



Bega circular valley

15 March 2023

Herd 23

Barry Irvin
Executive Chairman
Bega Group

Natural Capital: Why it's vital to value nature

Not fully valuing nature is generating significant risks to our economy.



The global economy is rapidly approaching a 'planetary tipping' - the first of its kind induced by humans. It is a state of change so severe that we will be irreversibly pushed into a different way of living. This change will ripple through our globalised system and impact our economies and the ability of people, communities, and businesses to thrive.

\$125tn
Nature's contribution to the global economy per year



Protecting natural capital will ensure that we have a sustainable foundation for a circular economy. A circular economy contributes to maintaining natural capital by ensuring that we operate within the planet's limits.



Renewables are only part of the picture

45% of our emission reductions must come from re-thinking the way we make, consume and dispose of goods and products. We believe circularity is a key element of the decarbonisation agenda

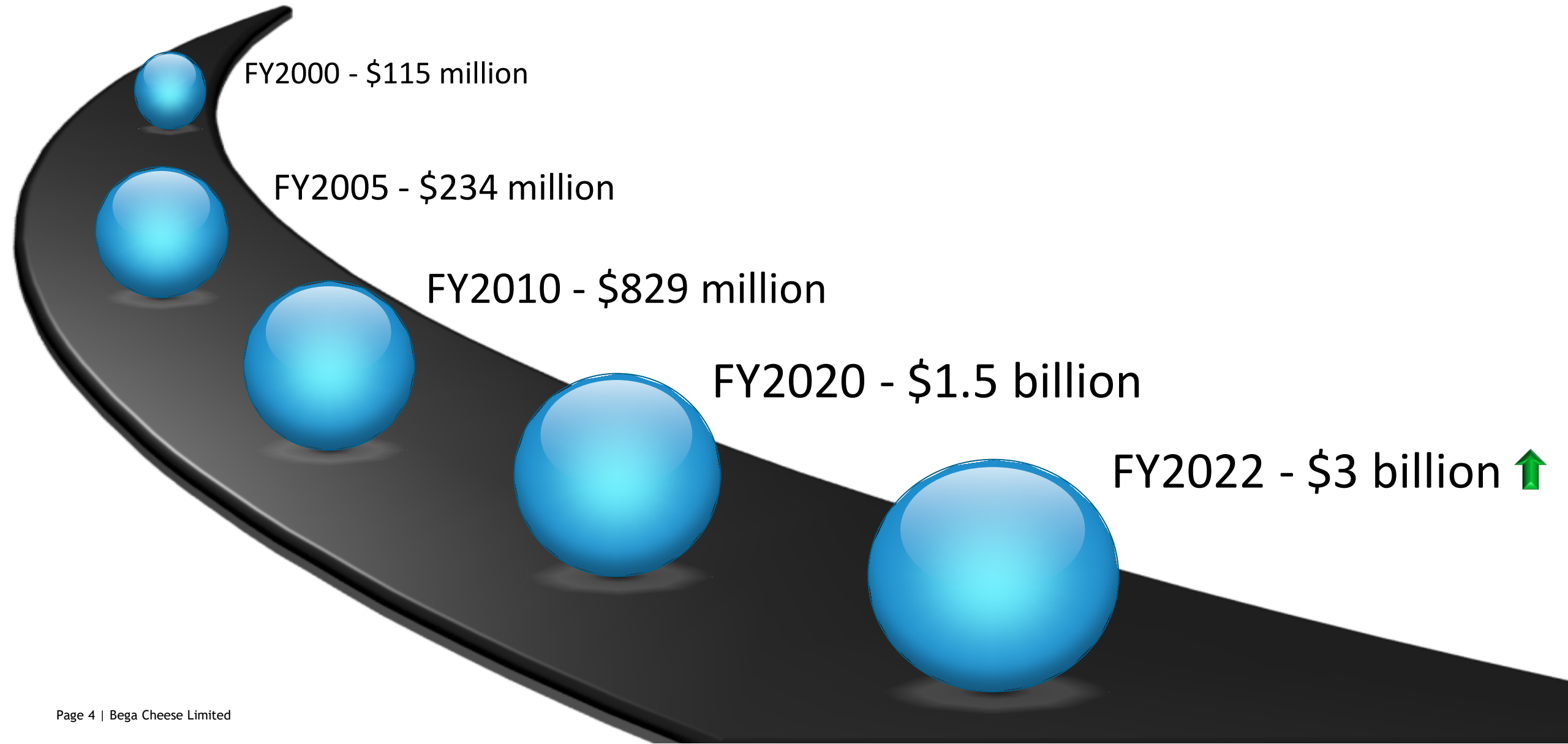


A global perspective



Food & Energy
Availability
Affordability
Nutritional/ Efficiency
Net Zero

Growth



Manufacturing footprint



- 7 ● White Milk and Milk Based Beverages
- 1 ● Milk Based Beverages Hub
- 3 ● Cheese
- 2 ● Dairy powder and fats
- 2 ● Peanuts
- 2 ● Juice
- 1 ● Yoghurt
- 1 ● Spreads

Brand portfolio


Milk Based
Beverages



Jacaranda


White Milk



PURA



Dairy Choice


Yoghurt



Bornhoffen


Juice and
Drinks



KYNETON
SPRINGS


Dairy Foods




Spreads and
condiments




Water Ice



PURA




Nutritionals

HAPPi



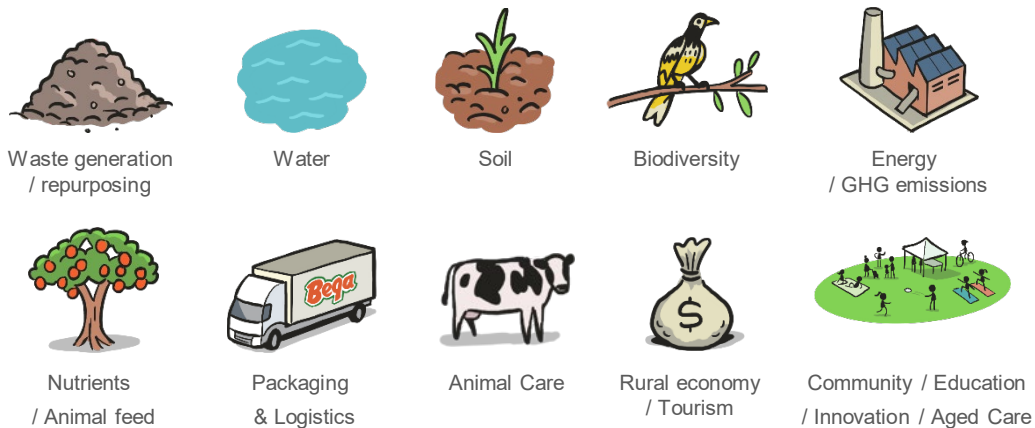
Aligning with UN Sustainable Development Goals

Bega Cheese carbon target

Scope 1 and 2 emissions targets established in support of Paris Agreement goals:

- 50% reduction in emissions intensity by 2030
- 40% reduction in absolute emissions by 2030
- Net zero emissions by 2050

Circularity in the Bega Valley



What is circular economy?

The Circular Economy means that products no longer have a life cycle with a beginning, middle, and end. When materials stop being used, they go back into a useful cycle – hence the term 'circular economy'.

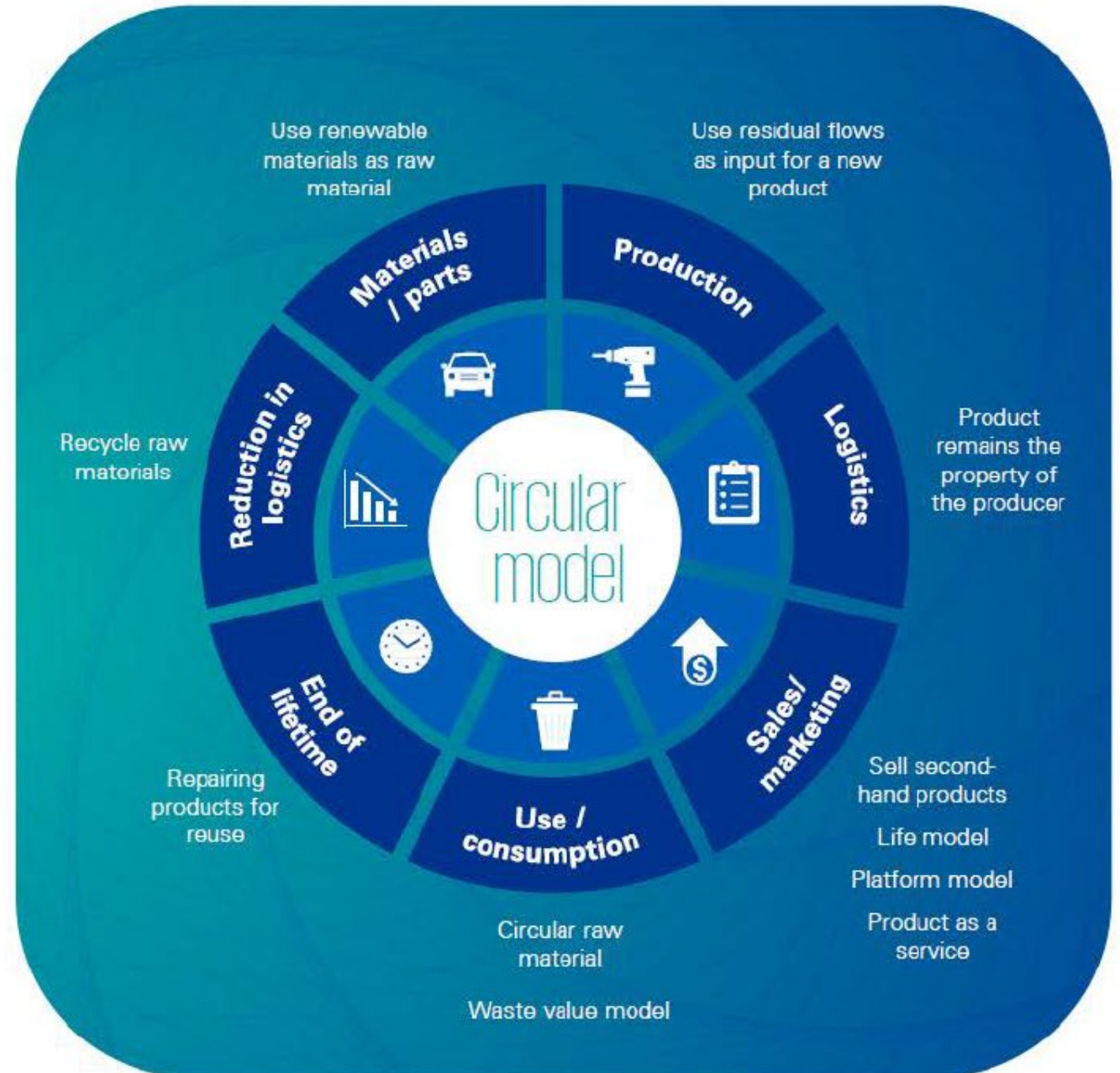
It has the potential to:

- enhance productivity and profitability;
- reduce resource costs;
- make manufacturing more competitive; and
- create new business offerings and jobs.

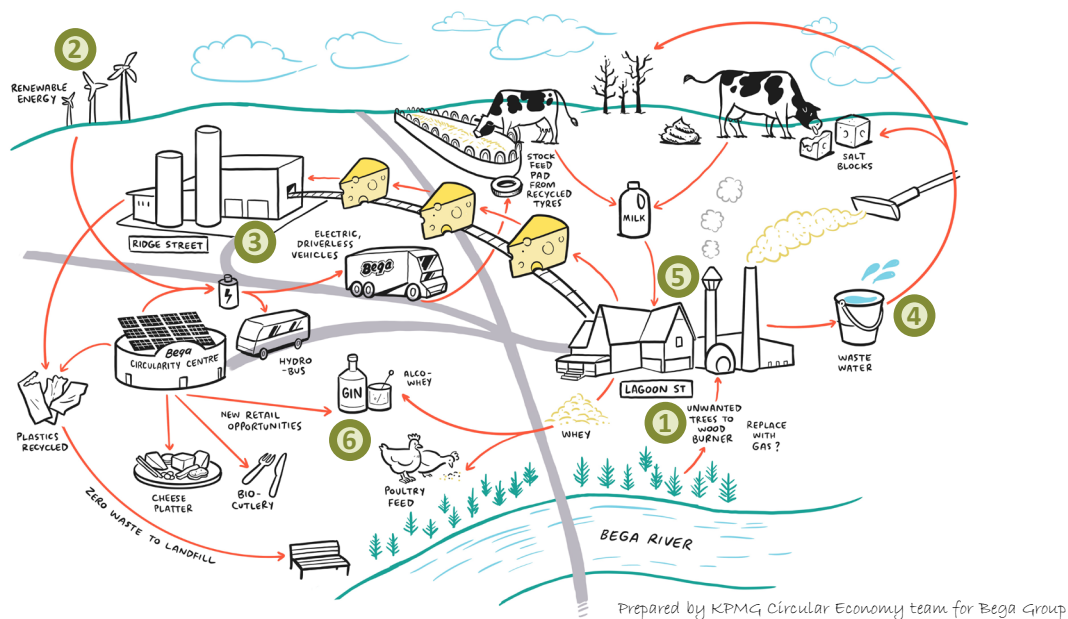
To achieve this, the circular economy is about closing the raw material cycles and therefore focuses primarily on cooperation within and between sectors.

It's about a system change. The circular economy is therefore more than "waste 3.0"; it is about commodities valued as high as possible. There are different business models within the circular economy to increase these values.

These models have an effect on the production process of products, as shown on the right.



Working together to solve high impact problems



40+

Ideas from the Circular Economy workshops run by KPMG and Rabobank

21

Circular Economy projects pitched

6

Selected Circular Economy projects

1. Repurposing cardboard boxes and wooden pallets into seedlings nursery containers for flora revegetation
2. Solar energy as a substitute to butane gas
3. Ultrasonic sealing as a substitute to cheese plastic wraps
4. Membrane technology for chemical recovery in wastewater and environmental impact reduction
5. Waste heat recovery for reuse in the cheese factory
6. Ethanol from whey

The journey towards the circular aspiration



What would success look like?

Exploring the business case for Australia's first circular net-zero footprint region

HORIZON 1 1 - 2 Years

Waste generation/
repurposing



Water



Soil



Biodiversity



Energy / GHG emissions



Nutrients /
Animal feed



Packaging &
Logistics



Animal Care



Community/
Education/
Innovation/
Aged Care



Rural
economy/
Tourism



HORIZON 2 3 - 5 Years

Tonnes of waste to landfill
Tonnes of waste diverted from landfill
Recycling rate by waste stream
Circular inflows and outflows

kL water used
% water recovery, treatment and re-use (water circularity)
Water quality (e.g. eutrophication)

Soil acidification
Land productivity
Rejuvenated soil
No. farms with regenerative practices

Land productivity and efficiency
Land use per industry/nature
Local biodiversity
Threatened species

% renewables
GHG from landfill reduced
Biofuel/gas captured
Carbon offset

Soil fertility
Land productivity and efficiency
External nutrient input phase out

Scope 3 (Value chain) emissions decrease
Single use packaging phase out
% transport fleet using electric vehicles or biofuels

Reducing animal emissions
Reduced animal waste
Hormone-free/organic fed

Population growth
\$ community funding
Poverty rate
Homelessness rate
Local stakeholders engaged, circularity participation %
Domestic Violence rates

\$ Invested into economy from solution
No. jobs created
Unemployment rate
No./\$ training programs
Skills improvement
No. new businesses and industries
Private investment
Regional growth

HORIZON 3 5-10 Years

Closed loop
Close to zero waste to landfill
\$ Re-manufactured goods sold
\$ trade in recycled/reused materials
% Waste-to-Hydrogen energy

Water recovery and reuse
% of water is recovered or reused (Waste-to-Hydrogen)
Recovered waterways
Water quality

Soil and land preservation
Re-forestation
Re-wilded regions
Closed soil nutrient cycle
Land productivity
farms with regenerative practices

Biodiversity in business model
Re-forestation
Re-wilded regions
Local biodiversity
Threatened species

100% renewable electricity by 2030
% Renewable energy
Biofuels captured
Carbon sequestered

Closed soil nutrient cycles
Limited input of external nutrients
Nutrient recycling

Circular logistics
Scope 3 emissions minimised
% of transport fleet using electric vehicles or biofuels
No. companies with a circular business model

Holistic animal care
No. credentials issued
No. patents for animal care initiatives

Rural (mental) health Barometer
Population growth
\$ community funding
Poverty rate
Local stakeholders engaged circularity participation %
Mental and general healthcare costs

No. 1 Food & Agri Innovation Hub in Australia
No. jobs created
Unemployment rate
Training programs
Business innovation (start ups and social enterprises)
Private investment in regional growth 10
% circular revenue/growth

Steering Committee



Rabobank



UNIVERSITY
OF WOLLONGONG
AUSTRALIA



Local Land
Services



Regional
NSW



Together for a
Stronger Bega Valley

The BCV Steering Committee was formed in October 2020 and has met weekly since to progress the establishment of the Regional Circularity Cooperative, advance program design, launch projects and engage stakeholders.



Barry Irvin AM
Executive Chairman
Bega Cheese



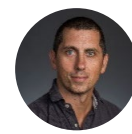
Hon. Niall Blair
Executive Director
Regional Circularity
Cooperative



Ben van Delden
Partner, Head of AgriFood
Tech & Circular Economy
Advisory
KPMG



Karin van Selm
Regional Head Food&Agri
clients Europe and Africa
Rabobank



Daniel Murphy
Business Development
Manager, South East
Department of Regional
NSW



Emily Harrison
Acting Director Community,
Environment & Planning
Bega Valley Shire Council



Andrew Taylor
Local Manager - Far South
Coast
Local Land Services



David Harris
Managing Director & CEO
AACo



Mel Balas
Farm Sustainability &
Technical Services
Manager
Bega Cheese



Marc Oostdijk
General Manager
Sustainability and Rabo
Community Fund
Rabobank



Steve Rae
Executive General
Manager, Strategy
Bega Cheese



Ross Dawson
Co-Head Corporate
Banking, AU & NZ
Rabobank



Carolin Leeshaa
Director, Head of Social &
Sustainable Finance and
Natural Capital Co-Lead
KPMG



Niki Eder
Sustainability Manager
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Sam Avitaia
Manager – Bega Campus
University of Wollongong



Faith Behrens
Executive Assistant
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David Ferguson
Partner
Addisons



Michael Friend
Pro Vice Chancellor
Research and Innovation
Charles Sturt University

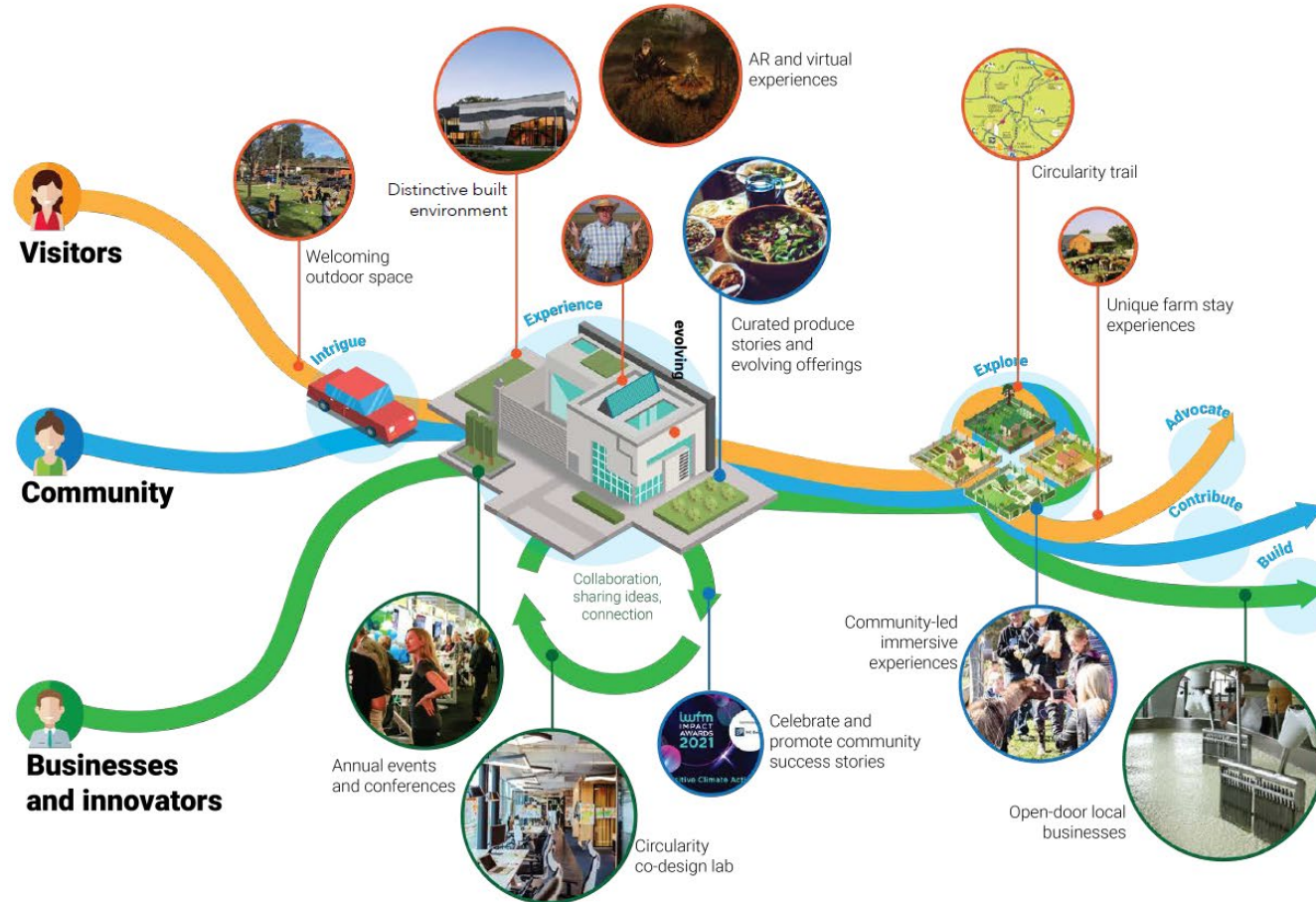


Nicole Fosteris
Community Engagement
Manager – nbn
Local South east NSW
nbn Local



Regional Circularity Co-operative Director

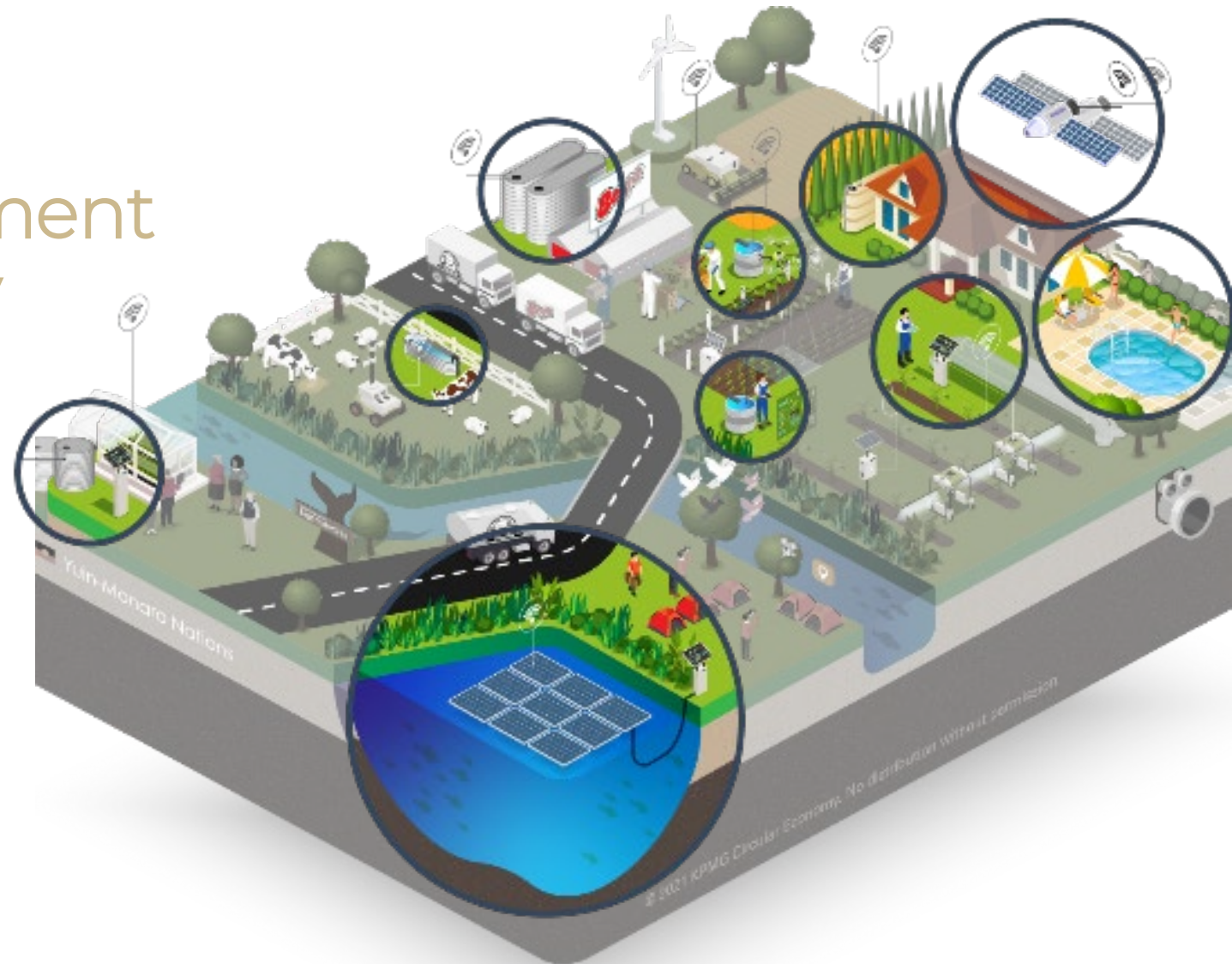
National Circularity Centre



The convergence of collaboration,
education and inspiration

Enhance our water management and biodiversity

Bega
circular
valley



This illustration is extracted from an application currently underway for consideration by the BLERF. It highlights key water resource instrumentation proposed.

Funding our ecosystem services

Bega Biodiversity and Carbon Trading Scheme

Description

Around 75% of the Bega Valley Shire has conservation values, with significant potential for carbon and biodiversity credits. In addition, agricultural land has the potential for on-farm carbon sequestration and biodiversity projects. Building economic and market systems that can support this long term stewardship provides a foundation for investment in effective environmental sustainability. This project aims to support effective governance and administration of a Shire-wide biodiversity and carbon trading program.

Priority  Impact  Cost \$3m

Outcomes

- **Local economy** - Establishment of alternative income streams for farmers, other landholders and indigenous land management bodies. The opportunity to market local produce under a local biodiversity assurance scheme. Introduction of high skilled employment to the region resourcing the Carbon Desk.
- **Productivity** – Higher land and agricultural productivity through regenerative practices. Increased resilience of soils, biodiversity benefits and forest recovery.
- **Regional economies** – Creates the opportunity for farmers and landholders from other regions to access the benefits of the specialised Carbon Desk which include revenue opportunities, expertise and education services.
- **Education & Awareness** - Fast track the development, education and uptake of carbon and biodiversity projects. Contributing to moving carbon trading from a volatile and immature market to a stable and transparent market.
- **Technology** - Comprehensive data sets and audit mechanisms of local biodiversity and carbon banks that can link to State, Federal and international biodiversity and carbon programs.
- **Carbon neutrality** – Support international, national and industry emissions targets. Governance framework to support assurance, trading, monitoring and reporting for investing partners and agencies.

Available grants/funding

Corporates (offsetting), Government (e.g. Federal CF announcement),

Potential partnerships/investors

BCV Co-op, Rabobank, KPMG, Biodiversity Conservation Trust, carbon markets, Land to Market, farmers, LALCs, Forestry lands

Benefits



Foundational Pillar: Establish 'Bega Circular Valley Co-operative'



Develop new marine carbon sinks

Tackling climate change and biodiversity loss through kelp farming

Description

Kelp is able to absorb up to 20 times the amount of CO₂ than a forest and improve marine biodiversity. Bega Valley's strong coastal presence provide an ideal location for develop regenerative seaweed farming and carbon sinks.

This project aims to promote the development of a kelp nursery and kelp farming for applications within other industries.

Priority ★★☆☆

Impact ★★★

Cost: \$
Under consideration

Outcomes

- **Carbon sequestration:** strengthen the region's environmental services through carbon offsets.
- **Biodiversity enhancements:** contribute to the restoration of marine biodiversity through the provision of habitat and shade.
- **Organic material:** tap into the potential of algae for the Circular Economy by supporting other industries to source regenerative products (e.g. as fertiliser, superfood or other, as discovered by our research partner).

Available grants/funding

- No Grants identified

Potential partnerships/investors

Bega Cheese, Participating seaweed farms, Bega Beef Coop, Far South Coast Dairy Development Group, Rabobank, UoW, KPMG.

Benefits



Drive equitable and feasible circularity

Bega Circularity Program Feasibility Analysis

Description

Once the opportunities for enhanced circularity are identified through the Bega Circular Valley Knowledge and Resource Enabler and Cultural Enabler, feasibility analyses will be undertaken for 10 specific projects. These projects will seek to cover the breadth of benefit categories, but will be prioritised based on potential benefit and buy-in of project partners. For those projects that are deemed feasible, concept plans will be developed to describe and quantify their implementation.

Priority  Impact  Cost \$0.5m

Outcomes

- **De risking investment** - This project will result in a suite of concept plans for the next tranche of circularity projects for the Bega Valley. It will provide further insight to improve the industrial ecology map of the Shire and will provide input to the commercialisation activity undertaken through the Bega Circularity Centre.

Available grants/funding

- Partner matching funds
- No Grants identified

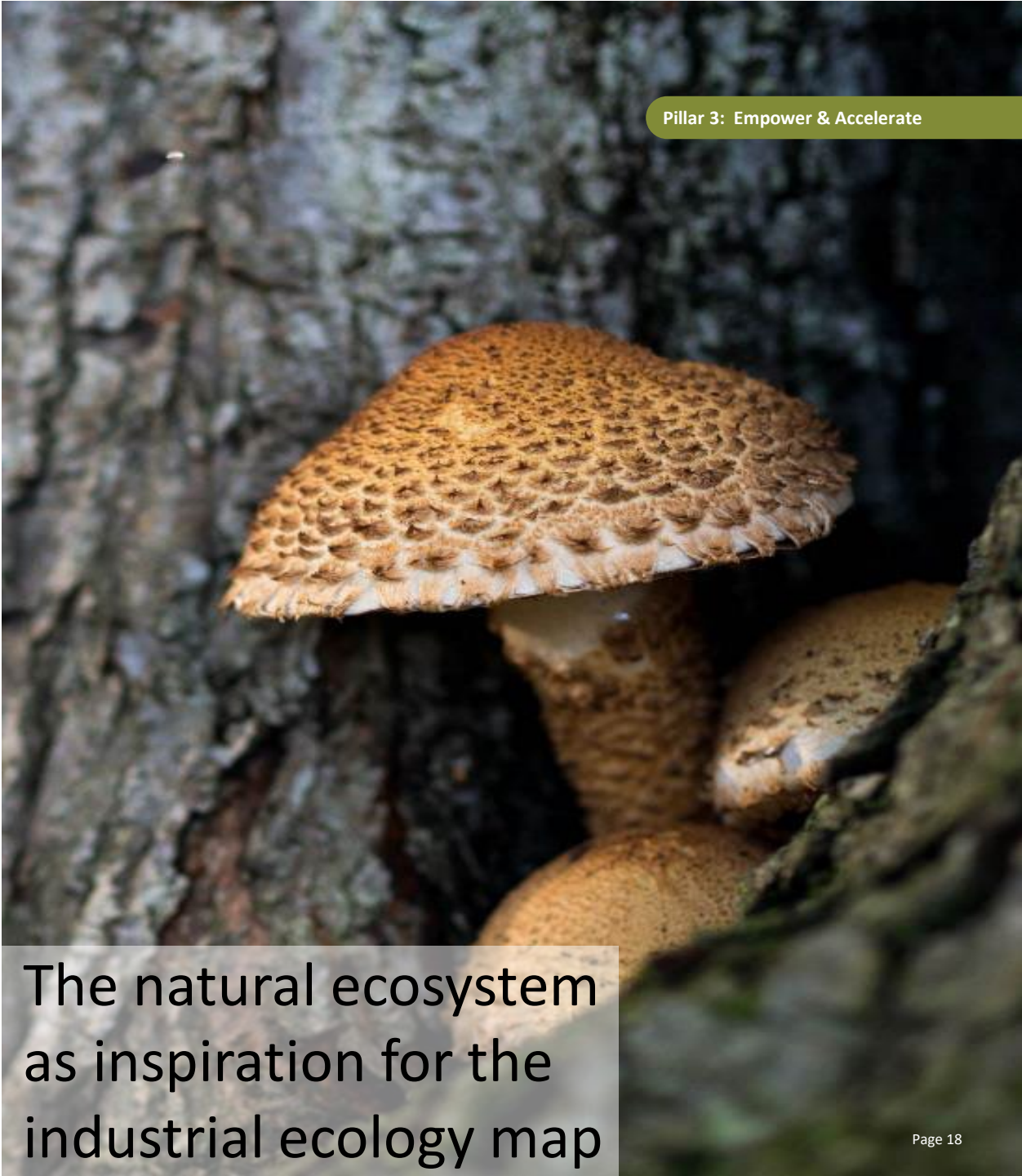
Potential partnerships/investors

Bega Circularity Coop, Bega Cheese, Bega Council, UoW, Rabobank, KPMG

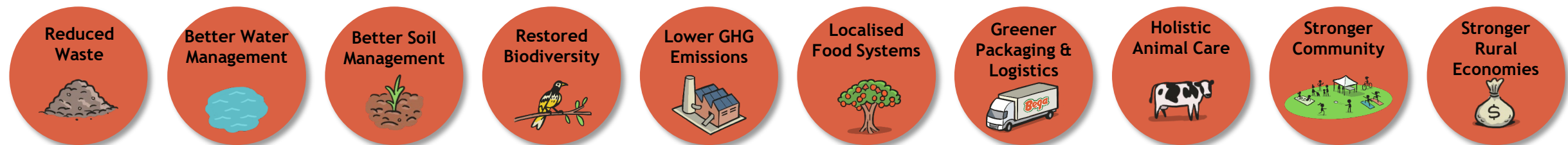
Benefits



The natural ecosystem
as inspiration for the
industrial ecology map



Strongly aligned to government and industry objectives



National waste policy action plan:

- Ban export of waste, plastic, paper, glass
- Reduce waste generated per person by 10% by 2030
- 80% average resource recover from all waste streams
- Halve amount of organic waste in landfill by 2030

NSW Waste and Sustainable Materials Strategy 2041:

- Triple plastics recycling rate by 2030
- Eliminate problematic and single use plastics by 2025

NSW Water Strategy:

- Improve water system connectivity and resilience
- Enable future-focused, capable and innovative water sector
- Recognise Aboriginal values and connection to water

National Farmers Federation 2030 Roadmap: 20% increase in water efficiency for irrigated agriculture

National Soil Strategy: \$196 million new commitment to improve soil health, productivity and sustainability, and strengthen soil knowledge and capability

NSW Natural Capital Statement of Intent: conserve, restore and enhance the State's natural environment and productive landscapes

Biodiversity Conservation Act 2016: maintain a healthy, productive and resilient environment for the greatest well-being of the community

Lower GHG Emissions



NSW Net Zero Plan Stage 1: supporting innovative technologies to reach net zero emissions by 2050

CN30 (MLA): reaching net zero emissions from red meat production by 2030

NSW Waste and Sustainable Materials Strategy 2041: net zero emissions from organic waste by 2030

Localised Food Systems



NSW Healthy Eating Strategy: creating healthy food and built environments to support healthy eating and active living

National Freight and Supply Chain Strategy:

- Provide regional Australia with infrastructure to connect regions
- Develop evidence base of key freight flows and supply chains

National Farmers Federation 2030 Roadmap: freight cost per tonne-km is competitive with major ag-exporters

Greener Packaging & Logistics



Holistic Animal Care



NSW Animal Welfare Action Plan: ensure key stakeholders are engaged and views respected in developing policy and legislation

Animalplan 2022 to 2027:

- Improve the integrity of animal healthy systems
- Improve animal welfare outcomes
- Support implementation of industry frameworks and plans

Stronger Community



National Farmers Federation 2030 Roadmap:

- Double tertiary and vocational agriculture graduates
- Increase workforce by 25%

National Agreement on Closing the Gap (NSW Implementation Plan):

- Fund Indigenous organisations
- Support Aboriginal people in jobs that align with their goals

Stronger Rural Economies



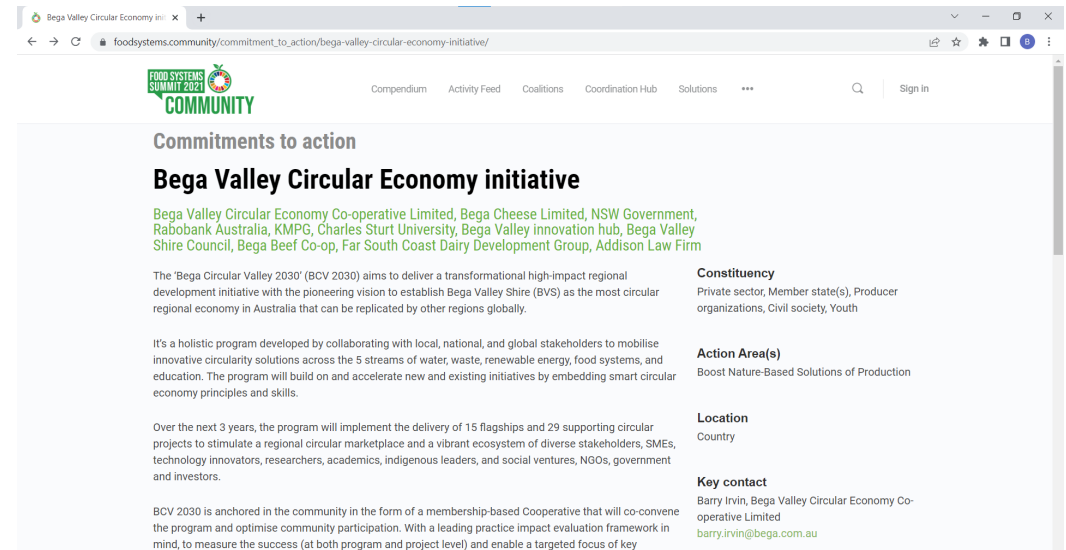
Economic Development Strategy (Bega Valley): growing local businesses and attracting new businesses

20 -Year Economic Vision for Regional NSW - Refresh: supporting key identified emerging industries (advanced manufacturing, technology-enabled Primary Industries, renewable energy), and future industries (ecotourism, recycling and waste management, high-quality food products)

UN Food Systems Summit Community

The Food Systems Summit sought to generate action and measurable progress towards the 2030 Agenda for Sustainable Development by identifying solutions and leaders, and issued a call for action at all levels of the food system, including national and local governments, companies and citizens.¹

Bega Circular Valley has joined the Community, which convenes initiatives all working towards significant action towards the SDGs.



The screenshot shows a web browser displaying the 'Bega Valley Circular Economy initiative' page. The page is part of the 'FOOD SYSTEMS SUMMIT 2021 COMMUNITY' website. The main heading is 'Commitments to action' followed by 'Bega Valley Circular Economy initiative'. Below this, it lists the participating organizations: Bega Valley Circular Economy Co-operative Limited, Bega Cheese Limited, NSW Government, Rabobank Australia, KMPG, Charles Sturt University, Bega Valley innovation hub, Bega Valley Shire Council, Bega Beef Co-op, Far South Coast Dairy Development Group, and Addison Law Firm. The page describes the 'Bega Circular Valley 2030' (BCV 2030) as a transformational high-impact regional development initiative. It also includes sections for 'Constituency' (Private sector, Member state(s), Producer organizations, Civil society, Youth), 'Action Area(s)' (Boost Nature-Based Solutions of Production), 'Location' (Country), and 'Key contact' (Barry Irvin, Bega Valley Circular Economy Co-operative Limited, barry.irvin@bega.com.au). The page is anchored in the community in the form of a membership-based Cooperative that will co-convene the program and optimise community participation.



Ref: 1 https://foodsystems.community/commitment_to_action/bega-valley-circular-economy-initiative/



Globally informed, locally developed



CIRCULAIR
FRIESLAND

Circular Friesland

Leeuwarden region, the Netherlands

The Circular Friesland Association was founded by 25 companies and organisations including the Province of Friesland and Municipality of Leeuwarden.

The first step was to analyse the flow of raw materials to identify which streams could be processed circularly and quickly transformed into a circular economy.

Five circular themes were identified: circular agriculture, circular plastic, organic waste streams, construction of the future, and saline agriculture.

Members of Circular Friesland are from the public and private sector, and collaborate with circular experts.

Key initiatives:

- Collaboration between public and private sector
- Partnerships between different companies within material value chains

Outcomes and value delivered:

- Circular collaborations between companies in the region
- National Test Centre Circular Plastics



Circular Oslo

Oslo, Norway

The Circular Oslo initiative, part of Circular Regions, was created as a regional multi-stakeholder approach to accelerate the transition to a circular economy.

The initiative identifies and highlights solutions with the potential to be tested on a smaller scale in Oslo, then replicated internationally - including innovating business models through the adoption of circular design based strategies, building knowledge and experience for reduced material consumption, and enabling a regional access economy.

Circular Regions supports and maps initiatives, and connects cities to the broader region, and covers urban and rural solutions.

The multi-stakeholder collaboration environment includes government, industry, civil society and science bodies.

Key initiatives:

- Tools and resources for the public sector, business, NGOs and individuals
- Circular workshops and events

Outcomes and value delivered:

CIRCULAR @ Oslo Innovation Week event, September 2020



Foodvalley

The Netherlands

Foodvalley's ambition is to achieve food production in balance with the living environment, while significantly reducing the use of raw materials and losses throughout the chain.

The Foodvalley ecosystem aims to accelerate circular innovation and growth by connecting a range of companies to resources, facilities, knowledge suppliers, and potential partners.

Key innovation activities include:

- Robust cultivation of healthy soils and sustainable livestock farming
- Reduce the use of raw materials, combined with high quality processing of residual flows
- Scaling up alternative cultivation methods, such as vertical agriculture
- Innovative companies and knowledge suppliers working together

Outcomes and value delivered:

Foodvalley Summit events for market trends, innovations, opportunities and challenges in Circular Agrifood

The BCV 2030 Vision

Our vision is for the Bega Valley to become the most circular region in Australia by 2030

The BCV 2030 program isn't simply about zero waste to landfill and optimising recycling. It is about linking regenerative economic, environmental development with social equity across the region, underpinned by efficient and sustainable water and energy use.

Bega Circular Valley will:

- **Enhance circular capability and economic development:** diversify and strengthen the region's capacity for systemic innovation, resource efficiency, diversification of industry, creation of new income streams, revenue models and meaningful jobs through the circular economy
- **Improve resilience:** instil greater economic and environmental resilience, regional regeneration and social cohesion post the devastating 2019 bushfires and coordinate public and private investment in critical infrastructure required to support the recovery and resilience of the region
- **Promote regional vision:** create a clear unifying sense of purpose for the Bega Valley: one that retains and attracts talent to the region, and improves the living standards of local people and the diversity of natural habitat of the region
- **Strengthen environmental management:** strengthen the biodiversity of this special corner of the world by weaving together the region's greenhouse gas emission reduction targets, environmental ecology improvement targets, water and energy security, and economic diversity ambitions, enable improved participation in education, sequestration and innovation activities, and grow a sense of community

What success will look like by 2030

Reduced Waste



Better Water Management



Better Soil Management



Restored Biodiversity



Lower GHG Emissions



Localised Food Systems



Greener Packaging & Logistics



Holistic Animal Care



Community Inclusive Circular Economy



Stronger Rural Economies



How we plan to get there



1

Circular-focused practices: align localised, best-practice, evidence-based advice with policy frameworks and explore place-based differentiation, profit in provenance opportunities (Born in Bega) to instil pride in BVS's local produce and services that are exported

2

Stakeholder management: engage consumers and businesses as key enablers of the BCV 2030 program

3

Skills: lift the skills of the local community and incorporate circular business model training and support

4

Collaboration: build scale through collaboration and cooperation and share intelligence in order to overcome challenges together to reduce the risk of failure and economic dependency on a few major businesses by inspiring and incentivising collective effort to create the most circular valley in Australia

5

Funding: fund the delivery of critical community infrastructure assets that enable resource efficiency and community resilience

The time is

NOW

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