ellison, Sustainability Coordinator, Nolan Meats
2:45pm	Panel session
3:00pm	AFTERNOON TEA AND NETWORKING
THEME FOUR – EMERGING TECHNOLOGY	
3:30pm	The Opportunity to Create Advanced Biofuels from Queensland's Biomass Residues Using Innovative Australian Technology: Andrea Polson, Marketing Director, Licella Holdings
3:55pm	Revolutionising Agriculture and the Bioeconomy: Harnessing the Power of AI and Machine Learning Technologies: Professor Richi Nayak, Deputy Director & Complex Data Analysis Program Leader, Centre for Data Science, Queensland University of Technology
4:20pm	Verterra: Biosolids Aerated Static Pile Compost: Ian Robb, Senior Forester, Verterra
4:45pm	Panel session
5:00pm	CLOSING REMARKS
5:15-6.15pm	Networking drinks



Speaker Details



Sotera Trevaskis

Regional Director, Regional Development Australia Wide Bay Burnett

Sotera brings extensive experience in policy, strategy development and project management and has worked across numerous industry sectors including healthcare, retail, indigenous economic development, agribusiness and government.

Sotera will be the MC for the forum.

Welcome



Glen Hartwig

Mayor, Gympie Regional Council

Glen Hartwig grew up in Sandy Creek, Gympie. He has had a variety of occupations including policing, farming, mining, and being a local business owner. Glen's personal story includes losing his father at 17, his wife to breast cancer at 29 and suffering from PTSD in the Police Force. This diverse professional and personal background has equipped him to lead with integrity, decisiveness and have a strong understanding of business principles. As the Division 2 Councillor between 2016-2020, Glen championed openness in Gympie Regional Council and worked tirelessly to hold the organisation to account. As the region's elected Mayor, Glen is working hard to develop an organisational culture that is centred around service. He is passionate and dedicated to growing the region and serving the community with transparency.

Theme One – Defining The Bioeconomy



Professor Ian O'Hara

Deputy Dean of the Faculty of Engineering at QUT

Ian is widely recognised as a leading expert in policies, technologies and systems for developing the bioeconomy and producing bio-based products including biofuels, bioenergy and biomaterials. In addition to his academic role, Ian represents the Queensland Government as the Biofutures Industry Envoy and acts as an ambassador for Queensland's Biofutures industry and industrial biotechnology sector. As the Envoy, Ian provides strategic advice to government and assists in securing domestic and international investment to grow the Biofutures sector.

Opportunities for Queensland in the Bioeconomy

The emerging global bioeconomy is creating new market opportunities for production of biobased foods, fuels, chemicals and materials. The bioeconomy offers significant opportunities for agriculture to increase profitability by adding value to wastes and low value coproducts.

The development of new biomanufacturing industries creates new regional, knowledge intensive jobs in low carbon industries – jobs that will be resilient in the future economy. Progress toward a bioeconomy requires significant development in new feedstocks, process technologies and patterns of consumption and science and engineering innovation is required. This presentation will highlight the opportunities and challenges for Queensland's regions to grow new industries and contribute to Biofutures and the bioeconomy.





Kylie Hughes

**Director (Waste Policy and Legislation), Office of Circular Economy,
Dept of Environment and Science**

Kylie has over 25 years' experience with local and state government working on circular economy, waste management and resource recovery policy, legislation and initiatives. Work includes the development of Queensland's first waste management Act, the *Waste Reduction and Recycling Act 2011*, design and introduction of Queensland's lightweight plastic shopping bag ban, container refund scheme and the single-use plastic items ban, and development of action plans for e-Products and Textiles with a focus on circular economy outcomes.

Queensland Government Policy Around the Circular Economy

The Queensland Government has given clear direction that the circular economy is important to meeting environmental, social and governance measures. Kylie will discuss how the Queensland Government is making progress and overcoming roadblocks to achieving a circular economy and minimising waste.



Alex Stengl

Manager Environment and Resource Recovery, Gympie Regional Council

Alex joined GRC in 2021 as Manager of Environment and Resource Recovery. Alex has been involved in the Waste and Environment sector for over 23 years, working in both the private and public sectors. Alex is experienced across waste water management, contaminated land management, environmental assessment and compliance.

Resource Recovery in Local Government

With a keen interest in the circular economy, Alex's focus has been looking to maximise opportunities and assist in placing the Gympie Region as a future hub for resource recovery, due to the location and connections to the north and west.

Theme Two – Forestry



Adan Taylor

Managing Director, GMT Logging Pty Ltd

Adan joined the family business GMT Logging in 2004 after a 14 year career in Accountancy. His business harvests timber from the HQPlantations-owned and managed forests in the Mary Valley and Toolara. His family has done so for over 40 years. In 2020 GMT commenced work on chipping harvest debris from clear fall harvesting sites in HQPlantation's Southern pine forests. That has been a tough road, but he remains committed to the recovery of every piece of a tree grown for many years. He holds board positions with Timber Queensland, Australian Forest Contractors Association (Chair) & Private Forestry Service Queensland (Chair).

Biomass from Local Commercial Forestry

What is forest residue and why is it such a valuable, renewable and untapped local source of Biomass? The presentation will help answer these questions and highlight some of the risks and controls for landowners and potential customers wanting to utilise this "powerful" resource. Additionally, we will explore how forestry biomass is produced without cutting down one more tree than is already required to produce the most environmentally friendly building product – timber.





Mick Stephens **CEO, Timber Queensland**

Mick Stephens is the Chief Executive Officer for Timber Queensland (TQ), the peak state industry body for the forest and timber industry. Mick is an experienced executive leader in research, policy and advocacy and has served the interests of the forest industries for many years and was previously the Deputy Chief Executive Officer of the Australian Forest Products Association (AFPA), the peak national body for the forest, wood and paper products industry. He is a resource economist with over 30 years' experience in forestry and regional economic policy including public sector roles in ABARES, the Department of Agriculture, Fisheries and Forestry, Bureau of Transport and Regional Economics and CSIRO. From 2003 to 2006 he was Deputy Administrator of the Australian external territory of Norfolk Island, involved in land and public administration.

Assessment of the Volumes of Woody Biomass Residues and their Potential Uses and Markets

The role of the South & Central regional forestry hub is to determine the opportunities and barriers for the forestry and wood products sector to lift productivity and grow. Woody waste resources are considered renewable biomass and are derived from forestry and wood processing activities. Under the Bioenergy and Carbon theme, the biomass availability inventory and potential markets project was delivered by researchers from the Forest Industries Research Centre – University of the Sunshine Coast. This report estimates the total volumes of available woody biomass in the region that could potentially be used for renewable energy or other market uses.



Ian Last **Science Manager, HQPlantations**

Ian manages a wide range of research projects from 'seed to sawdust', including tree breeding, seed and seedling production, plantation establishment and nutrition, forest health, fire protection, plantation silviculture, resource characterisation and product utilisation. Ian is a strong supporter of initiatives to develop commercial opportunities based on improved utilisation of plantation harvest residues and other under-utilised forest resources.

Biomass Recovery from Commercial Timber Plantations in SEQ – a Grower's Perspective

HQPlantations manages significant timber plantation assets in the Gympie region and surrounds. Most coarse, woody biomass residues remaining after harvesting operations are currently either left on site or heaped and burnt to facilitate safe access for re-planting and to reduce wildfire risks.

There is growing interest in the recovery of plantation biomass residues for conversion into a wide range of potential end uses.

Ian will present an overview of biomass resources from the HQPlantations estate in the Gympie Region and surrounds, and some considerations relevant to the commercial recovery of this untapped resource.





Bill Schulke

Forestry / GLM Specialist, Private Forestry Service Queensland (PFSQ)

Bill was raised on a mixed cropping and beef property in central Queensland. After graduating from UQ with an Ag Science degree, he worked in a corporate mixed cropping and beef production enterprise for several years before joining the Qld Department of Agriculture in the late 1990s. He joined PFSQ in 2011 and has been involved with their extension and operational activities since. He has a keen interest in the integration of private native forestry within extensive beef production systems.

Private Small Scale Forest Management and Potential Sustainable Biomass Resource

The hardwood industry in Queensland, whilst a minor component of both the state and national forest industry, is an important industry in the Wide Bay Burnett region, particularly at the local and district level. The Queensland hardwood sector differs from all other states in that the majority of product is sourced from Private Native Forests (PNF). This reliance on PNF resource will only increase as access to the State resource ceases over the next decade.

The majority of the estimated 2.5Mha of PNF in SEQ and NENSW is located and processed in the Wide Bay Burnett region. The resource is generally in a poor state both from a productivity and environmental perspective. This is mostly due to past land practices, but most importantly from a lack of investment in forest management. Analysis of growth responses to improved management practices shows a 5-fold improvement in sustainable log yield. Forest thinning and improved harvest practices help to restructure degraded forests, reduce fire fuel loads, limit soil loss and improve ecological habitat.

There is significant standing biomass within the PNF estate. Mill waste, harvest residues and thinnings represent a large, renewable and sustainable resource ideally suited to any bioeconomy. Challenges around current industry structure and activities are discussed and opportunities highlighted.



Professor Mark Brown

Professor of Forestry Operations & Director Forest Research Institute, UniSC Australia

Mark has 25 years' experience in forestry and biomass supply applied research and innovation. His work focuses on research implementation across forest product, bioproduct and bioenergy supply chains, integrating and adapting traditional product supply with emerging bioenergy, bioproducts and circular economy opportunities. Mark is an internationally recognised RD&I leader in partnership establishment and development with diverse industry, government, and academic partners and has leadership roles in IEA Bioenergy in the Executive Core Group, Chair of Communications and Biomass Supply Task Leader.

International Development in Biomass Supply Chains and Biohubs: Where We Sit in South East Queensland

Globally the demand for biomass has increased to support increased demand for biobased products and bioenergy. Driven by local demand and policy, different global regions have taken different approaches to sustainable supply and have biomass supply chains and biohubs at different stages of development. As an international collaboration of biomass supply experts, IEA Bioenergy Task on biomass supply works with biomass industries to understand and share different examples of best practice in support of continual development and promotion of sustainable biomass supply. The presentation will cover recent projects from the Task on biomass supply including recent developments in South East Queensland.



Theme Three – Food And Food Waste



Deb Archbold

Managing Director, Deborah Wilson Consulting Services

Deb Archbold, Managing Director of Deborah Wilson Consulting Services has over 30 years' experience in supply chain projects ranging from performance assessment in the major projects market – construction, mining, rail, Defence, energy and utilities – to work in advanced manufacturing, food and defence agribusiness supply chains. Deb works with industry sectors to identify opportunities and strategies for growth. She is also a specialist in supplier capability development programs – currently delivering a program for Inland Rail suppliers in New South Wales.

The Wide Bay Burnett Plant Extractives Study

This 2023 study commissioned by the Dept of State Development, Infrastructure, Local Government and Planning, investigated three key questions:

1. ***What have we got?*** Identifying current volumes of underutilised or unused plant feedstocks across different crops/ forestry/ manufactured products.
2. ***What are the supply chains?*** Identifying supply chains interested in underutilised or unused plant feedstock or by-products.
3. ***What are the new opportunities*** for growth and investment that Wide Bay Region industries can target?

Deb Archbold will present results from this key biofutures report for the region.



Russel Rankin

Director, Food Innovation Partners; partner in the Future Farming Systems CRC; Advisory Board member of Queensland Robotics; Advisory Board member Jane's Weather, Advisor to Agriculture Robotics; Advisor to Fresh Earth, Group Associate Boralis Group; Director of Freshly & Co, Director of New Me Pty Ltd and member of the Advisory Board to Health Food Symmetry Ltd

Russel has more than thirty years' experience in Australia's food and beverage industry in various senior commercial and research positions. Russel has an inherent ability to connect companies, research organisations, financial institutions, and government, and understands how to manage the innovation process and the steps required to commercialise innovative ideas. Currently Russel is Director and Founder of Food Innovation Partners Pty Ltd, a company that provides business, innovation and commercialisation services to the food industry, along with business development services. Russel is entrepreneurial in his thinking, having recently established a number of new businesses to commercialise new innovative food and beverage products.

Future Direction in Food Innovation and Maximising Food Resources

The global population will reach 9.8 billion by 2050 requiring double the current food production to avoid widespread hunger and malnutrition. To produce 60% more food without increasing agricultural land area will require new food production methods. 25% of all farmland is already highly degraded and 70% of water consumption is from agriculture. The world produces enough food to feed its current population 1.5 times over. Innovative solutions are required for sustainable food production and improved food distribution to ensure excess food is distributed to those suffering from hunger and reducing food waste and losses. This presentation will look at future directions for the production of food and maximising current food resources.





Nikita Ellison

Sustainability Co-ordinator, Nolan Meats

Nikita Ellison is the Sustainability Co-ordinator at Nolan Meats. She joined the family-owned business in 2020. While still a fresh face within the industry, she brings a high amount of passion. Prior to her time at Nolan's, Nikita worked at Stanbroke Beef throughout her university career and was selected for the 2019 Australian Intercollegiate Meat Judging Association Team. Nikita also worked for Murdoch University's Meat Science Department assisting with research and development of meat technologies. Nikita holds a BA of Agribusiness and a BA of Sustainable Agriculture from the University of Queensland.

100% Carcass Utilisation

As technology and innovation progresses within the industry, carcass yields for edible meat products have risen considerably. However what opportunities are held within the industry for those products and co-products previously assumed as waste? This presentation will explore the opportunities outside of the traditional food – feed – fuel – fertiliser scope, by highlighting opportunities held within diverse international markets, medical research and renewable fields.

Theme Four – Emerging Technology



Andrea Polson

Marketing Director, Licella Holdings

Andrea Polson is Marketing Director at Licella, an Australian-based technology development pioneer and global leader in hydrothermal liquefaction. She joined Licella in 2015. With over 15 years of leadership experience, Andrea is a recognised thought leader in advanced recycling and represents Licella as an invited speaker at national events and industry groups. Before joining Licella, Andrea held senior product management roles at several multinational pharmaceutical companies. Her recent roles include consultancy work with Gelion Technologies, an AIM-listed battery company, and iQ Renew, an Australian recycling company. Andrea holds a BA Hons from the University of Sydney and Graduate Diploma in Business (Marketing) from Macquarie University.

The Opportunity to Create Advanced Biofuels from Queensland's Biomass Residues Using Innovative Australian Technology

A transition to renewable energy can only address 55% of global emissions. The remaining 45% comes from producing the products we use every day. By utilising emerging technology to unlock the carbon from renewable resources, such as agricultural residues, we can create a new bioeconomy in Queensland and drive Australia towards net zero. Licella is an Australian technology pioneer with a global footprint, through its joint venture with Canfor, Arbios Biotech, and its global alliance with Shell. Licella's Australian developed Cat-HTR™ platform produces high-quality biocrude, a direct substitute for fossil crude. The Cat-HTR™ biocrude can be upgraded with conventional refinery infrastructure to a range of advanced biofuels, including sustainable aviation fuel.

References:

1. Ellen MacArthur Foundation (2021). *Completing the picture: How the circular economy tackles climate change.* [online] [ellenmacarthurfoundation.org](https://ellenmacarthurfoundation.org/completing-the-pict). Available at: <https://ellenmacarthurfoundation.org/completing-the-pict>





Professor Richi Nayak

Deputy Director & Complex Data Analysis Program Leader, Centre for Data Science, QUT

Richi Nayak is a Professor of computer science and the Deputy Director of the Centre for Data Science at Queensland University of Technology in Brisbane. Her research centers around the exploration of artificial intelligence, data mining, and machine learning theories for addressing real-world challenges. She has collaborated with various international, national, and government agencies, offering consultancy in the domain of data science. She has authored over 250 refereed publications in this area. In recognition of her exemplary contributions to the field of Data Analytics, she received the 2016 WiT (Women in Technology) Infotech Outstanding Achievement Award.

Revolutionising Agriculture and the Bioeconomy: Harnessing the Power of AI and Machine Learning Technologies

In a world facing growing challenges in agriculture and the bioeconomy, the application of AI and machine learning technologies has emerged as a pivotal solution. This talk delves into the transformative potential of these technologies, shedding light on their role in enhancing agricultural practices, optimising resource management, and fostering sustainable growth within the bioeconomy. We explore the applications, benefits, and future prospects of AI and machine learning in this sector through case studies and insights.



Professor Ian Robb

Senior Forester, Verterra

Ian has extensive experience in Queensland natural resource, commercial plantation, and native forest management. Since joining Verterra in 2008, Ian's focus has included establishment of wastewater irrigated forest communities and construction of associated irrigation infrastructure, large-scale native forest restoration projects and mined land rehabilitation. His project experience also includes specialist forestry consulting.

Verterra: Biosolids Aerated Static Pile Compost

Biosolids are a regulated waste subject to environmental controls and also a source of energy and nutrient. Most biosolids are transported long distances for agriculture re-use. Handling and transporting biosolids is a significant cost to STP operators and the community. Verterra's client Unitywater has encouraged innovation to enhance product beneficial use and market value. Verterra has been working with Unitywater since 2018 to research value adding through the production of aerated static pile compost. Compost production requires a reliable source of cellulose feedstock. The forest industry presents an opportunity for feedstock supply.

