





Towards Net Zero Forum

Welcome







Opening Remarks



Dr Doug Hilton AO

Chief Executive
CSIRO



The Honourable Ed Husic

Minister for Industry and Science
Commonwealth Government



Emeritus Professor Roy Green

Special Innovation Adviser
University of Technology Sydney

Productivity, Net Zero & Industrial Policy

Roy Green

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— The AFR View

Labor needs to get much bolder on economy

Labor is rushing back to Canberra to salvage their own election prospects from the cost-of-living crisis engulfing them. But it needs to offer something better for the country's future too.



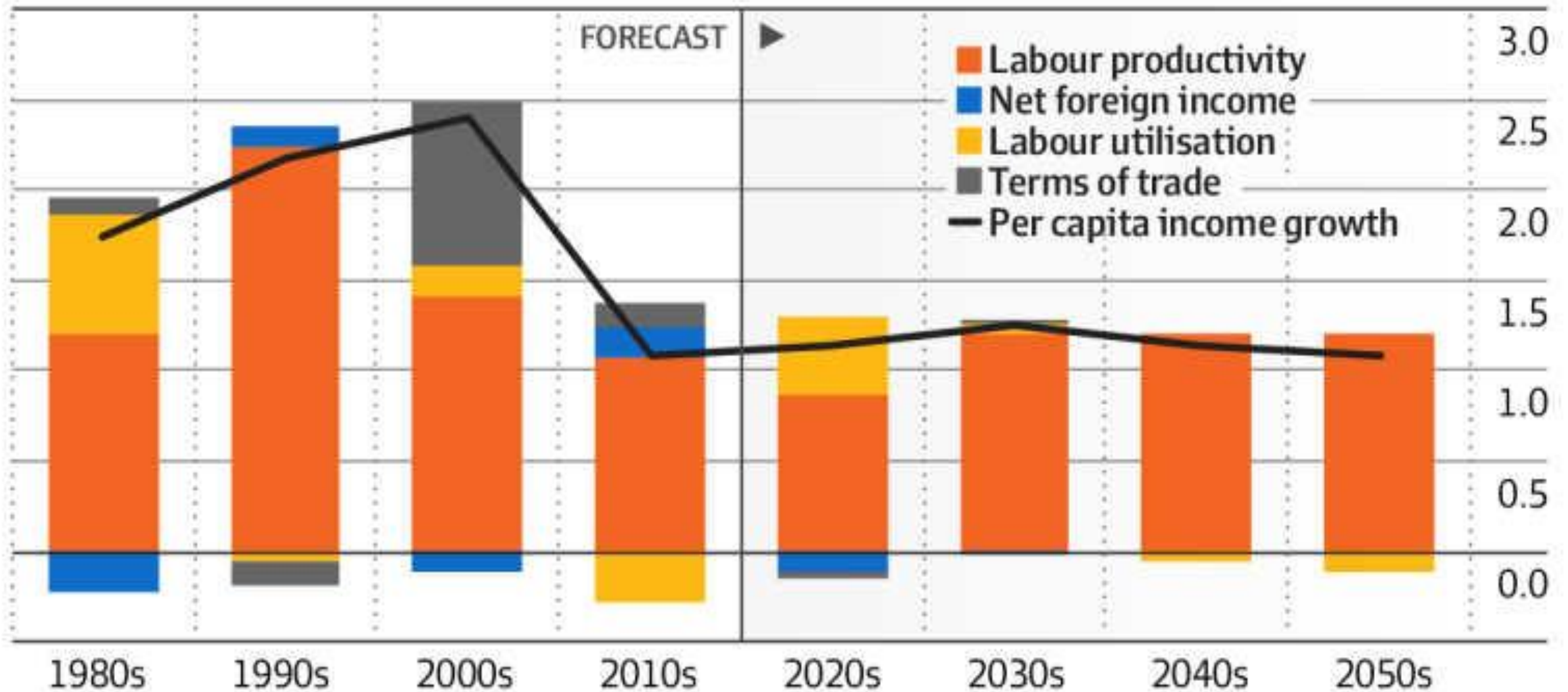
Jan 21, 2024 - 6.59pm


Prime Minister Anthony Albanese knows he has not been [engulfed by the stubborn cost-of-living crisis](#) through last year and into the holiday season. The election promise in May 2022 that Labor would quickly lift Australia's living standards has collapsed, as they have rapidly gone backwards instead.

Now Mr Albanese is rushing Labor MPs back to Canberra for an unscheduled caucus meeting this week to hear the cabinet's new plan for Labor to recapture the headlines and the political initiative on prices. The prime minister has already scapegoated the big supermarket chains

be beaten which means spending must come down, and interest rates may have to rise. But Australia's real long-term problem is its fading productivity. The fundamental solution is that incentive-driving tax reform is "indispensable" to fixing it.

Components of real income growth per capita

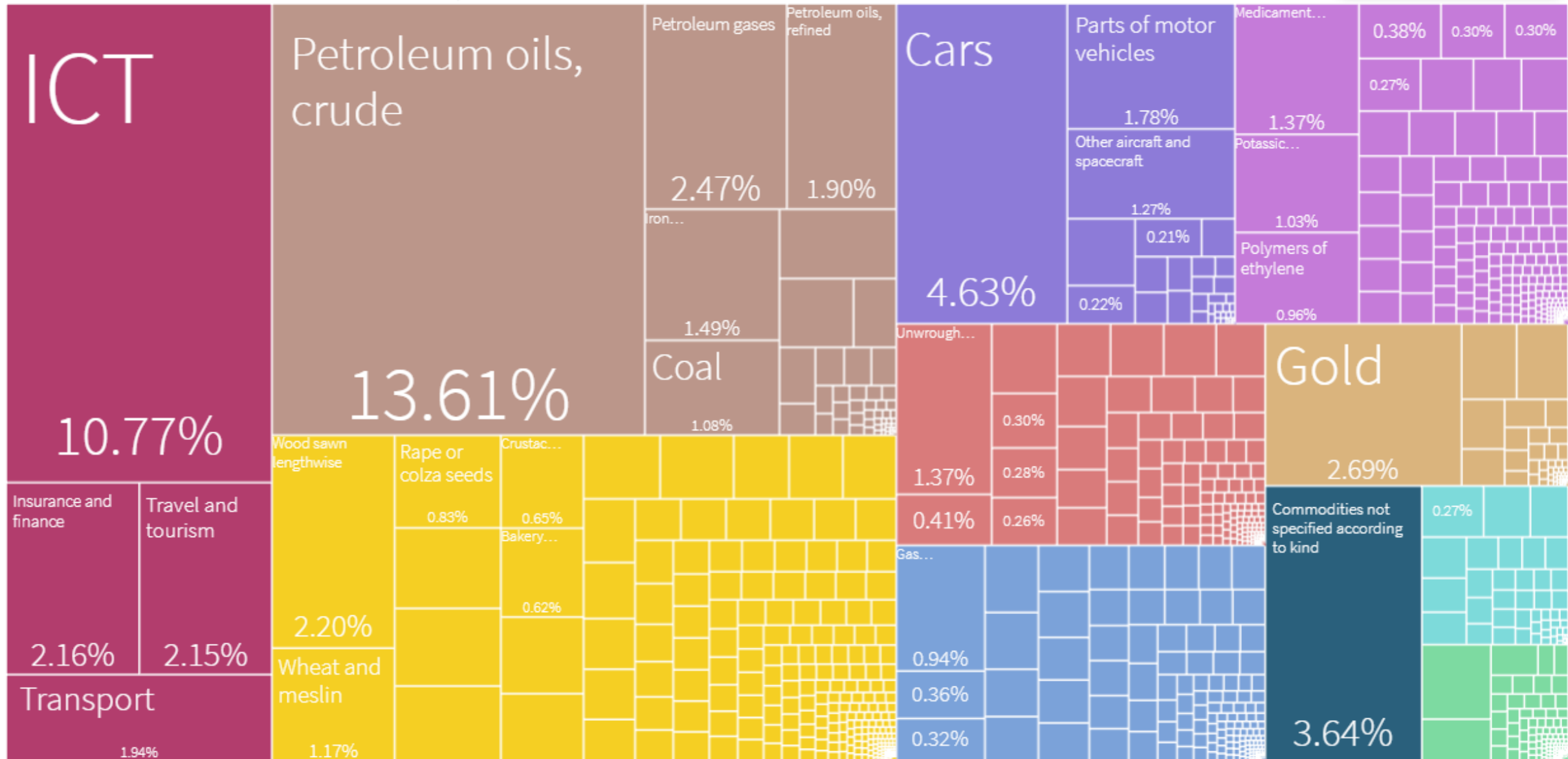




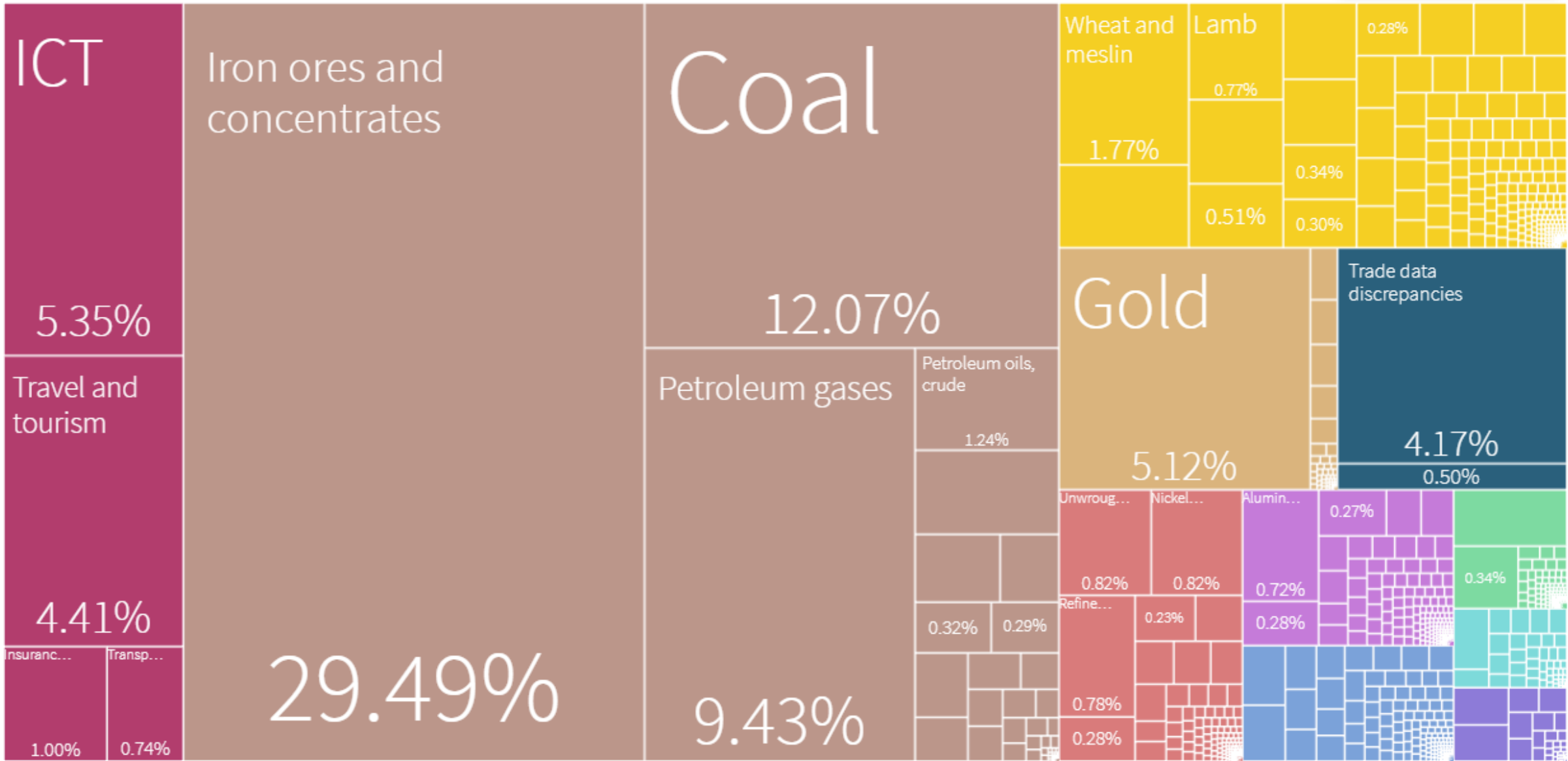
**“You can see
the computer age
everywhere but
in the productivity
statistics”**

Robert Solow, 1987

Economic complexity – Canada #41

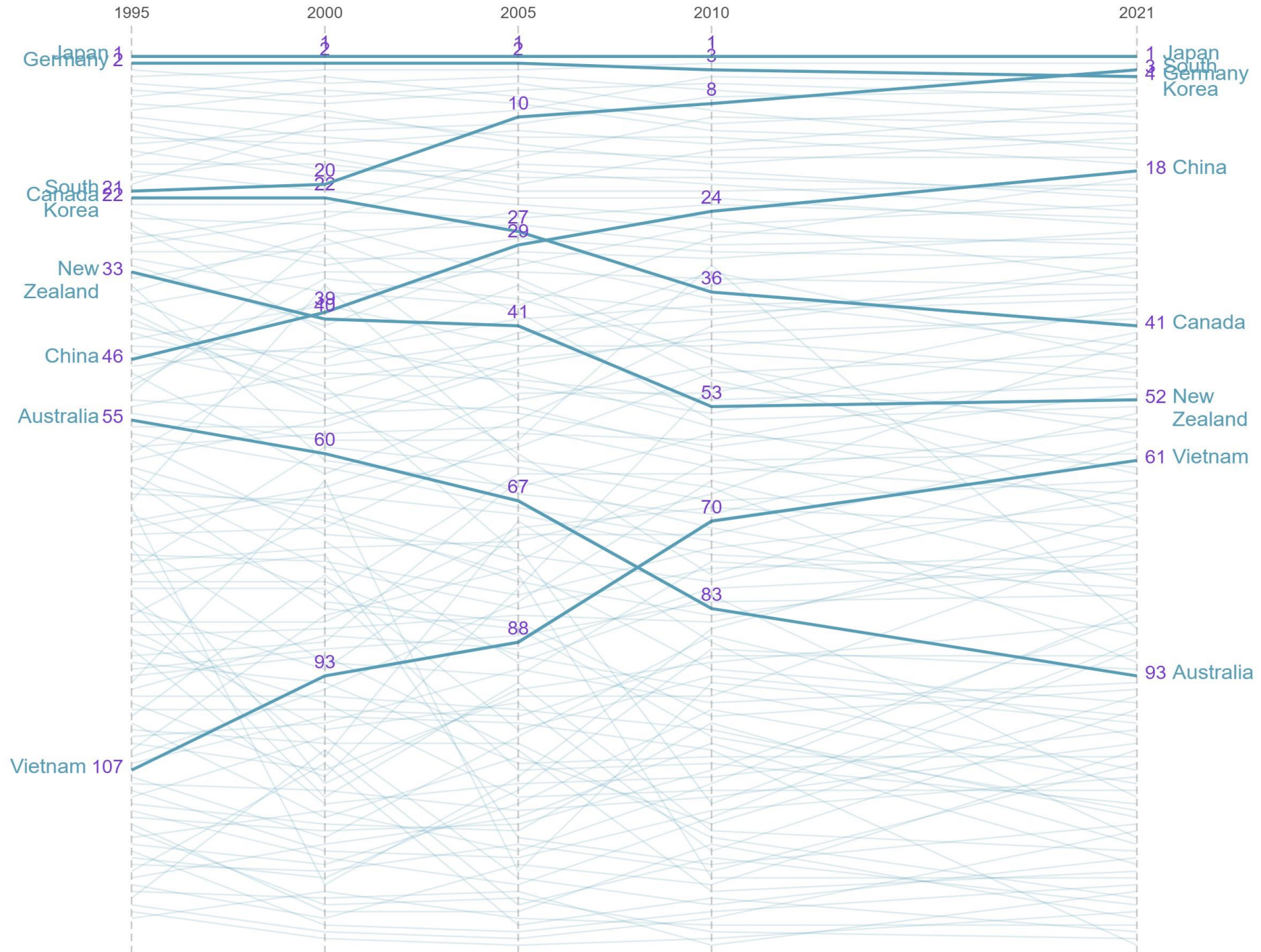


Economic complexity – Australia # 93



Complexity comparison

Japan
Korea
Germany
China
Canada
New Zealand
Vietnam
Australia



Business | Schumpeter

Australia and Canada are one economy—with one set of flaws

Welcome to Ozanada. Beware its business weakness



Jun 1st 2023

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IF AUSTRALIA AND Canada were one economy, this “Ozanada” would be the world’s fifth-largest, bigger than India and just behind Germany. Combining the two in tandem is not as nutty as it seems. Weather aside, they have a remarkable amount in common. Both are vast land masses populated by a comparatively few people and dangerous wildlife. Both are (mostly) English-speaking realms of King Charles III. Both export their rich natural resources around the planet. And both are magnets for immigration.

“Ozanada Inc’s limitations are particularly acute at the cutting edge of technology. Products deemed ‘high-tech’ by the World Bank, such as computers and drugs, represent more than 7% of the combined exports of OECD members, but only 4% for Canada and less than 2% for Australia.

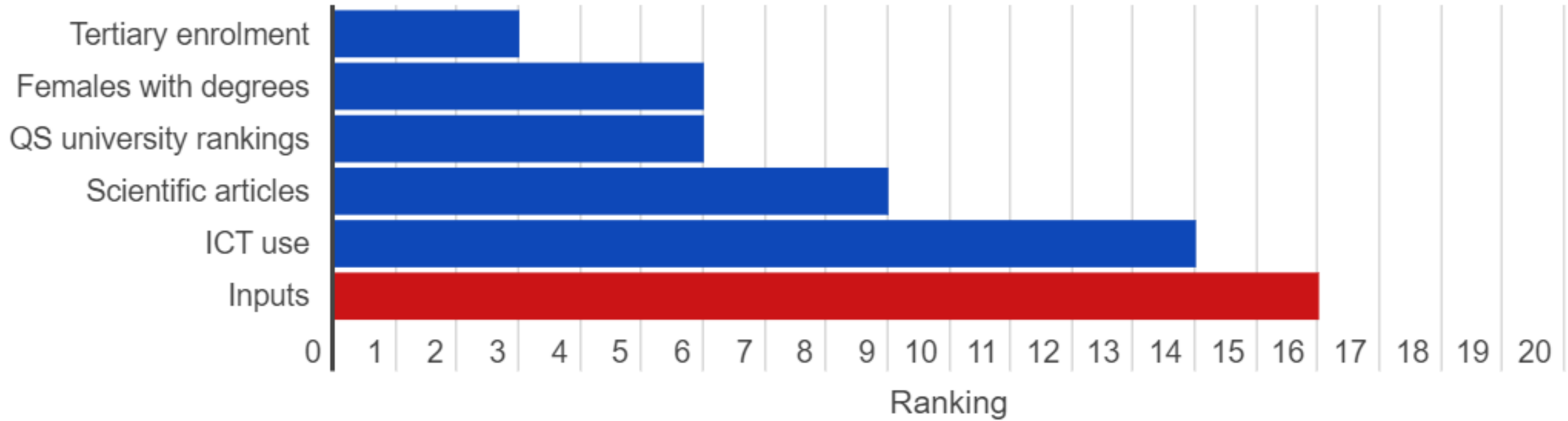
Patents granted per 10,000 people are a mere 5.9 in Canada and 6.7 in Australia, compared with 9.9 in America and 28.2 in South Korea.

This is not for want of well-nourished brains; Ozanada is home to world-class universities and boasts some of the highest rates of tertiary education in the OECD. Rather, the problem is an underfed innovation system.”

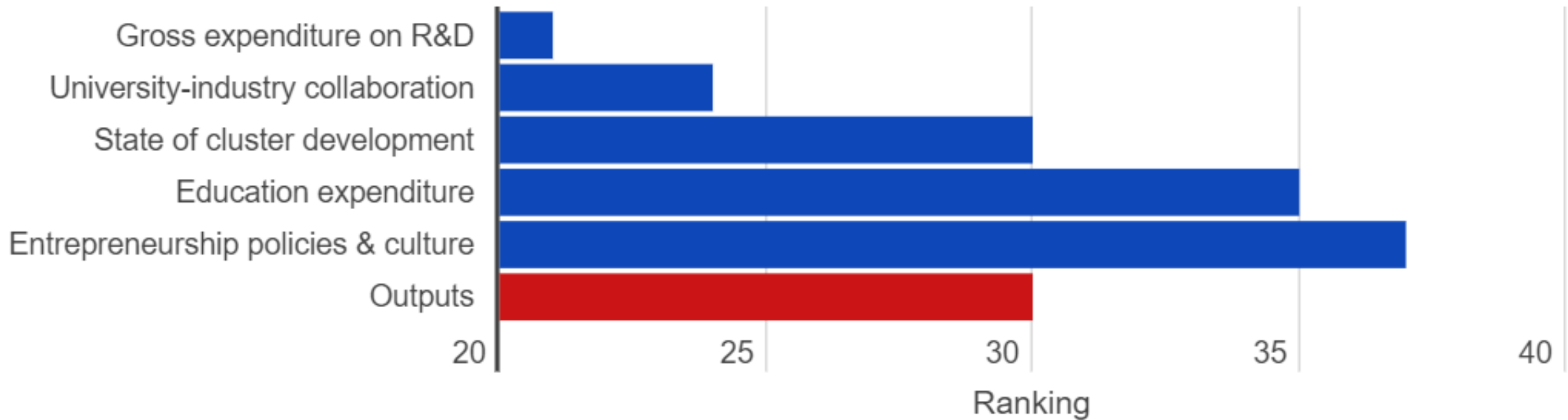
Global Innovation Index ranking

Ranking	Country
1	 Switzerland
2	 Sweden
3	 United States of America
4	 United Kingdom
5	 Singapore
6	 Finland
7	 Netherlands
8	 Germany
9	 Denmark
10	 Republic of Korea
24	 Australia

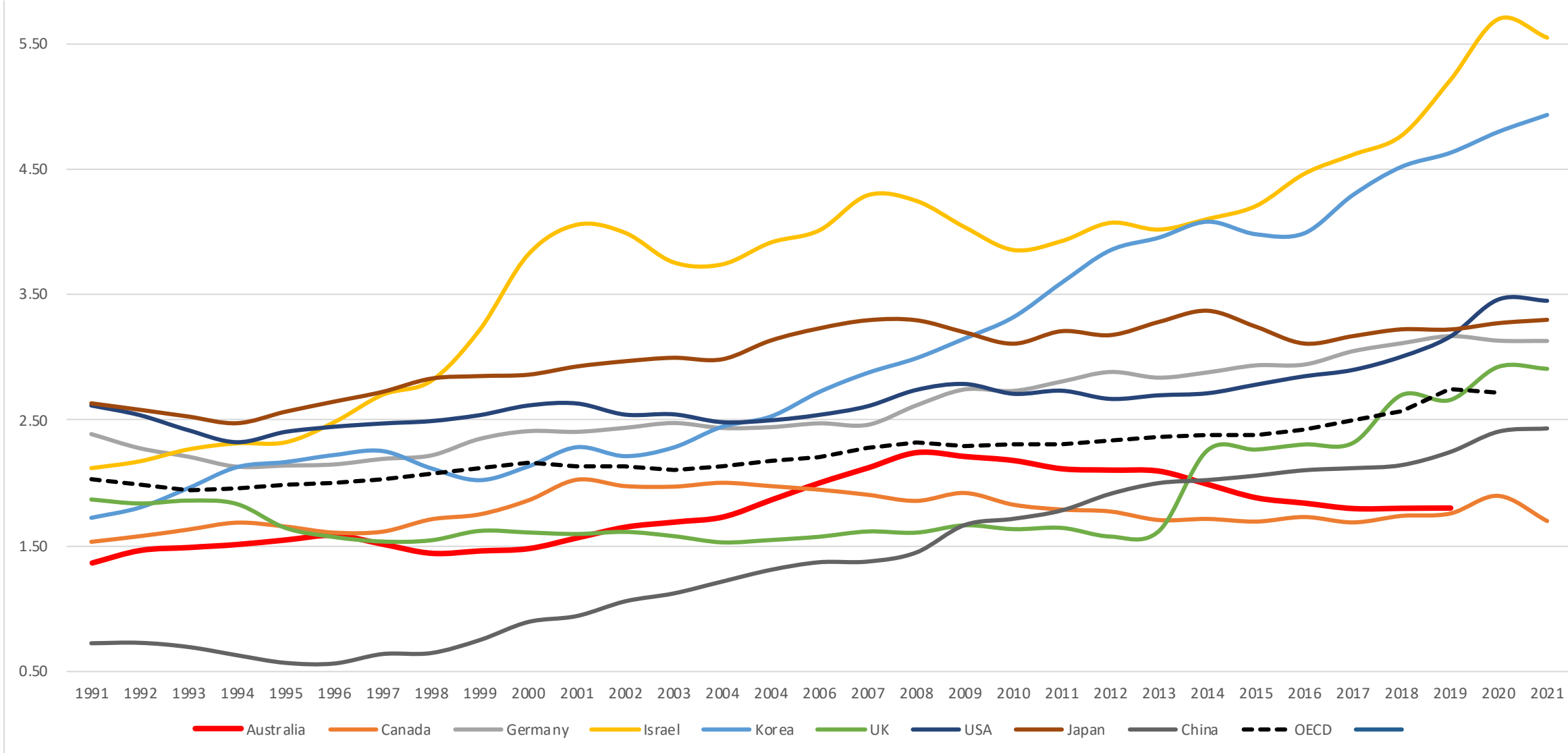
What Australia is good at



What Australia is not so good at

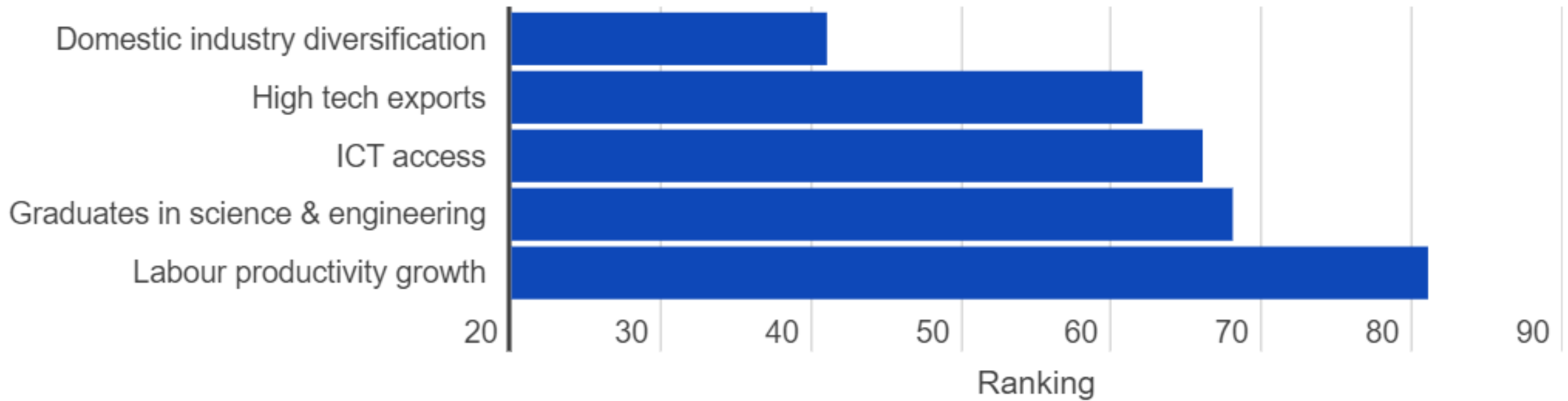


Gross Expenditure on R&D as % of GDP 2003-2020



SOURCE: OECD

Where Australia lags most



“A program of investment in the activities and technologies of the 21st century to tackle climate change, biodiversity loss and environmental degradation, including air and water pollution, would deliver a strong boost to both productivity and economic growth.”

- Nicholas Stern, 2024

Policy architecture



Future Made in Australia



Mission-led program

- Net zero transformation stream
- Economic resilience stream
- National Interest Framework

Whole of government coordination

- **CSIRO**
- National Reconstruction Fund
- Industry Growth Program
- Net Zero Economy Agency
- Defence Industry Capability Program
- Jobs & Skills Australia



Towards Net Zero



Professor Libby Lester

*Director of the Monash Climate Change Communications Hub
Monash University*



Dr Michael Battaglia

*Towards Net Zero Mission Lead
CSIRO*



Place-based Transformation



Young Perspectives on Climate Change and the Transition



Gavin Choong
UN Youth Ambassador



Tiahni Adamson
SA 2024 Young Australian of the Year



Paul Stark
Farmers for Climate Action



Grace Kirkby
CSIRO



Place Based Transformation



Andrew Taylor

Circularity Program Manager
Bega Circular Economy Initiative

An aerial photograph of a coastal region. In the foreground, there's a rocky coastline with waves crashing against the shore. The middle ground shows a lush green peninsula or headland. In the background, a large bay or inlet is visible, with a town or village situated on the far side. The sky is clear and blue.

Bea circular valley

Regional Circularity
Co-operative

CSIRO Towards Net Zero Forum
June 2024

Acknowledgement of Country

The Regional Circularity Cooperative (RCC) acknowledges and pays our respects to the Traditional Custodians of the lands, waterways and airspace of Australia.

We learn from these people about the traditions of stewardship of resources and working together as a community to have a lighter impact on the environment.



Biggah a meeting place for ceremonies

Bunan rings are culturally significant ceremonial sites for Aboriginal people. There are a large number of bunan rings located throughout the Bega Valley area and the majority of these sites are on privately owned land.

Tribes within the Yuin Nation would travel and congregate in the Bega Valley for ceremonial practice. Bunan rings are evidence of these ceremonies.

It is important that we work together to protect and preserve these special sites.

"Then something of our Aboriginal Culture will be preserved and the heritage of all Australians, white as well as Aboriginal will be richer."

GUBOO TED THOMAS, APRIL 1979

Serpent Dreaming by Djiringanj elder Aunty Colleen Dixon 2006

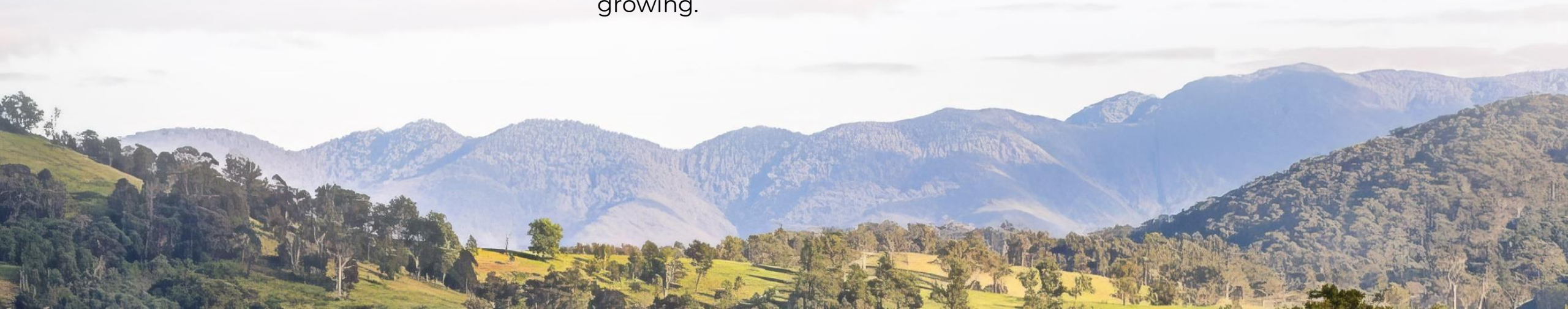
Logos for: bega valley shire council, NSW, Local Land Services South East, NSW, Office of Environment & Heritage

*Cover image credit David Rogers Photography, courtesy of Sapphire Coast Destination Marketing.
Bega Circular Valley logo is a collaborative design by Jamara Nye and Catherine Leach
'Serpent Dreaming; by Djiringanj elder Aunty Colleen Dixon, 2006

The RCC is supporting Australia's sustainability agenda by pioneering a regional, place-based approach to circularity



- The '**Bega Circular Valley 2030**' program is a transformational, high-impact regional development initiative with the pioneering vision to establish the Bega Valley as the most circular regional economy by 2030.
- With **Bega Group** as the driving force, the **Regional Circularity Cooperative (RCC)** was established in 2021 to facilitate this transition.
- It will serve as a demonstration of **place-based, whole of economy transition** from which other regions and businesses can learn. Such a transition will improve the resilience of our regional communities.
- Built on comprehensive **collaboration**, the RCC has garnered **strong partnerships** with community, business, corporates, academia and government, all working together to demonstrate transition pathways through pilots in the Bega Valley and beyond.
- The range of projects and partnerships is continuously evolving and growing.



RCC members and key partners



Emerging Partnerships:



RCC Objectives

The RCC intends to deliver eight core objectives by engaging and collaborating widely with our partners.

RCC Objectives

Enabling Program Delivery

- 1** Establish a **data-driven baseline** on resource use and circularity opportunities in Bega Valley
- 2** Become the **key broker and consolidator/acquitter for natural capital and circularity initiatives** in the Valley and beyond

Community Outreach

- 3** Create **community awareness** of regional circular approaches
- 4** Share **learnings across Australia as a leader in circular economy innovation** to support resilient communities in Bega and beyond

Foundational Infrastructure and Policy

- 5** Enable **circular resource use and emissions reductions** through renewable energy and innovative infrastructure
- 6** Promote **circularity** in environmental planning, policies and procedures

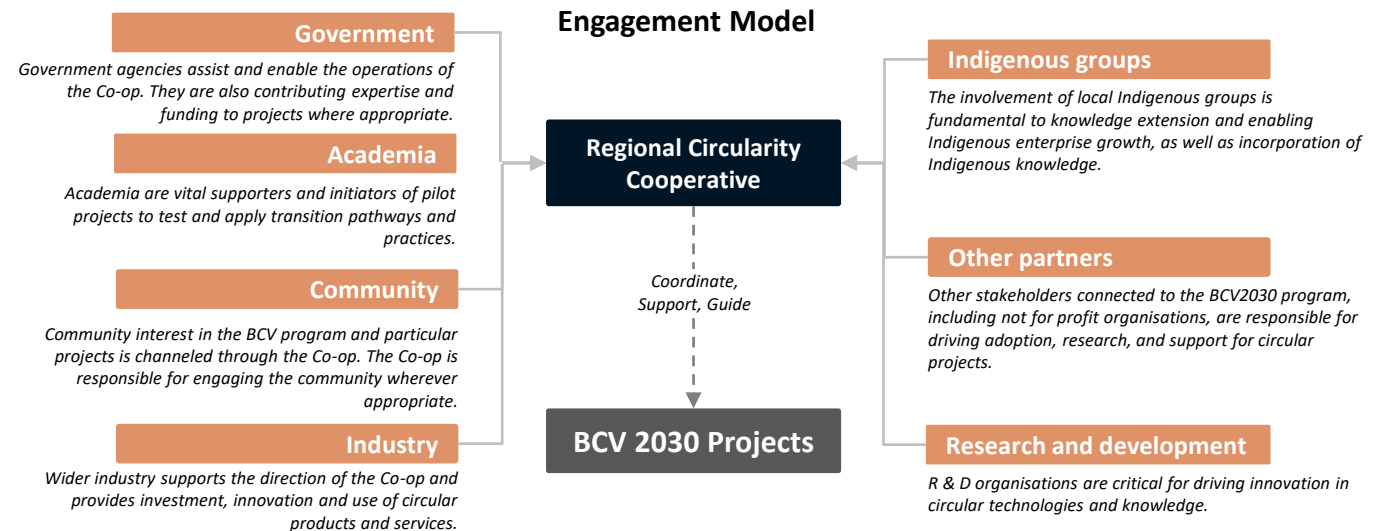
Partnering with Industry

- 7** Promote **regenerative practices that reduce carbon emissions and environmental footprints of primary industries** while enhancing sequestration, resilience to bushfires and drought and increasing landscape rehydration
- 8** Identify **circularity opportunities across a growing number of industries** within the Bega Valley

2030 Vision

The Bega Valley functions as the most circular region in Australia by 2030 and is exemplified globally as a model for circularity. The RCC's initiatives will:

- Diversify and **fortify the region's capacity for systemic innovation**, resource efficiency, diversification of industry, creation of new income streams, revenue models and meaningful jobs.
- 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 region's recovery** and resilience.
- Create a **clear unifying sense of purpose** for the Bega Valley that retains and attracts talent to the region and improves living
- **Strengthen regional biodiversity** by weaving together emission reduction targets, environmental improvement targets, water and energy security, and economic diversity ambitions to create an improved sense of community and enable its active participation in circularity.



Examples of RCC projects

National Centre for Circularity: \$19m+ building (\$14m from NSW Govt and \$5m from Bega Group) and further funding being sought. PhD student engaged for LBC

National Circularity in Fisheries and Aquaculture: Driving circularity in Australia's fishing and aquaculture sectors and harnessing solution providers.

Decarbonisation in grazing sectors – grazing pilot program baselining and transition pathway analysis of dairy and beef sectors in the Bega Valley.

Heat exchange and Energy optimisation program at factory and farm: partnership with NSW Decarbonisation Hub, University of Wollongong and GeoExchange Australia

Natural capital and regenerative agriculture programs: numerous programs delivering on ground ecological enhancement works and regenerative agriculture and resilience advice and projects on farm. Partnership with NSW Government, Great Eastern Ranges, Landcare, Southern NSW Drought Hub and CSU

Farm forestry program: implementing five medium scale farm forestry plots to provide diversification of income, shade and shelter, biodiversity and carbon sequestration. Partnership with Pentarch Forestry, South East NSW Forestry Hub and Australian Government

Baselining circularity and opportunity analysis: Will be a first of its kind, place-based whole of economy baselining program and will include comprehensive material flow analysis and identification of transition opportunities,. Partnership in development with CSIRO, Deloitte and others

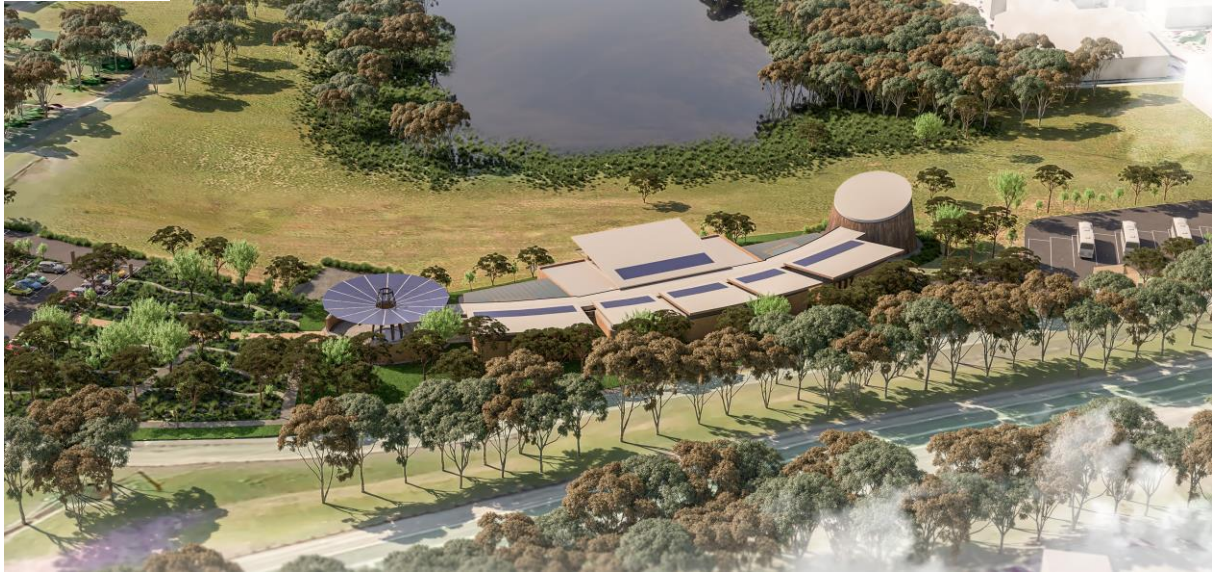
Sensorisation of the landscape to measure and demonstrate place-based transition: Partnership with CSU, NSW Decarb Hub, UNSW, nbn. PhD student

Net Zero energy plan for the Bega Valley: plan to undertake opportunity analysis and roadmap for optimisation of energy efficiency and net zero energy production across the region. Partnership with Essential Energy, CSIRO, Electrification and Energy Systems Network, CSU and others.

Management of plastic and organic waste streams: Using MFA to identify opportunities to process and value add locally. Emerging partnership with Pact Group, CRJO, University of Wollongong and others.

Other projects in development or under feasibility assessment include assessment of **feed additives** to reduce methane emissions, growing **seaweed** in Bega Cheese wastewater with aligned **biogas** generator, **Smart Water** program, **biochar** production from multiple waste streams, utilisation of flyash from factory for **low carbon concrete**, **supporting** multiple local circular businesses. **Bega Group** is undertaking a range of circularity and sustainability projects across its footprint..

National Centre for Circularity



The **National Centre for Circularity** is funded by the NSW Government and Bega Group and designed by Cox Architecture. It will be built by the RCC in Bega over the coming two years. The centre will showcase the circular economy transition of the Bega Valley and act as a lighthouse for efforts across the country and internationally. The centre will include a:

- circular economy education centre, demonstrating local, national and international circular economy initiatives
- café and restaurant focusing on local food, with capacity for functions
- tourist information and heritage centre, with gift shop showcasing local circular products and produce.
- location for circularity experts to come together to research and collaborate to drive the circular economy



Centre for
Circularity

www.centreforcircularity.com.au



Deloitte.





Helen Steel

CEO

South East Councils Climate Change Alliance (SECCCA)



Nick Palousis

CEO
2XE



Building an Innovation System that Supports the Transition



Andrew Taylor

Circularity Program Manager
Bega Circular Economy Initiative

Helen Steel

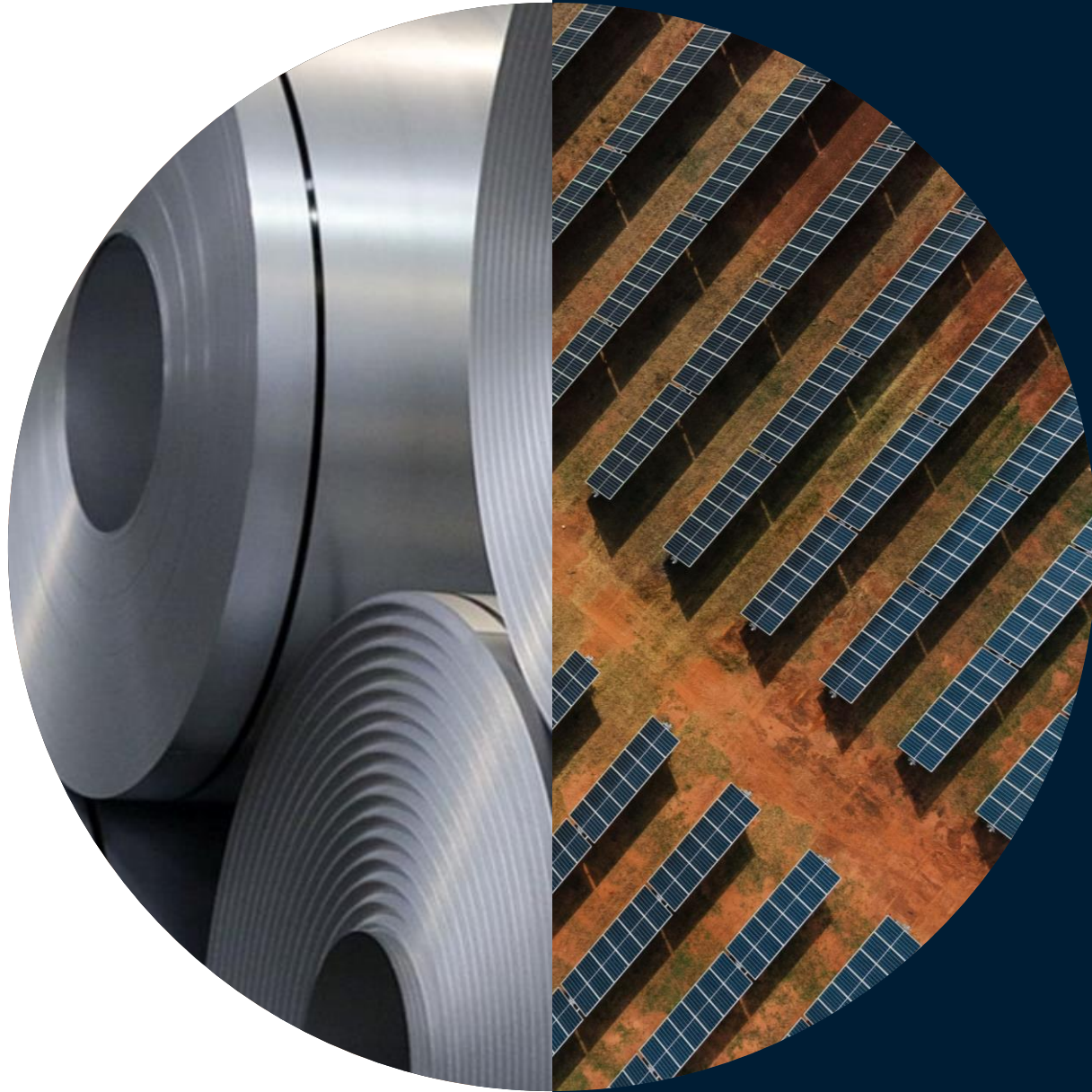
CEO
SECCCA

Jody Bruce

Regional Transition Lead,
Towards Net Zero Mission
CSIRO

Nick Palousis

CEO
2XE



Value Chain Transformations



Roadmaps to Action



Kath Rowley

Division Head, Emissions Reduction

Department Climate Change, Energy, Environment and Water



Australian Government

Department of Climate Change, Energy,
the Environment and Water

Roadmaps to Action

Kath Rowley

Head of Division - Emissions Reduction

Towards Net Zero
Forum

12 June 2024



The 2023 Annual Climate Change Statement and Emissions Projections outlined the Government's agenda, work underway, and our emissions trajectory to 2035.

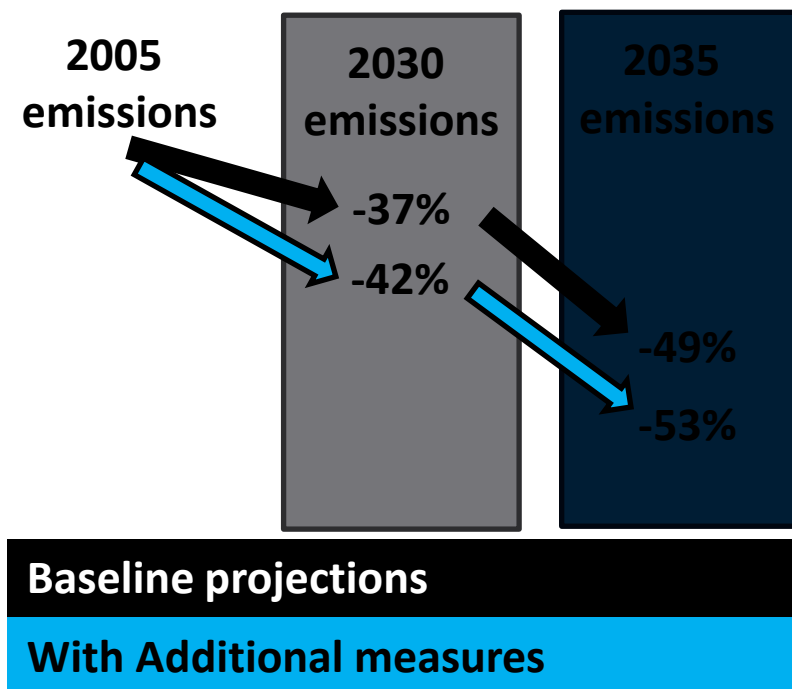
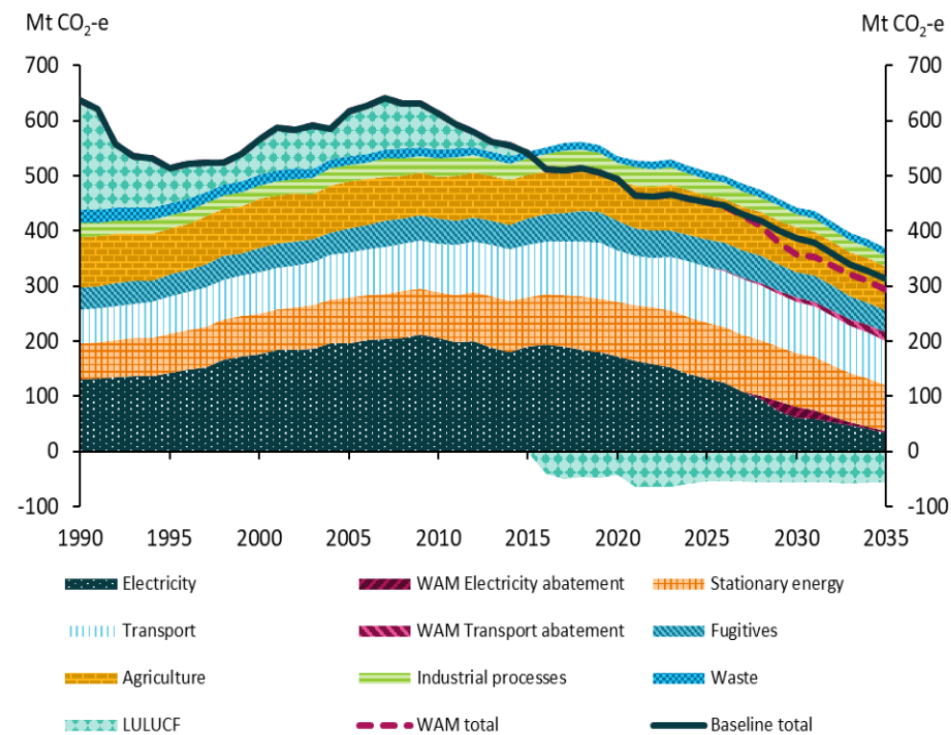


Figure 4 Australia's emissions projections in the baseline and the 'with additional measures' (WAM) scenario, 1990 to 2035, Mt CO₂-e



Net Zero Planning – key components

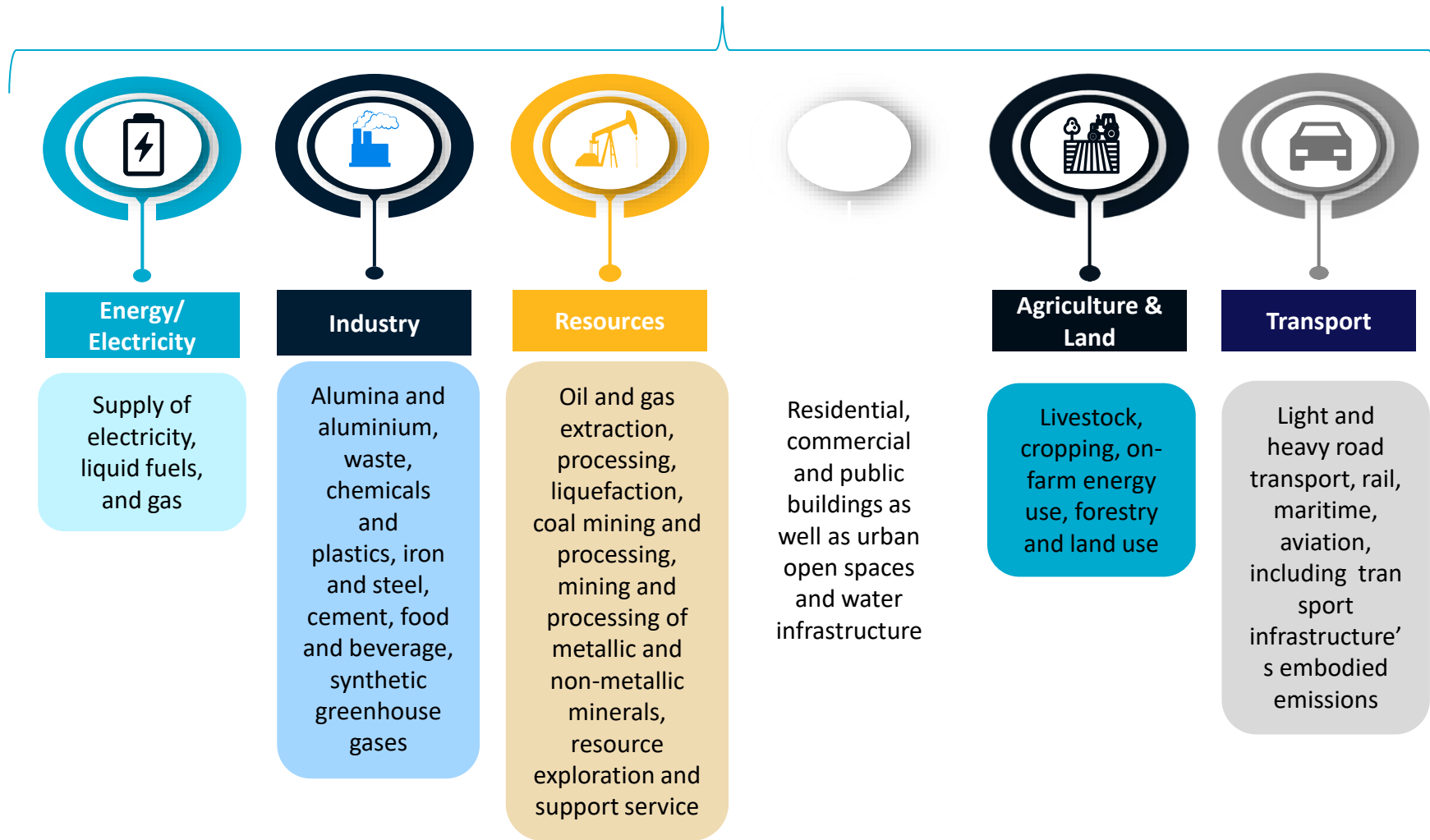
The Government is developing a national plan to achieve net zero by 2050 following the Annual Climate Statement to Parliament in 2022.

Plans will outline how each sector contributes to net zero and inform decisions on our 2035 target.

The plan will be supported by six sectoral plans, which will be:

- **Developed** through engagement with industry, environment groups, experts, unions, the community and all levels of government.
- **Informed** by analysis and advice from the independent Climate Change Authority on Sectoral Pathways (due August 2024) and the 2035 and net zero target (due October 2024).
- **Synthesised** to determine whole of economy effects by the Department of the Treasury.
- **Coordinated** by DCCEEW to ensure alignment, to feed into the whole of economy net zero plan, and to reflect circular economy opportunities.

Net Zero Plan



Future Made in Australia

The Government is securing a Future Made in Australia by leveraging our world-class resources and building new clean energy industries over the next decade through:

- building new clean energy industries aligned with our ambition to become a renewable energy superpower
- strong sustainability outcomes through timely and robust environmental and indigenous heritage assessments

Future Made in Australia has two streams:

- **Net Zero Transformation** Stream, which includes industries where Australia will have a comparative advantage as the global economy transitions to net zero
- **Economic Resilience and Security** Stream, which includes industries where some level of domestic capability is necessary to deliver economic resilience and security.

Key budget initiatives under FMA

\$1.7 billion for the **Future Made in Australia Innovation Fund** to be administered by ARENA

\$134.2 million to accelerate environmental and cultural heritage approval decisions.

Over **\$1.5 billion** to support **manufacturing of clean energy technologies**, including:

- **\$1 billion** for the Solar Sunshot program
- **\$549 million** to support battery manufacturing

\$19.6 million for the delivery of the 2024 National Hydrogen Strategy.



Decarbonising Steel



Robert Evans

Head of Corporate Development

BlueScope



Industrial Decarbonisation



Warren Flentje

*Industrial Decarbonisation Lead,
Towards Net Zero Mission*

CSIRO



Low Emissions Steel: Skills and Future Industry Needs



Kath Rowley

*Division Head, Emissions
Reduction*

**Department Climate Change,
Energy, Environment and Water**



Dr Humair Nadeem

*Research And Development
Engineer*

CSIRO



Rob Evans

*Head of Corporate
Development*

BlueScope



Warren Flentje

*Industrial Decarbonisation Lead,
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CSIRO



Sustainable Aviation Fuels



Heidi Hauf

Global Sustainability Leader



The Agriculture and Energy Nexus



Dr Cathryn O'Sullivan

Senior Research Scientist

CSIRO



Sustainable Aviation Fuel: Aligning impact



Heidi Hauf

Global Sustainability Lead



Warren Flentje

*Industrial Decarbonisation
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CSIRO*



**Dr Cathryn
O'Sullivan**

*Senior Research Scientist
CSIRO*



Shahana McKenzie

*CEO
Bioenergy Australia*



Science & Finance: Enabling the Transition



Mobilising Finance to Drive the Transition



Emma Jenkin

Partner
Kilara Capital



Malcolm Thornton

Head of Impact Capital
CEFC



Dr Michael Battaglia

Towards Net Zero Mission Lead
CSIRO

IMPOSSIBLE WITHOUT

CSIRO





CSIRO Impossible Without You



Dr Zelalem Moti

Research Scientist, Sustainability Transitions



CSIRO Impossible Without You



Dr Philippa Hammond

CERC Postdoctoral Fellow, Sustainability Transitions



CSIRO Impossible Without You



Dr Humair Nadeem

Research And Development Engineer - Green Steel

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Michelle Miller

Research Scientist, Sustainability Transitions



CSIRO Impossible Without You



Dr Courtney Regan

Research Scientist, Systems Analysis



Towards Net Zero Forum

