



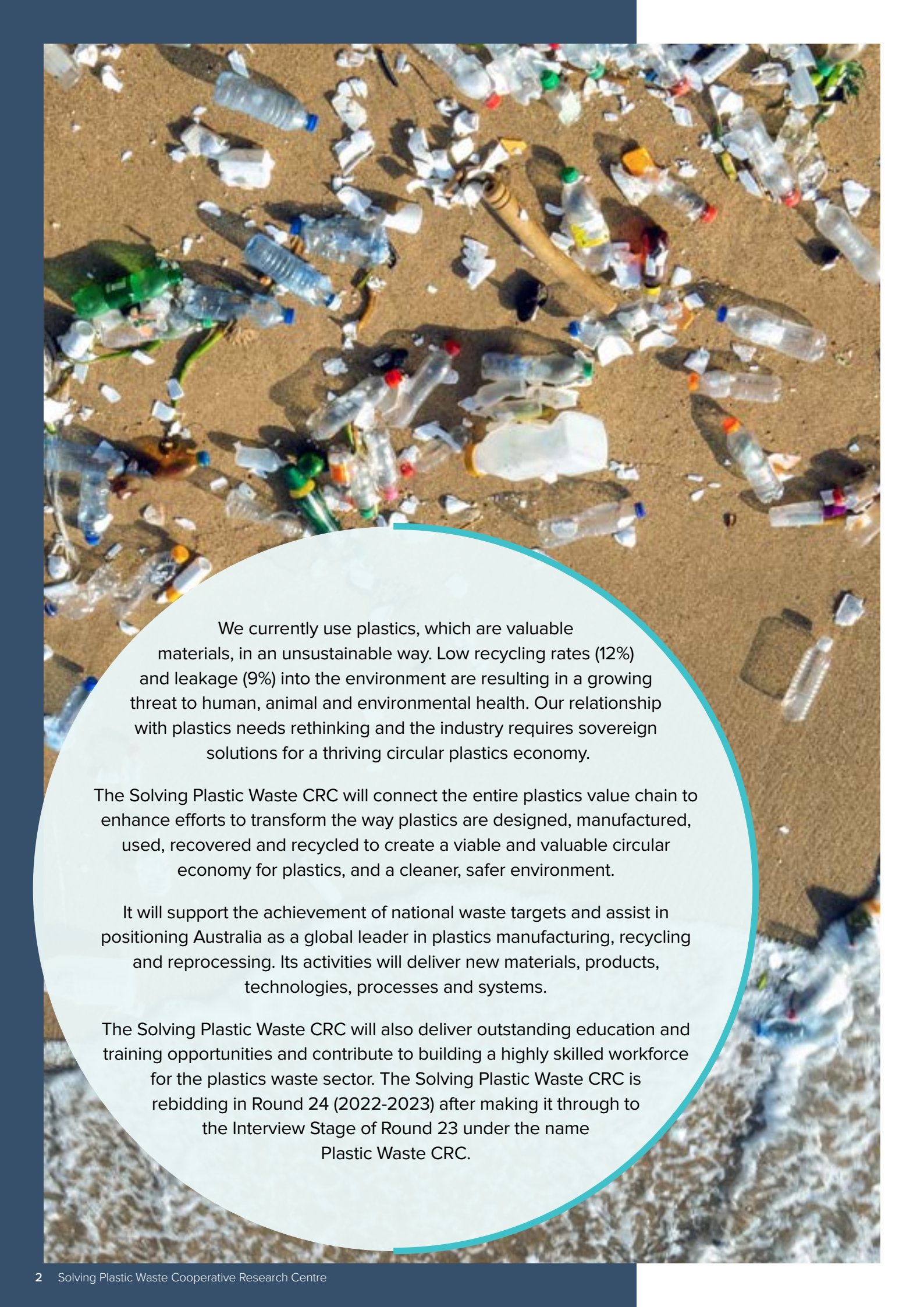
# Solving Plastic Waste

Cooperative Research Centre

*Growing the circular economy for plastics*

Changing the way we design and use plastics to contribute to a circular economy and a cleaner, safer environment





We currently use plastics, which are valuable materials, in an unsustainable way. Low recycling rates (12%) and leakage (9%) into the environment are resulting in a growing threat to human, animal and environmental health. Our relationship with plastics needs rethinking and the industry requires sovereign solutions for a thriving circular plastics economy.

The Solving Plastic Waste CRC will connect the entire plastics value chain to enhance efforts to transform the way plastics are designed, manufactured, used, recovered and recycled to create a viable and valuable circular economy for plastics, and a cleaner, safer environment.

It will support the achievement of national waste targets and assist in positioning Australia as a global leader in plastics manufacturing, recycling and reprocessing. Its activities will deliver new materials, products, technologies, processes and systems.

The Solving Plastic Waste CRC will also deliver outstanding education and training opportunities and contribute to building a highly skilled workforce for the plastics waste sector. The Solving Plastic Waste CRC is rebidding in Round 24 (2022-2023) after making it through to the Interview Stage of Round 23 under the name Plastic Waste CRC.

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# Why a Solving Plastic Waste CRC?

A national and strategic approach under the enabling collaborative structure of a Cooperative Research Centre is essential to enhance and support Australian efforts to find and develop solutions to challenges associated with our use of plastics.

Accelerated by market and policy pressure to reduce waste and emissions, Australian businesses are well positioned to become competitive global players through innovation and collaborative R&D. The Solving Plastic Waste CRC will provide a new platform to unite and galvanise key stakeholders to jointly develop leading solutions for the challenge of plastic waste.

The CRC will deliver outstanding research, education and training opportunities, and build capabilities throughout the value chain. It will address the plastic waste challenge at a sovereign level, working in harmony across the plastics value chain to enable a national outcome that can position Australia as a global leader.



## Our Vision

Sovereign solutions for a thriving circular plastics economy

## Our Mission

The Solving Plastic Waste CRC will rethink the way we design, use, and reuse plastics to create a viable and valuable circular economy for plastic, and a cleaner, safer environment.

## Proposed outcomes

- New jobs, skills and regional solutions
- Growing sustainable businesses and new markets
- A valuable circular economy for plastics
- Galvanising industry and stakeholder action
- Delivering national waste targets

## Our bid

With remarkable support from our partners in our Round 23 bid under the name Plastic Waste CRC, we secured approximately \$47 million in cash and \$87 million in in-kind contributions. In this Round 24 bid, the Solving Plastic Waste CRC intends to raise \$50 million in cash commitments from its partners, with a request for matched Commonwealth funding which, in addition to the in-kind contributions, could see the CRC conduct \$180-200 million of industry-driven high-impact research over 10 years.

## Our partners

The Australian plastics value chain is complex, comprising a diverse array of upstream and downstream stakeholders of varying scale, sophistication and business interest. The Solving Plastic Waste CRC can deliver value to a range of organisations including: raw material suppliers; manufacturers and converters; retailers and brand owners; local government authorities; waste management and recycling companies; State government agencies; industry bodies; and non-government organisations.

## Our research

Our research will incentivise further industry action to deliver national waste targets, positioning Australia at the forefront of plastics design, manufacturing, models of reuse, recycling and reprocessing. It will serve as a significant platform in supporting the achievement of Australia's Plastics Plan and National Waste Action Plan targets.



## Our outputs

Key outputs will include:

- new plastics that can be manufactured using Australian sourced renewable materials and valorisation principles
- demonstration of economically viable innovative systems, products, materials and technologies for reuse, remanufacture and recycling
- plastic material flow and recycling information apps, evidence-based decision support tools, and education and behaviour change tools
- innovative and valuable circular business models
- new systems thinking to inform avoidance of plastic usage and therefore waste
- new approaches and technologies to detect, remove and remediate plastic pollutants
- guidance to inform the setting of industry standards

The CRC's critical legacy will be PhD students and researchers who are well trained through industry experience and can lead the new circular economy for plastics.



## Education and training program

The CRC's education and training program complements all four research programs through increased engagement, development of new technology, preparation of skilled employees, and enhanced research and development capacity within industry entities. It will include:

- Access to a Pilot Plant Platform for training and early-stage commercialisation
- National and International Meetings for facilitating sharing of best practices and technology diffusion
- Conferences and Showcases for new technologies and developments
- A PhD and Postdoctoral Fellows' Program
- Postgraduate and graduate degree courses
- Micro credentials and Continuing Professional Development programs
- Vocational and Graduate Certificate programs
- School level programs to attract talent in the circular plastics economy
- Urban, Remote, Rural and Indigenous community education tools and workshops



## Proposed research programs



## Towards Net Zero Emissions



### Zero Plastic Waste at the 2032 Olympics & Paralympics

A key project within Research Program 4 will be to support the 2032 Brisbane Olympics and Paralympics to meet global, national and community expectations to deliver a zero plastic waste event.

# Proposed research programs



## Research Program 1: Plastics design for circularity



This program will design, develop, manufacture, and commercialise new plastic materials and products that enable greater avoidance, reuse, recycling, decomposability, and degradability - minimising waste production and creating new and profitable circular businesses, jobs and capabilities.

Priority areas of research interest identified by industry and end-users include:

- Bio-based/Bio-sourced plastics
- Easy-to-recycle plastics
- New plastics to infinite recyclability
- Malleable and recyclable thermosets
- Biodegradable and compostable plastics
- Reusable Plastics
- Plastics demonstration plant for circular economy



## Research Program 2: Transforming plastic waste



This program will develop and commercialise new technologies that maximise plastic recycling and value through better sorting and separation, recycling technologies and processes optimisation creating new advanced manufacturing opportunities, regionally-based recycling infrastructure and facilities, skills and jobs.

Priority areas of research interest identified by industry and end-users include:

- Artificial Intelligence (AI) techniques for smart sorting of mixed plastic wastes
- Advanced mechanical and chemical plastic recycling processes
- Upcycling plastic waste for high value-added applications
- Transforming plastic waste into synthetic gas, hydrogen and synthetic liquid fuel
- Life Cycle Assessment (LCA) models for plastic waste management
- Standards and specifications for plastic waste derived materials/products





### Research Program 3: Clean up and remediation of the environment



This program will develop approaches and new technologies to detect, remove and remediate plastic pollutants and to minimise further plastic waste entering the environment, thereby reducing the potential impacts of plastic pollution on human, animal and environmental health.

Priority areas of research interest identified by industry and end-users include:

- Detection of macroplastics in aquatic and terrestrial environments
- Technologies for removal of plastics from aquatic environments
- Determining microplastic contamination in Australia's agricultural land and vegetation
- Mitigation of plastic pollution in environmental matrices
- Developing Hierarchical Assessment Tools (HAT) and novel protocols for evaluating impacts and risk of plastic pollution



### Research Program 4: Collaborating for a circular plastics economy



This cross-cutting program will develop innovative education tools and effective engagement and collaboration across key stakeholder groups to rethink and reimagine how we develop and implement a viable and valuable circular economy for plastics in urban, regional, and remote communities.

Priority areas of research interest identified by industry and end-users include:

- Evidence-based Decision Support Tools for industry and government
- Spatial mapping of plastic material flows
- Mapping stakeholder innovations for circular collaboration
- Engagement and behaviour change in urban, regional and remote communities
- Enabling a circular economy for plastic via product stewardship and reuse
- Zero plastic waste 2032 Olympics and Paralympics



## What is a CRC?

The Cooperative Research Centre (CRC) Program is a Commonwealth Government program providing grants for up to 10 years.

CRCs are independent entities, established and governed as incorporated companies limited by guarantee and comprise industry led collaborations between industry, researchers and the community. The focus is on research and development that will have commercial uses. The CRC program aims to improve the competitiveness, productivity and sustainability of Australian industries, especially in government priority areas, use high quality research to solve industry identified problems, and encourage SMEs to take part in collaborative research.

With more than 230 CRCs being funded since the program's commencement, the Australian Government has committed more than \$4.8B in CRC funding.

## Solving Plastic Waste CRC Governance

The Solving Plastic Waste CRC will be established as a not-for-profit company limited by guarantee. It will be governed by a majority independent skills-based board.

The Solving Plastic Waste CRC has a Term Sheet, developed in consultation with its partners, which further articulates the governance and management of the CRC and will form part of the package of information made available to prospective CRC partners.

## Next steps

We are building upon the feedback from Round 23 application and working with our industry partners to refine the Research Programs to develop an even stronger Solving Plastic Waste CRC bid for Round 24.

We welcome discussions with organisations interested in being partners in the CRC as we continue to prepare for the Round 24, Stage 1 bid submission.

# Participating in the Solving Plastic Waste CRC

The Solving Plastic Waste CRC has three Partner categories, plus the potential to engage in CRC Projects under a Third-Party arrangement.

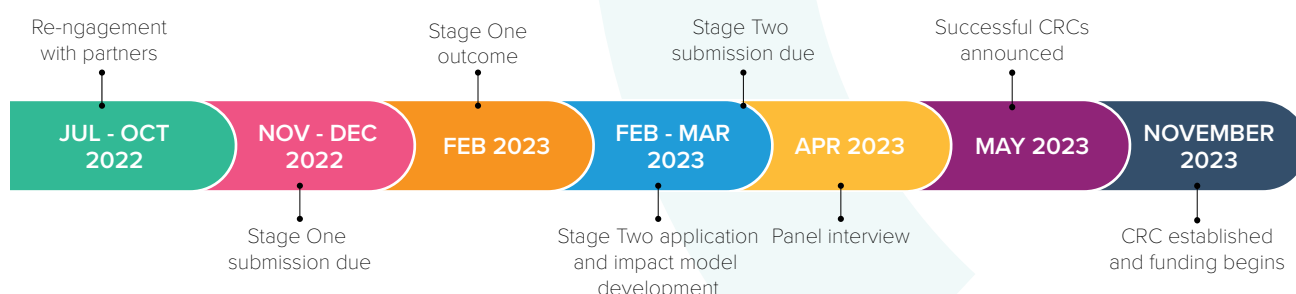
1. Core Partner	Cash contribution of \$200k and above per annum
2. Key Partner	Cash contribution of \$100k - \$199k per annum
3. Supporting Partner	Cash contribution of \$50k - \$99k per annum or a combination of cash and significant in-kind contributions which are deemed critical by the bid team for delivering project outcomes
Third Party	Typically providing in-kind contributions to specific projects

Third Parties and other interested organisations that are not Partners will have the opportunity to engage with the CRC as Associate Members, with benefits that include invitations to attend seminars and other networking events plus regular news updates and reports.

The high-level benefits associated with each Partner Tier and Third Parties are outlined below:

Tier	Core	Key	Supporting	Third-Party*
Membership of CRC Company	✓	✓	✗	✗
Nominate Board Members	✓	✓	✓	✗
Nominate a representative to Research Program Consultative Committees	✓	✓	✗	✗
Access to industry embedded PhD and Masters students and opportunity for co-supervision	✓	✓	✗	✗
Nominate projects	✓	✓	✓	✗
Discounted professional training and development	✓ (tailored)	✓	✓	✗
May be eligible for offsets under the R&D tax incentive	✓	✓	✓	✗
Other benefits, including participation in CRC conferences, seminars and other networking events; regular news updates and reports	✓	✓	✓	✓

## Timeline (anticipated)



To find out how to become a participant in the Solving Plastic Waste CRC, or for more information, contact:

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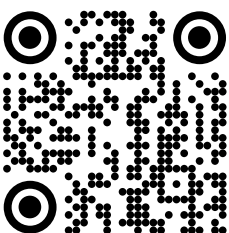
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