



Towards Net Zero

Decarbonising Australia's hard-to-abate sectors

The transition to net zero will require change in most sectors of the economy. But it will also present new opportunities which Australia is well placed to grasp. Processes involved in stationary energy production, fuel use, and passenger transport accounted for 80% of Australia's accountable emissions in 2020. The challenge to reduce emissions from these sources is underway. However, a national net zero target needs us to address all emission sources.

The last 20% involves industries such as steel, aviation and agriculture that make critical economic contributions to Australia's prosperity, helping shape the fabric and vibrancy of regional Australia.

What we're doing about it

The Towards Net Zero mission focuses on supporting the construction of low emissions industry value chains. Working with government, industry, and communities to ensure that place-based benefits are realised, and risks anticipated so that opportunities for technology deployment into broader systems of use are identified and coordinated.

By focusing on three industry value chains; iron ore to steel, sustainable aviation fuel and agriculture the mission will accelerate decarbonisation in these sectors and use learnings to identify approaches for other hard-to-abate sectors.

We take both a value chain and a place-based focus. The value chain focus creates technological pathways for change, while the place-based focus works with regions and communities where value chain transformation effects are felt. Intersecting with other societal goals that determine which transition pathways are preferred.

The planned impact is that by 2035, hard-to-abate sectors reduce emissions by half, and in doing so generate environmental, societal, and regional benefits.

As Australia's national science agency and innovation catalyst, CSIRO is solving the greatest challenges through innovative science and technology.

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Contact us

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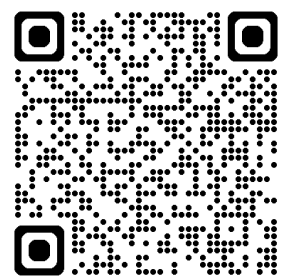
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For further information

Towards Net Zero

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Towards Net Zero

Programs of Work

The Towards Net Zero mission is building Australia's national capability to transition to net zero emissions by enabling Australia to prosper in a low emissions world through new economic, societal and environmental value.



Our Role

- Increase Australia's technology choices, and inform pathway choices.
- Provide an evidence base for policy and regulatory interventions and industry investments.
- Build learning networks and analytic tools to accelerate the net zero transition towards agreed societal goals.
- Build regional transition examples and demonstrators to understand requirements for technology scaling and reduce investment risk.

Some of our Research & Impact

New Options and Technology

- Genotyping/phenotyping to establish giant kelp strains for restoration that are tolerant to warmer oceans.
- Rumen ecology to develop new and scale existing anti-methanogenic feed additive technologies.
- Novel techniques to assess animal methane emission using animal tissue isotopic composition.
- Low temperature iron ore agglomeration.
- Analysis of 60+ global net zero transitions to identify transferable patterns for transformative change.
- Assessing co-benefits and risk reduction outcomes of coupling net-zero and broader sustainability transitions.
- Next generation power to liquid fuels.

Development for Real World Applications

- Developing technology pathways, feedstocks and processes to decarbonise iron and steelmaking.
- Designing assessment frameworks to assess biodiversity benefits and trade-offs from carbon projects with cutting edge ecology approaches.
- Developing and demonstrating enabling technology for low-cost, high-volume production of renewable micro-algal oils for plastics and fuels.
- Executing integrated economic assessment capability to model emissions reduction trajectories and understand trade-offs/multi-metric outcomes.
- Building capacity of SMEs to participate in the low emissions economy.

Innovation Uptake & Scaling

- Biomass gasification project through the Aus-India Green Steel Partnership.
- FutureFeed scale-up to tackle enteric methane.
- Establishment with industry community and levels of govt an enduring Industrial Regions Network to share learning and identify actions.
- Analysing supply/demand for low emissions liquid fuel feedstocks and production in Australia.
- Underpinning financial instruments to scale low-emissions agriculture practices with science.
- National bio sequestration assessment potential for revision of national emission reduction target.
- Developing new evidence-based funding mechanisms for low emissions agriculture.