



Australian National Outlook 2019



EXECUTIVE SUMMARY

ANO 2019 Participants

The following individuals contributed to the Australian National Outlook 2019.

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Dr Renata Bernarde, Director, Enterprise Office, Monash University *(formerly)*

Leanne Bloch-Jorgensen, Head of Thought Leadership and Insights, National Australia Bank

The Hon Jamie Briggs, Partner, PwC

Michael Cannon-Brookes Snr, Director, Cannon-Brookes Pty Ltd

Cathryn Carver, Executive General Manager, Client Coverage, National Australia Bank

Peter Cosier, Member of the Wentworth Group of Concerned Scientists

Sasha Courville, GM Social Impact, National Australia Bank

Brent Cubis, Chief Financial Officer, Cochlear

Clara Cutajar, Partner, PwC

John Daley, Chief Executive Officer, Grattan Institute

David Dyer, Partner, McKinsey & Company

Catherine Ellis, Senior Advisor, Energy Transformation, Shell Australia

Prof Allan Fels AO, Professorial Fellow, University of Melbourne

Catherine Fritz-Kalish, Co-Founder and Managing Director, Global Access Partners

Miranda George, Shell Australia

Danny Gilbert AM, Co-Founder and Managing Partner, Gilbert + Tobin

Prof Roy Green, Chair, UTS Innovation Roundtable, University of Technology Sydney

The Hon Nick Greiner AC, Former Premier, New South Wales

Dr Steve Hatfield-Dodds, Executive Director, ABARES, Department of Agriculture and Water Resources

Anthony Healy, Chief Customer Officer, Business and Private Banking, National Australia Bank

Dr Ken Henry AC, Chairman, National Australia Bank

Connor Hogg, Gilbert + Tobin *(formerly)*

Rick Holliday-Smith, Chairman, ASX, Chairman, Cochlear and Chairman QBiotech Group Limited

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Prof Helen Sullivan, Director, Crawford School of Public Policy, Australian National University

Don Taylor, Chairman, GrainCorp *(formerly)*

David Thodey AO, Chairman, CSIRO

Prof John Thwaites, Chair, Monash Sustainable Development Institute and Chair, ClimateWorks Australia

Phil Vernon, Managing Director, Australian Ethical

Chris Wheatley, Director, Strategy, People and Performance, Australian Red Cross

Dr Stuart Whitten, Group Leader, Material and Energy Systems, CSIRO

Martijn Wilder AM, Partner, Baker McKenzie

Peter Yates AM, Chairman, Shared Value Project

ANO 2019 Member Organisations

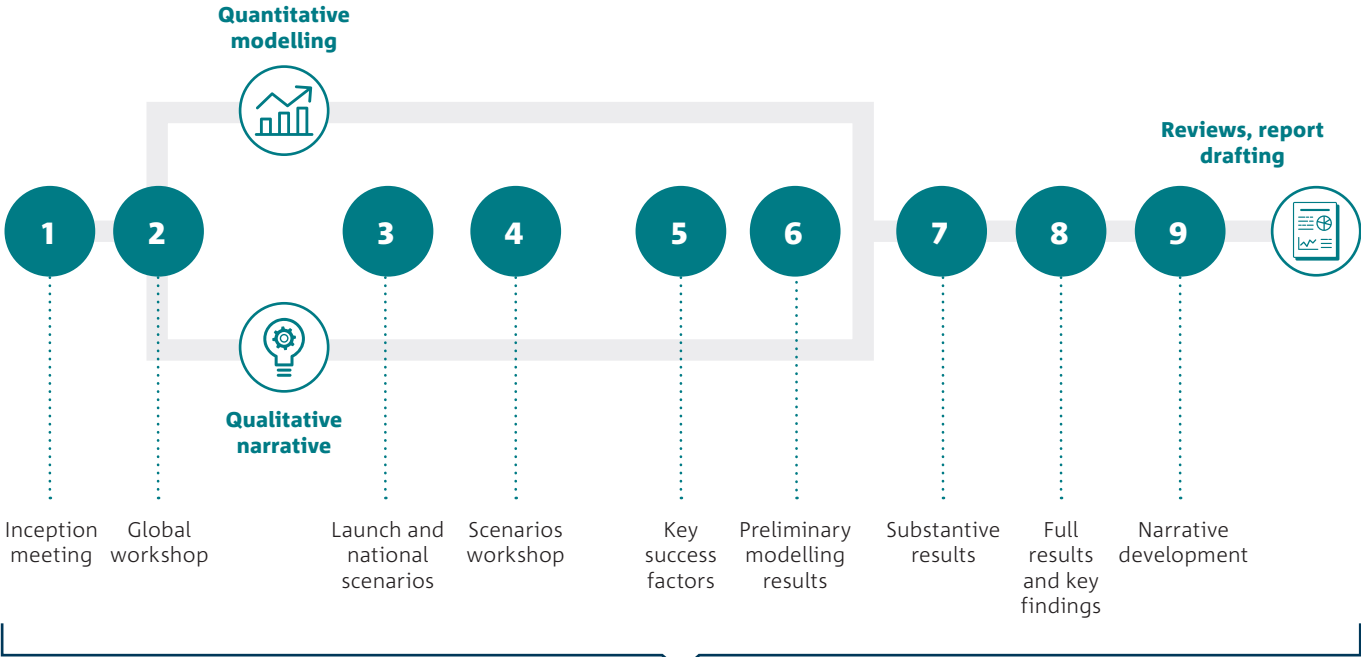




Executive summary

The *Australian National Outlook 2019* combines CSIRO’s integrated modelling and research with input from National Outlook participants, a group comprised of over 50 leaders across 22 leading Australian organisations from industry, the not-for-profit and education sectors, to provide a compelling view about Australia’s future.

Through a highly collaborative process over two years, participants explored several possible outcomes for the nation in order to help Australians continue to enjoy the best quality of life available to any nation, and for future generations to have access to even better opportunities.



SHARED PARTICIPANT VISION	Prosperous and globally competitive industries	Inclusive and enabling communities	Sustainable natural endowments	Strong public and civic institutions

The challenges ahead

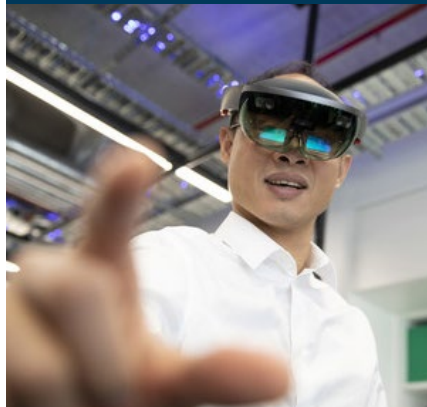
Australia has enjoyed nearly three decades of uninterrupted economic growth.¹ Its cities are consistently ranked among the most liveable in the world,² its landscapes and marine ecosystems are both beautiful and productive, and historically Australia has enjoyed strong social cohesion that has fostered consensus on its most difficult national challenges. However, there is no guarantee that this good fortune will continue into the future. The world is changing rapidly and Australia will need to adapt to keep up. In particular, there are six main challenges National Outlook participants identified:

RISE OF ASIA



RISE OF ASIA is shifting the geopolitical and economic landscape. By 2030, the Asia–Pacific region will be home to 65% of the world’s middle class.³ However, unless Australia can boost its competitiveness and diversify its export mix to meet changing demands, it risks missing out on this opportunity and remaining vulnerable to external shocks.

TECHNOLOGICAL CHANGE



TECHNOLOGICAL CHANGE, such as artificial intelligence, automation and advances in biotechnology are transforming existing industries and changing the skills required for high-quality jobs.⁴ Unless Australia can reverse its recent declines in educational performance,⁵ its future workforce could be poorly prepared for the jobs of tomorrow.

CLIMATE CHANGE AND ENVIRONMENT



CLIMATE CHANGE AND ENVIRONMENT poses a significant economic, environmental and social threat globally and for Australia. The world has already experienced warming of approximately 1°C from pre-Industrial levels⁶ and could be on a path to 4°C global warming (or worse) by 2100 unless significant action is taken to reduce greenhouse gas emissions.

1 OECD (2017) OECD economic surveys: Australia, Overview. OECD

2 The Economist Intelligence Unit (2018) The global liveability index 2018. The Economist Group

3 Kharas H (2017) The Unprecedented Expansion of the Global Middle Class: An Update. Brookings Institution.

4 Schwab K (2016) The Fourth Industrial Revolution: what it means, how to respond. World Economic Forum

5 Thomson S, De Bertoli L, Underwood C (2015) PISA 2015: A first look at Australia’s Results. Australian Council for Educational Research

6 BoM and CSIRO (2018) State of the Climate 2018. <http://www.bom.gov.au/state-of-the-climate>

DEMOGRAPHICS



DEMOGRAPHICS is growing and ageing, putting pressure on cities, infrastructure and public services. At current rates, Sydney and Melbourne will each house 8–9 million people by 2060, and workforce participation rates will drop from 66% to 60%.^{7,8} Investment in infrastructure and services will need to keep up as Australia's population as a whole approaches 41 million.⁹

TRUST



TRUST in governments, businesses, non-governmental organisations and the media has declined.¹⁰ Unless trust can be restored, Australia will find it difficult to build consensus on the long-term solutions required to address the other challenges.

SOCIAL COHESION



SOCIAL COHESION measures have declined over the past decade, with many Australians feeling left behind.¹¹ Although the drivers of social cohesion are complex, issues related to trust, as well as factors such as financial stress, slow wage growth and poor housing affordability, may all play a role.

7 Australian Bureau of Statistics (ABS) (2018) 6202.0 - Labour Force, Australia (Table 1). ABS

8 Productivity Commission (2013) An Ageing Australia: Preparing for the Future. Australian Government

9 Australian Bureau of Statistics (ABS) (2013) Population Projections, Australia, 2012 (base) to 2101 ABS 32220. ABS

10 Edelman (2018) 2018 Edelman Trust Barometer global report. Edelman

11 The Scanlon Foundation (2017) Mapping social cohesion, the Scanlon Foundation surveys 2017. Monash University

A strong vision for Australia

Informed by the evidence, National Outlook participants explored multiple potential futures and identified two contrasting scenarios for Australia in 2060: *Slow Decline* and the *Outlook Vision*. In *Slow Decline*, Australia fails to adequately address the global and domestic issues, resulting in declining economic, social and environmental outcomes. In the *Outlook Vision*, Australia takes decisive action and a long-term view, achieving much more positive outcomes. Drawing on CSIRO’s integrated modelling, this report shows that the difference between these two scenarios is large and worth fighting for.



Slow Decline

In *Slow Decline*, Australia drifts into the future. Economic growth, investment and education outcomes are all relatively weak. Australia’s economy is increasingly vulnerable to external shocks. Total Factor Productivity (TFP) growth remains well below the global frontier and wage growth is relatively low.

Australia’s cities sprawl outwards, making it more difficult for people in the outer suburbs to access jobs, education and services. Housing affordability remains a major concern. This deepens social divisions and polarisation. Trust in institutions remains low.

Although energy policy issues are resolved domestically, the low-emissions energy transition is stymied by a lack of global cooperation on climate change. Both energy and agricultural productivity remain relatively low.



GDP grows at **2.1%** annually

Real wages are **40% higher** in 2060 than today



Cities sprawl with **little change** in density



Average urban vehicle kilometres travelled per capita **falls by less than 25%**



Net emissions **decrease to 476 MtCO₂e** by 2060 (-11% on 2016 levels)

61% increase in **total energy use** by 2060 (on 2016 levels), with only a modest improvement in energy productivity



61%

38%

Households spend **38% less** on electricity as a percentage of income

Returns to landholders increase by around **\$18 billion** between 2016 and 2060



Minimal environmental plantings in 2060



Outlook Vision

In the *Outlook Vision*, Australia reaches its full potential. Economic growth remains strong and inclusive as Australian companies use technology to move productivity towards the global frontier and create new globally competitive, export-facing industries. Improved educational outcomes give Australians the skills they need to compete in this technology-enabled workforce.

Australia’s cities are dynamic and diverse global centres with higher-density populations, a diverse range of affordable housing options and equal access to high-quality jobs, recreation, education and other services.

Australia successfully transitions its energy system, with high reliability and affordability and lower emissions.

If the world cooperates to limit climate change to 2°C, Australia can go even further and reach ‘net zero’ emissions by 2050, driven by significant shifts in land use to carbon plantings.

GDP grows at **2.75–2.8%** annually

Real wages are **90% higher** in 2060 than today



Average density of major cities **increases 60–88%**



Average urban vehicle kilometres travelled per capita **reduced by 33–45%** with greater uptake of mass transit



Australia reaches **net-zero emissions** by 2050 under a cooperative global context, with the potential for net-negative emissions by 2060

6–28% increase in **total energy use** by 2060 (on 2016 levels) with more than a doubling of energy productivity per unit of GDP



6–28%

58–64%

Returns to landholders increase by **\$42–84 billion** between 2016 and 2060



Households spend up to **64% less** on electricity as a percentage of income



11–20 Mha of environmental plantings in 2060 under a cooperative global context (12–24% of intensive agricultural land)

Five key shifts

Achieving the positive outcomes described in the *Outlook Vision* is within Australia's grasp, but will require significant action and long-term thinking across a range of important issues. Through an iterative process, CSIRO worked with National Outlook participants to interpret the modelled results and identify five core shifts for Australia.



INDUSTRY

An INDUSTRY shift will enable a productive, inclusive and resilient economy, with new strengths in both the domestic and export sectors.

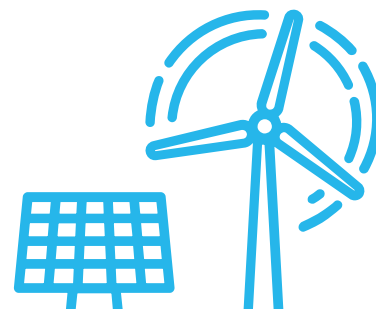
- Increase the adoption of technology to boost productivity in existing industries that have historically supported Australia's growth, as well as new industries.
- Invest in skills to ensure a globally competitive workforce that is prepared for technology-enabled jobs of the future.
- Develop export-facing growth industries that draw on Australia's strengths and build competitive advantage in global markets and value chains.



URBAN

An URBAN shift will enable well-connected, affordable cities that offer more equal access to quality jobs, lifestyle amenities, education and other services.

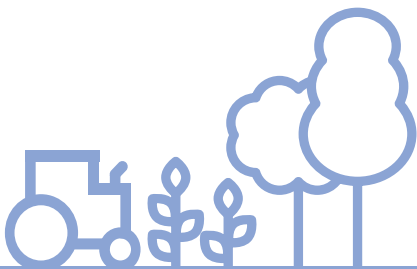
- Plan for higher-density, multicentre and well-connected capital cities to reduce urban sprawl and congestion.
- Create mixed land use zones with diverse high-quality housing options to bring people closer to jobs, services and amenities.
- Invest in transportation infrastructure, including mass-transit, autonomous vehicles and active transit, such as walking and cycling.



ENERGY

An ENERGY shift will manage Australia's transition to a reliable, affordable, low-emissions energy economy that builds on Australia's existing sources of comparative advantage.

- Manage the transition to renewable sources of electricity, which will be driven by declining technology costs for generation, storage and grid support.
- Improve energy productivity using available technologies to reduce household and industrial energy use.
- Develop new low-emissions energy exports, such as hydrogen and high-voltage direct current power.



LAND

A LAND shift will create a profitable and sustainable mosaic of food, fibre and fuel production, carbon sequestration and biodiversity.

- Invest in food and fibre productivity by harnessing digital and genomic technology, as well as using natural assets more efficiently.
- Participate in new agricultural and environmental markets, such as carbon forestry, to capitalise on Australia's unique opportunities in global carbon markets.
- Maintain, restore and invest in biodiversity and ecosystem health, which will be necessary to achieve increased productivity.



CULTURE

A CULTURE shift will encourage more engagement, curiosity, collaboration and solutions, and should be supported by inclusive civic and political institutions.

- Rebuild trust and respect in Australia's political, business and social institutions.
- Encourage a healthy culture of risk taking, curiosity and an acceptance of fear of failure to support entrepreneurship and innovation.
- Recognise and include social and environmental outcomes in decision-making processes.

CSIRO, your national science agency: solving Australia's greatest challenges

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