ACOR

AUSTRALIAN COUNCIL OF RECYCLING

The Economic Contribution of the Australian Recycling Industry

May 2023

AEAS

Australian Economic Advocacy Solutions

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Executive Summary

Australian Economic Advocacy Solutions (AEAS) was commissioned by ACOR (Australian Council of Recycling) to determine the economic benefit of the Australian recycling industry to the Australian and State economies.

The Australian recycling industry in 2021–22 recycled an estimated **40.6 million tonnes** of material. Across the decade the Industry's recycled tonnage has grown by 3.1 per cent each year, compared to Australia's average population growth rate across the same time of 1.4 per cent.

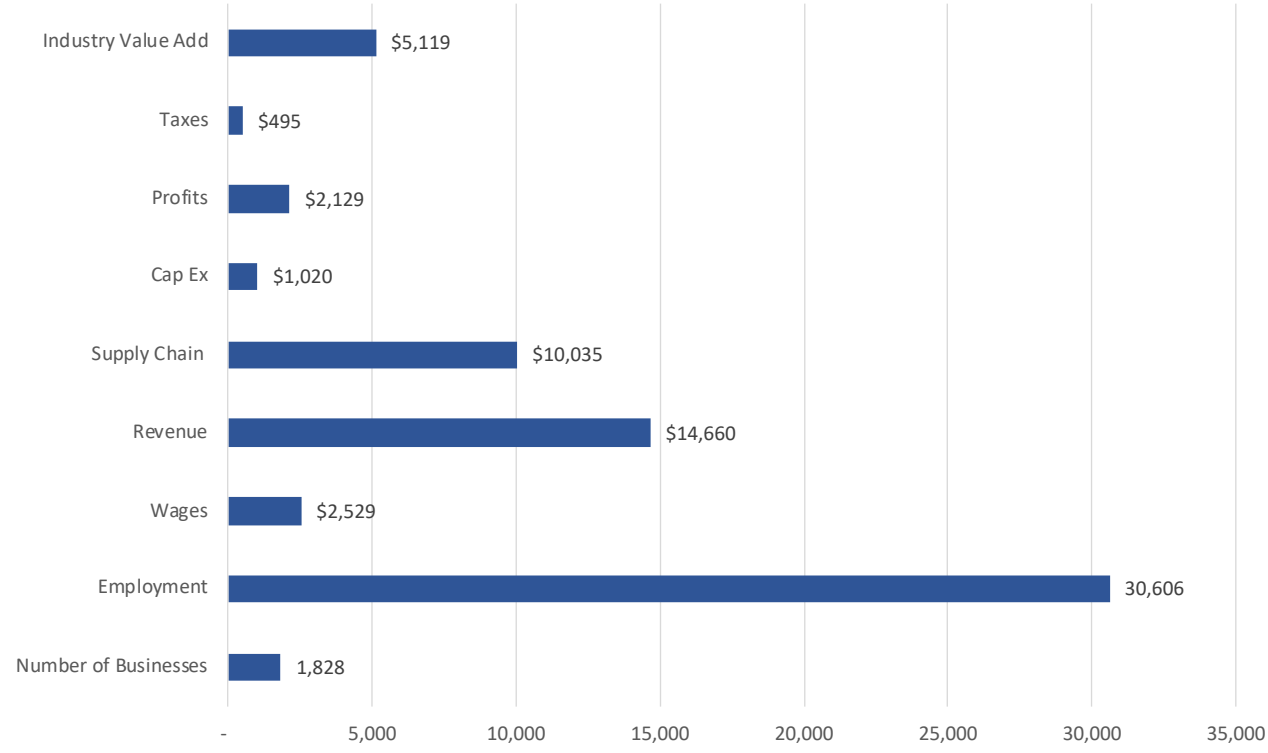
Australia's overall material recycling rate in 2021–22 is estimated at 63.1 per cent, equating to 1,568 kilograms of recycled material for each person in Australia.

Direct Economic Benefit

The Australian recycling industry is an important contributor to the Australian economy. Results of a macro-economic analysis of the Industry reveal the following:

- 1,828 businesses operating;
- Recycled and processed 40.6 million tonnes of material in 2021–22;
- Providing 30,606 jobs to Australian residents;
- Pays over $2.5 billion in wages and salaries and an additional $253 million towards employee superannuation;
- Provides an average livelihood to each employee within the industry of $82,618 which compares to Australian average weekly earnings of $69,103;
- Has a collective industry turnover of over $14.6 billion;
- Sources and provides $10 billion in benefit across its supply chain;
- Invested over $1 billion in 2021–22 million in land, buildings, plant and equipment and vehicles each year; and
- Contributes $5.1 billion in industry value add to the Australian economy.

Figure: Direct contribution of Australian recycling industry, 2021–22 key economic metrics ($ millions and persons)



Source: AEAS 2022

The Australian recycling industry has grown at a higher rate than commensurate economic indicators for the Australian economy over the past decade. The Industry's value add in current prices has grown across the past decade by 117.1 per cent, significantly higher than Australia's gross domestic product (45.8 per cent). Industry employment has grown by 68.8 per cent compared to Australia's nationwide employment growth of 17.4 per cent over the same period.

Indirect Economic Benefit

The Australian recycling industry is estimated to contribute a further:

- $5.8 billion in industry value add to GDP through flow-on demand for goods and services, including production and consumption induced effects; and
- 25,709 indirect jobs provided through flow on activity.

Enabled Economic Benefit

The Australian manufacturing and agricultural industries usage of recyclates including plastics, metals, glass, paper and cardboard, masonry materials, tyres and organics creates further economic and employment benefit. Usage of recycled materials for further value add in the Australian economy is valued at $7,892 million in 2021–22 and providing an estimated 37,920 jobs.

Total Economic Benefit

Combining direct, indirect and enabled benefits, the Australian recycling industry is estimated to have contributed $18.9 billion in value add to the Australian economy and provided 94,235 jobs in 2021–22.

Table: Total economic contribution to the Australian economy, 2021–22 ($ millions, current prices)

	$ millions
Direct	$5,119.1
Indirect	$5,856.2
Enabled	$7,892.2
Total	$18,867.5

Source: AEAS 2022

Table: Total employment contribution, 2021–22 (persons)

	persons
Direct	30,606
Indirect	25,709
Enabled	37,920
Total	94,235

Source: AEAS 2022

Australian Recycling Industry's Importance

The Australian recycling industry is assessed to be both an importance economic and employment contributor, providing:

- 0.82 cents in every dollar of economic activity in Australia; and
- 0.7 jobs in every 100 jobs in Australia; that is, for every 142 jobs that exist in the Australian economy, the Australian recycling industry provides one of those jobs.

Expressed alternatively, through the Australian recycling industry:

- $465 in net economic activity is created for every one tonne of material recycled; and
- one job is supported for every 431 tonnes of material recycled in Australia.

Furthermore, Australia's commitment to raise the nation's overall waste recovery rate to 80 per cent by 2030 will lead to the economic and employment contribution measures in this report progressively rising over the period to 2030 and beyond.

1.0 Introduction

1.1 Overview

Almost all households, businesses and government entities interact with the Australian recycling industry, either directly or indirectly. As such, the recovery and processing of materials is an essential function of the economy. The Industry recovers valuable resources generated during extraction, building and construction and manufacturing processes and those later discarded by society, thereby driving a circular economy and contributing to the economic growth of Australia.

1.2 Australian Council of Recycling (ACOR)

ACOR is the leading national industry association for the recycling and resource recovery sector in Australia and is leading the transition to circular economy in Australia. Its commendable vision is an Australian circular economy where resource recovery, remanufacturing and recycling are central to generating economic and social value, while improving the health of Australia's environment.

It represents businesses who are part of a successful multi-billion industry that employs tens of thousands of Australians, at the same time generating considerable environmental benefits to society.

The industry operates across residential homes, businesses, factories and construction sites. It collects, sorts, and reprocesses material, and makes new products with recycled content. ACOR's members span the breadth and depth of Australian recycling, with businesses working to:

- collect, sort and remanufacture recyclate into new products;
- build a domestic circular economy, along with increasing the amount of locally sourced and recycled materials;
- beneficially manage materials from the residential, commercial, industrial, and major infrastructure areas, and;
- process materials ranging from household packaging, tyres and container deposit scheme products to road construction material, batteries, e-waste and more.

Figure 1: Australia's circular economy

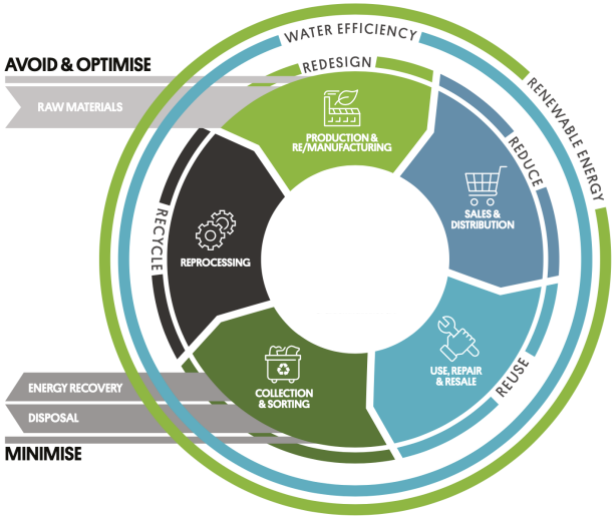
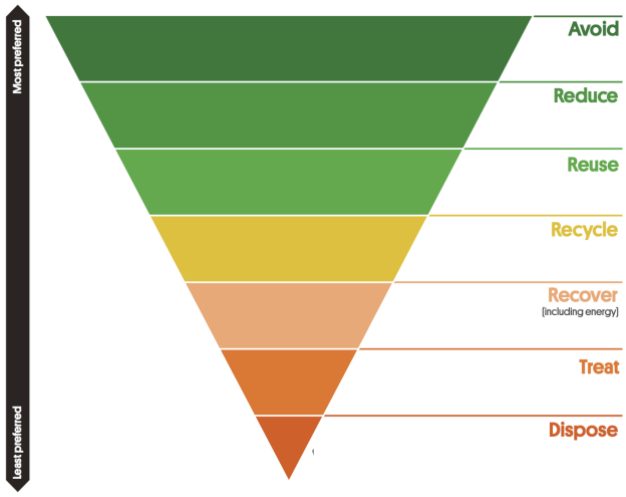


Figure 2:Australia's waste hierarchy



Source: Green Industries SA

Increasingly, as Australia moves towards its net zero target, processes adopted by Australian industry are reflecting the waste hierarchy, thereby driving a circular economy and directly contributing to the economic growth of Australia. This has resulted in the recycling industry increasingly seen as a vitally important sector manufacturing input for value add in the economy, as opposed to the historic management and processing of waste material.

The recovery of resources and the efficient operation of the industry in Australia results not only in a variety of tangible environmental benefits, including the reduced use of raw materials, energy and water savings and the avoidance of greenhouse gas emissions, but also considerable economic and employment benefits. This report seeks to measure this benefit.

2.0 Policy Drivers Underpinning Australian Recycling

Australia's recycling industry is operating during a period of evolving government policy with the implementation of the Australian Government's response to climate change, the National Waste Policy and the implementation of an export ban on recycled materials.

2.1 The Paris Agreement

Australian industry is undergoing a major transformation. One of the major drivers for this transformation is the COP21 Paris agreement. The UN Paris Agreement, signed by 196 countries in 2016, committed the world to limit global warming to 1.5 to 2.0 degrees Celsius above pre-industrial levels. This agreement seeks to reach global peak emissions as soon as possible and achieve net-zero emissions in the second half of this century.

To achieve a 1.5-degree pathway, all sectors of the global economy require dramatic emissions reductions over the next ten years. For this to happen, low-carbon technologies are needed to grow quickly, coupled with waste reduction, reuse and recycling, resulting in diversion from landfill reducing emissions and reducing the need for virgin materials and, in turn, their manufacturing emissions. The climate conferences in Glasgow (2021) and Bali 2022 (COP26) continue to show global support for environmental change.

The Australian Government has signed up to the Paris Agreement and set a target of net-zero emissions by 2050 – in line with the Agreement. All Australian states and territories have committed to achieving net zero targets within varying levels of ambition between 2030 and 2050.

2.2 National Waste Policy

The National Waste Policy and Action Plan provides a national framework for action by governments, the business sector, the waste and resource recovery industries, and communities to achieve sustainable waste management and recycling in Australia until 2030.

The policy responds to the challenges facing waste management and resource recovery in Australia, and the China Sword Policy, and reflects the global shift towards a circular economy – including the need for better resource-efficient systems, products and services to avoid waste, to conserve resources and maximise the value of all materials used. It also acknowledges the need to improve our capacity to better design, reuse, repair and recycle goods used.

The following are targets of the National Waste Policy:

1. Ban the export of waste plastic, paper, glass and tyres, commencing in the second half of 2020
2. Reduce total waste generated in Australia by 10 per cent per person by 2030
3. 80 per cent average resource recovery rate from all waste streams following the waste hierarchy by 2030
4. Significantly increase the use of recycled content by governments and industry
5. Phase out problematic and unnecessary plastics by 2025
6. Halve the amount of organic waste sent to landfill by 2030
7. Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions

2.3 Export Ban on Recycled Materials

In August 2019, a decision was made by the Council of Australian Governments (COAG) to establish a timetable to ban the export of waste plastic, paper, glass and tyres, while building Australia's capacity to generate high-value recycled commodities.

Transforming waste material into high-value materials is hoped to create jobs, build a more sophisticated industry, and provide positive outcomes for the environment and community wellbeing. The Commonwealth, state and territory governments and the Australian Local Government Association agreed to a response strategy at the 13 March 2020 COAG meeting.

All unprocessed glass, mixed plastics, whole used tyres, single resin/polymer plastics and mixed and unsorted paper and carboard will be banned for export by July 2024.

Under the ban, action by all levels of government are required in the following key areas: driving demand for recycled content; public education to reduce contamination at its source; investment in recycling and waste infrastructure; improving access to, and quality of, waste tracking data; improving product design and fostering innovation and commercialisation of new technology; and accelerated development of standards for use of recycled material in civil works.

2.4 Implication for Australia's Recycling Industry

It is widely accepted that the Australian recycling industry has a social license in respect to the management, processing and recycling of waste that aligns with the policy directives of Australia's tiers of Government and community expectations. With unprecedented government and industry investment and overwhelming public support for resource recovery, recycling, and local remanufacturing, there is significant opportunity for activating the full potential of Australia's recycling sector through key policy measures.

It is anticipated that the Australian recycling industry's commercial and community importance will be future proofed given the significant market changes arising from the COAG's ban on exports as well as the Australian Government's National Waste Policy and respective state government waste strategies. This has resulted in a renewed, and anticipated to be permanent, focus on developing local markets and resilient nearby supply chains for recycled materials.

3.0. Economics Influencers Underpinning Australian Recycling

Recycling is an integral gear within the circular economy, delivering significant social, economic and environmental value. Increasing resource recovery and transitioning to a circular economy is determined by many factors that will come into play, including costs, markets, infrastructure investment, collection systems and behaviour change among waste generators.

3.1 Population and Economic Growth

Growth in the amount of waste generated and, in turn, its recycling in Australia can be linked to both population and economic activity. A consequence of Australia's fast-growing economy has been the production of large quantities of waste, particularly packaging, construction and demolition (C&D) and dry commercial and industrial (C&I) waste, which accounts for 85.1 per cent of all headline waste. The link between waste generation and population growth is firmly established, whereby more waste is produced through the consumption of goods and services by a larger population. A higher base of waste leads to a requirement of more processing and recycling of waste to occur.

3.2 Economic Viability and Technology

The Australian recycling industry has been recycling materials back into the productive economy for decades, where it has been both economically and technically viable and beneficial. Based on current technology and markets, however, only a portion of waste generation can be recycled. Those materials that are technically, environmentally and economically able to be recovered and processed will be recovered and beneficially reused as inputs for value add in Australia's manufacturing and agricultural sectors. Accordingly, the ongoing challenge is to ensure that economics support Australian materials that are technically or economically suitable for processing, recovery, manufacture and product sale being bought by end users instead of the use of virgin or overseas materials.

3.3 User Markets

The long-standing importance of closing the loop remains, with Australian buyers yet to fully embrace purchasing recycled or remanufactured materials. This is compounded by the offshoring of the manufacturing base in Australia, with reduced local demand for recycled materials as a manufacturing input. As technologies improve and market opportunities grow due to increasing awareness and confidence among end-users of recovered products, the proportion of materials that will be recycled are predicted to grow.

3.4 Implications for Australia's Recycling Industry

Industry feedback indicates a growing trend in maximising the quality of recyclates to buyers to ensure the best product with no contamination meeting buyer and manufacture specifications. Recyclers' processes are transitioning to ensure processes for output are consistent with the specification of the end user's needs. New technology is enabling material recognition, sorting and higher level of sophistication, that in turn has a higher quality output to meet specifications. The industry is also partnering with manufacturers in their operations.

Among the considerations on whether a material can be recycled or repurposed are the following economic attributes:

- Is there a market for it today?
- Is there a technical, environmental and economic process for the material?
- Is there an achievable specification for the material?
- Is there an available distribution or path to market for the materials?
- Is the product able to be sold at commercially competitive market rates?

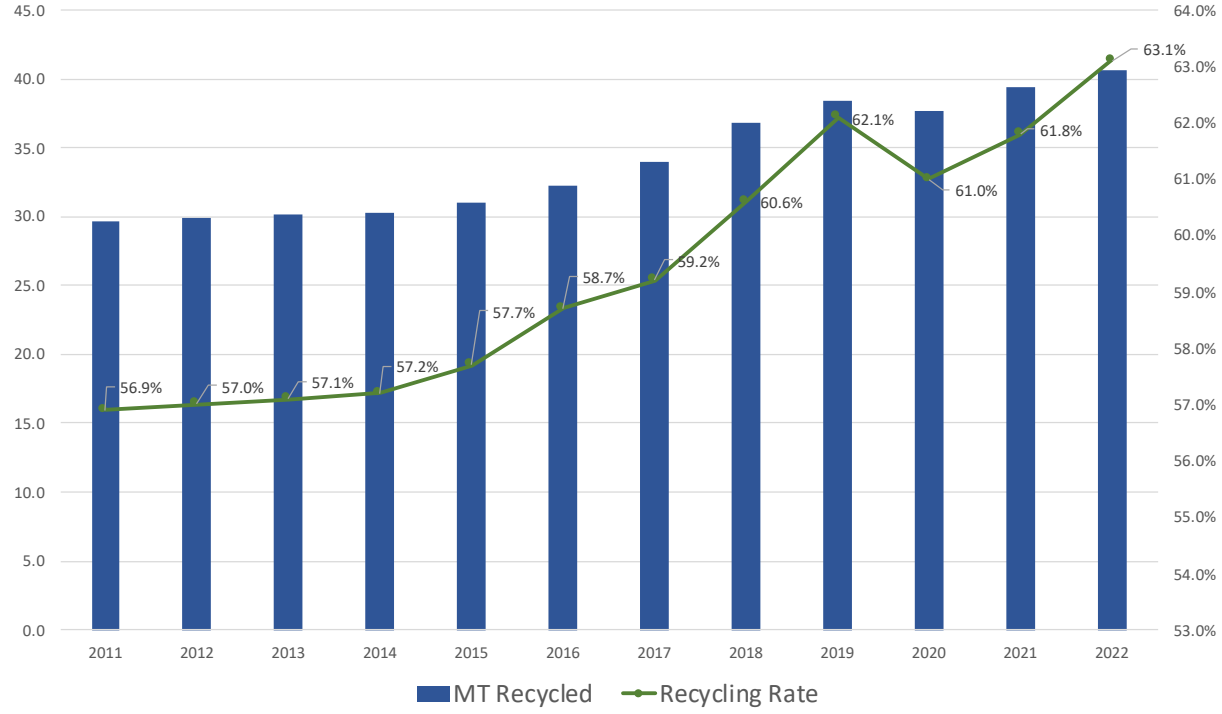
In summary, population and economic growth, economic viability and technology and improved user markets will continue the upward trajectory of Australian recycling. However, further work is needed with a genuine shift to a circular economy also requiring wholesale changes across the whole economy, supply and distribution chains. Change also needs to encompass primary production, extraction, design, manufacturing, energy, distribution and consumption. It also requires substantial revenues raises by waste levies genuinely reinvested by Government in new processing infrastructure to continue to increase the economic and technical attractiveness of Australian recycling.

4.0 Australian Material Recycling Headline Statistics

4.1 Material Recycled in Australia

The Australian recycling industry in 2021–22 is estimated to have recycled 40.6 million tonnes of material. Across the decade the Australian recycling industry's recycled material has grown on average by 3.1 per cent each year and compares to Australia's average population growth rate over the same period of 1.4 per cent.

Figure 3: Material recycled (Mt) in Australia and recycling rate (%)



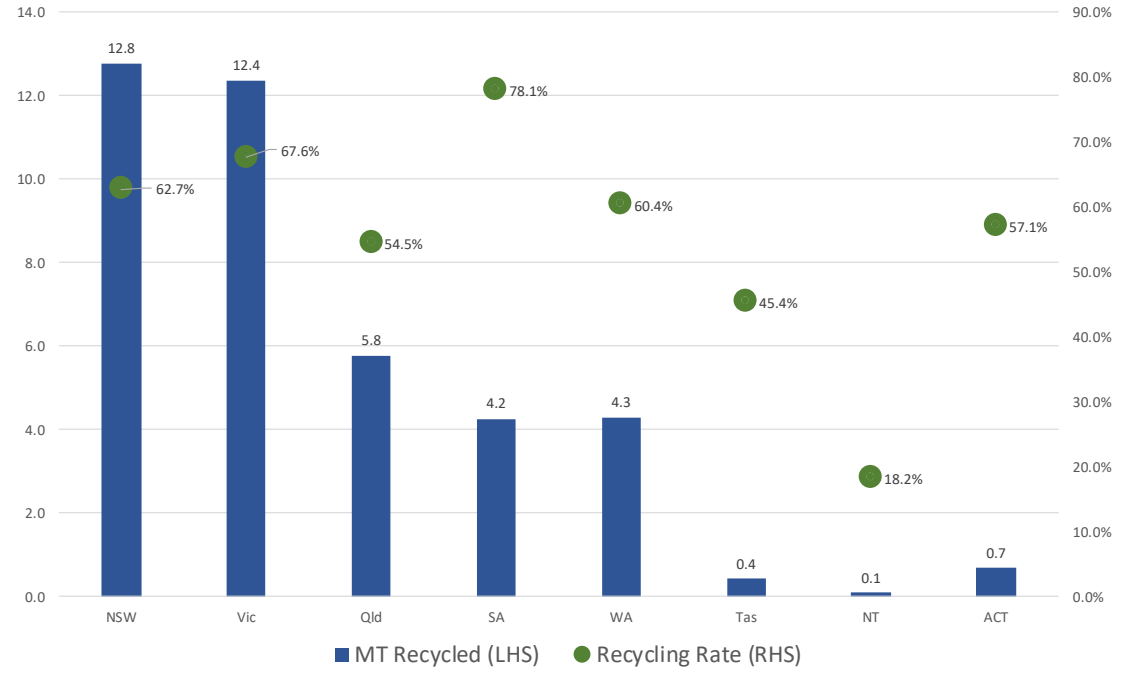
Source: National Waste Report, AEAS 2022

The noticeably higher growth rate for material recycled is largely representative of an increasingly higher portion of material being recycled. This has been driven by both population and economic growth (see section 3) but is also a reflection of technological changes, increased uptake by end users, Local Government collection changes, and both Commonwealth and State Government waste and carbon reduction policies (see section 2.0). Accordingly, across the decade Australia's recycling rate has grown from 57.0 per cent in 2011–12 to an estimated 63.1 per cent in 2021–22.

4.2 Material Recycled by State

New South Wales accounts for the most tonnes of material being recycled in Australia in 2021–22, with 12.8 million tonnes (31.5 per cent of total) in 2021–22. Victoria is the next largest, with 12.4 tonnes (30.4 per cent), followed by Queensland with 5.8 million tonnes (14.2 per cent), Western Australia 4.3 million tonnes (10.6 per cent) and then South Australia with 4.2 million tonnes (10.4 per cent) of material recycled.

Figure 4: Material recycled (Mt) and recycling rate (%) by state, 2021–22



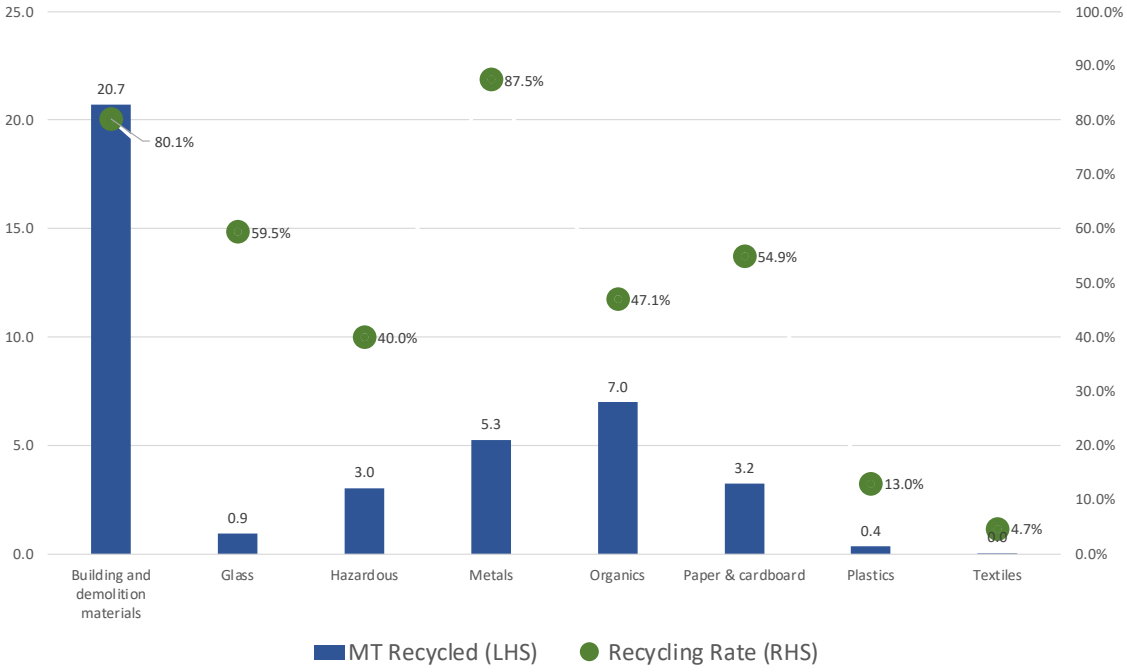
Source: National Waste Report, AEAS 2022

South Australia currently has the highest material recycling rate at 78.1 per cent, followed by Victoria (67.6 per cent), NSW (62.7 per cent), Western Australia (60.45 per cent), ACT (57.1 per cent), Queensland (54.5 per cent) and Tasmania (45.4 per cent). The Northern Territory had the lowest recycling rate at 18.2 per cent in 2021–22.

4.3 Material Recycled by Type

Building and demolition materials makes up the largest portion of materials recycled nationally, comprising 51.0 per cent of materials or 20.7 million tonnes, followed by organics (17.2 per cent or 7.0 million tonnes), metals (13.0 per cent or 5.3 million tonnes) paper and cardboard (8.0 per cent or 3.2 million tonnes) and hazardous materials (7.5 per cent or 3.0 million tonnes).

Figure 5: Material recycled (Mt) and recycling rate (%) by type, 2021–22



Source: National Waste Report, AEAS 2022

Metals has the highest recycling rate (87 per cent) followed by building and demolition materials (80.1 per cent), glass (59.3 per cent), paper and cardboard (54.9 per cent), organics (47.1 per cent). In summary, it is the processing and recycling of these materials and their sale to end users that are not only creating considerable environmental benefits but also economic and employment benefits. These benefits are discussed in section 6.0.

5.0 Economic Benefit Estimate Methodology

5.1 AEAS was commissioned by ACOR to determine the economic benefit of the Australian recycling industry to the Australian and State economies based on analysis of existing literature and data, as referenced in Appendix One.

5.2 This report provides a detailed summary of the level of economic contribution to the Australian and State economies by the Australian recycling industry and the multiplier and flow-on effects that are generated by that contribution. The report was developed in consultation with ACOR and identifies a range of vital statistics that the industry contributes to the economy, including:

- the contribution the industry makes to gross domestic product in industry value add;
- the number of direct and indirect jobs created by the industry, measured as full-time equivalents (FTEs);
- the value of wages and salaries paid by the industry;
- level of investment in buildings and plant and equipment made by the industry; and
- the value of Commonwealth, SA and Local Government taxes, rates and charges contributed by the industry.

5.3 The preparation of this report was undertaken in several stages including:

- Processes involved in recycling, and a series of definitions for the sector were identified.
- Desktop research was undertaken to establish the degree of information currently available, for use as a benchmark for AEAS calculated results. A summary of key reference material is provided below .
- Estimates of the direct and flow-on contribution of Australian recycling industry to the Australian and State economies in terms of industry value add, employment, income (i.e. wages and salaries) and other indicators were prepared. Direct impacts, are the first round of effects from direct operational expenditure on goods and services by the industry. The flow-on or indirect effects (i.e. the multiplier effects) are estimated in two parts: production-induced and consumption-induced effects. The production-induced effects arise from expenditure by Industry businesses/organisations on goods and services supplied by other firms in Australia. The consumption-induced effects arise from expenditure of industry workers' income on goods and services supplied by Australian businesses.
- A virtual workshop was held with ACOR members on 16 November 2022 to present draft results and receive industry feedback.

5.4 The economic significance estimates in this report are produced using data primarily from the:

- Australian Bureau of Statistics - Australian Industry (Cat. No. 8155.0);
- National Waste Report;
- other Australian Bureau of Statistics data, including Census data and ABS Catalogues 6202.0 and 5220.0; and
- industry and State economic and employment multipliers previously prepared by AEAS.

5.5 AEAS has used ABS Cat 8155.0 – Australian Industry which presents estimates of the economic and financial performance of Australian industry (ANZSIC). The estimates are produced annually using a combination of directly collected data from the annual Economic Activity Survey (EAS), conducted by the ABS, and Business Activity Statement (BAS) data provided by businesses to the Australian Taxation Office (ATO).

5.6 AEAS has then used the National Waste Report to model the percentage of economic contribution created by recycling businesses operating within ANZSIC's Waste Collection, Treatment and Disposal Services sub-division and more specifically with the 2922: Waste Remediation and Materials Recovery Services classes to calculate Australian recycling industry economic and employment metrics. This information has been used to estimate the recycling sector's share of 5.5 above, after adjusting for recycling's higher value add and employment benefit per tonne compared to other subsectors within the Waste Collection, Treatment and Disposal Services sub-division (eg, collection and disposal).

5.7 One of the objectives of this project is to measure the economic value of waste-related activities across the broader economy. Accordingly, AEAS has used indirect waste industry multiplier estimates for economic activity prepared by EconSearch; and indirect employment multiplier prepared by Deloitte Access Economics for these estimates.

5.8 AEAS has also used estimates sourced from the National Waste Report 2020 of industry sector feedstock sourced from recyclates to calculate the economic and employment benefits of using recycled materials as inputs for further value add in the Australian economy. All estimates are presented in nominal terms (i.e., current prices in the year received), unless otherwise stated.

6.0 Direct Economic Contribution of Australian Recycling Industry

Economic significance estimates are presented in this section with interpretation of the results. The data collected by AEAS aims to provide an industry-wide picture of the Australian recycling industry activities and employment. The industry overall is confirmed to be an important contributor to the Australian economy.

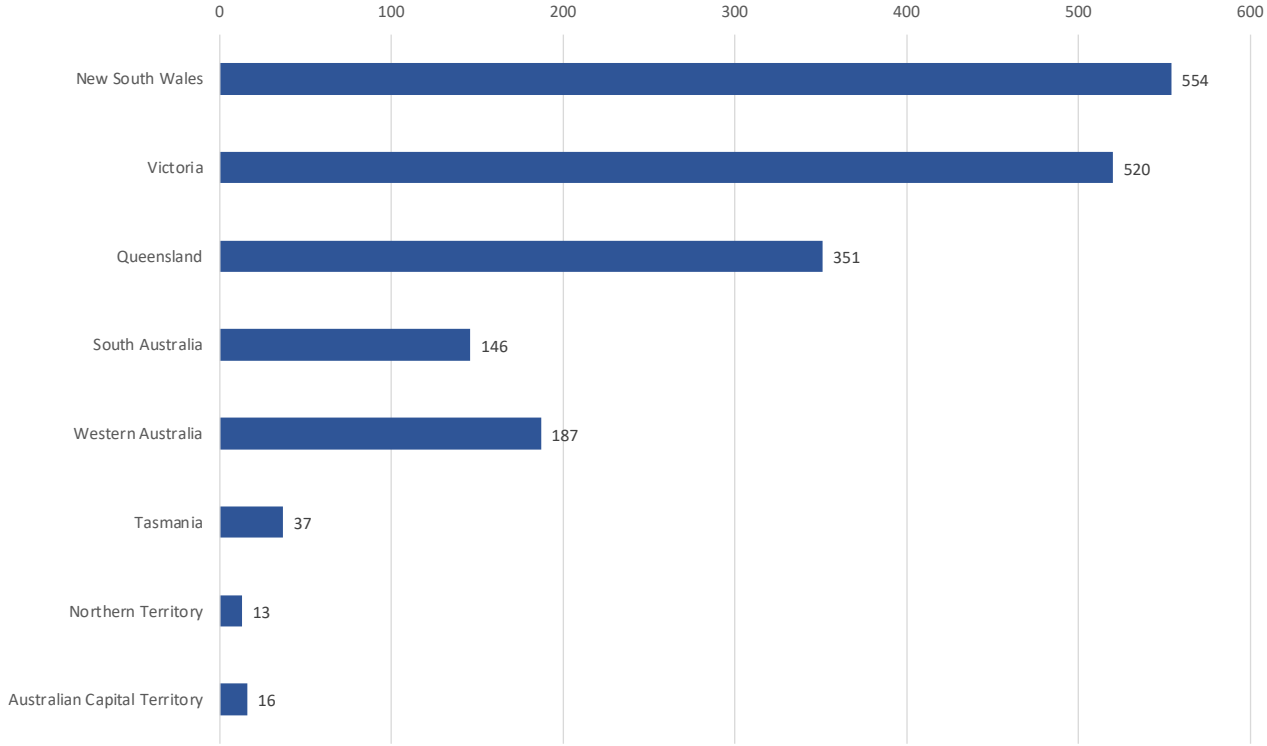
Results of a macro-economic analysis of the industry reveal:

6.1 Number of Recycling Businesses

According to the Australian Bureau of Statistics, there were 1,828 recycling businesses operating in the Australian recycling industry in 2021–22. The majority of these businesses are classified as a small businesses employing less than 20 employees (1,732 businesses). There were 89 businesses employing between 20–199 employees and 11 employing in excess of 200 persons. These larger businesses are situated in NSW and Victoria.

NSW has 554 recycling businesses, Victoria has 520, Queensland 351, South Australia 146, Western Australia 187, Tasmania 37, the Northern Territory 13, and the ACT has 16 recycling businesses. The average-sized recycling business employs 16.7 persons and accordingly is defined by the Australian Bureau of Statistics to be a small business.

Figure 6: Number of recycling businesses by state, 2021–22



Source: Australian Bureau of Statistics and AEAS

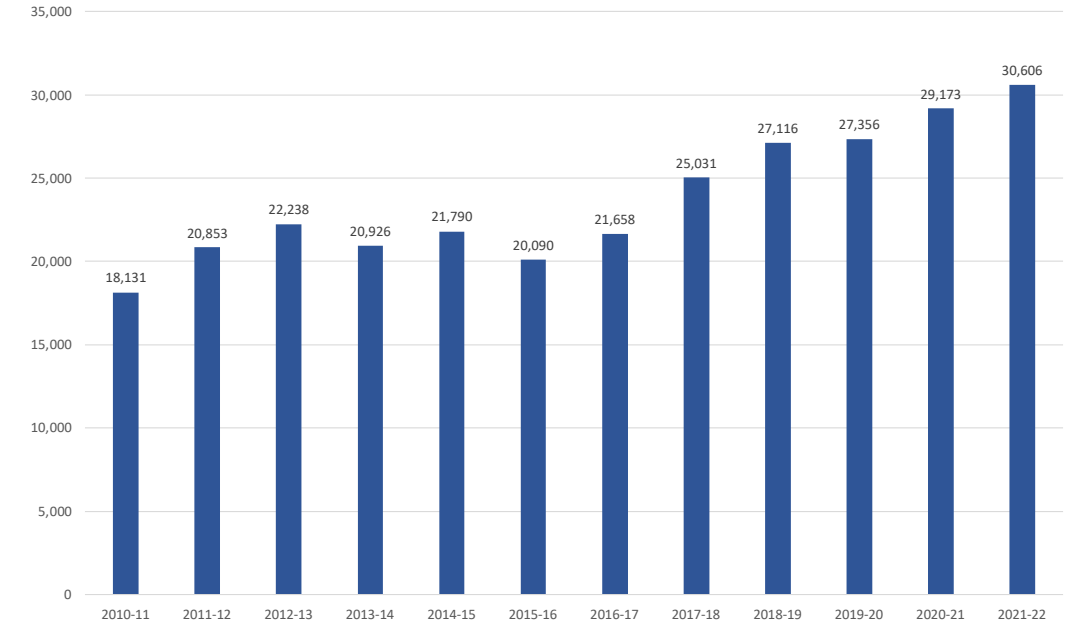
6.2 Industry Employment

The Australian recycling industry is estimated to employ 30,606 Australians in 2021–22.

In 2021–22, NSW recycling businesses employed 9,630 persons, Victorian businesses employed 9,311, Queensland employed 4,349, South Australia employed 3,200, Western Australia employed 3,231, Tasmania employed 311, ACT employed 513 and NT employed 62 persons.

In addition, the industry also provides an entry point in the workforce for many younger Australians through the apprenticeships and traineeships that it offers. It is estimated that there are currently 873 Australians in training as apprentices or trainees.

Figure 7: Recycling industry employment, 2021–22 (FTEs)

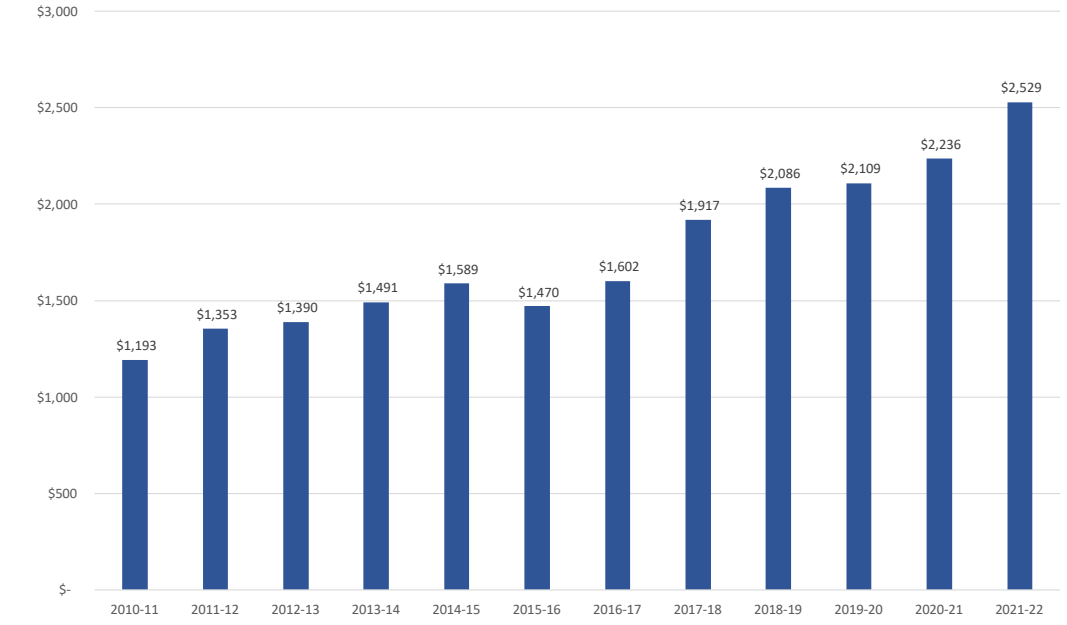


Source: AEAS 2022

6.3 Wages and Salaries Paid to Australians

The Australian recycling industry is estimated to provide over $2.5 billion in wages to Australians. In 2021–22, NSW recycling businesses provided $796 million in wages, Victorian businesses provided $769 million, Queensland businesses provided $359 million, South Australia provided $264 million, Western Australia provided $267 million, Tasmania provided $26 million, ACT provided $42 million and Northern Territory provided $5 million in wages. The average salary provided to each Australian recycling industry employee is $82,620, compared to the average Australian weekly earnings of $69,100. In addition, AEAS estimates that an additional $253 million was paid by recycling businesses towards employee superannuation.

Figure 8: Recycling industry wages and salaries 2021–22 ($ millions)



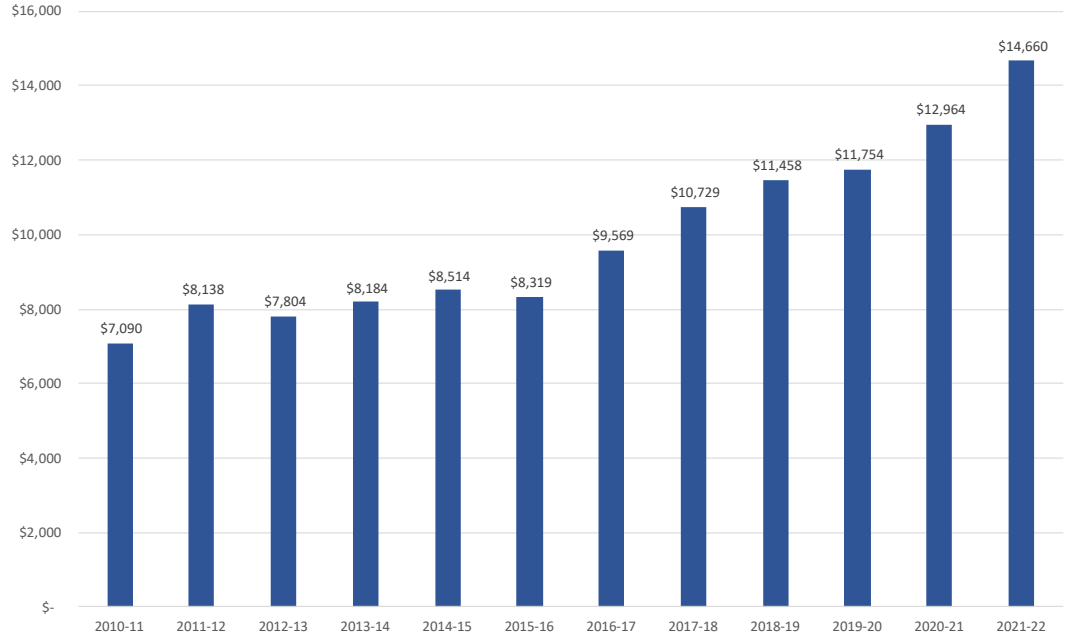
Source: AEAS 2022

6.4 Industry Sales

The turnover of Australia's recycling industry has steadily increased across the past decade. Through the receipt of inputs and the sale of materials, the Australian recycling industry earned over $14.6 billion in revenue ($14,660 million) in 2021–22. NSW recycling businesses earned $4,613 million in sales, Victorian businesses earned $4,460 million, Queensland businesses earned $2,083 million, South Australia earned $1,533 million, Western Australia earned $1,547 million, Tasmania earned $149 million, ACT earned $76.8 million and Northern Territory recycling businesses earned $30 million

in sales. The average sales per recycling business was $8.04 million in 2021–22. Expressed alternatively, Australian recycling industry turnover is estimated at $361.10 per tonne of recycled material.

Figure 9: Recycling industry sales turnover, 2021–22 ($ millions)

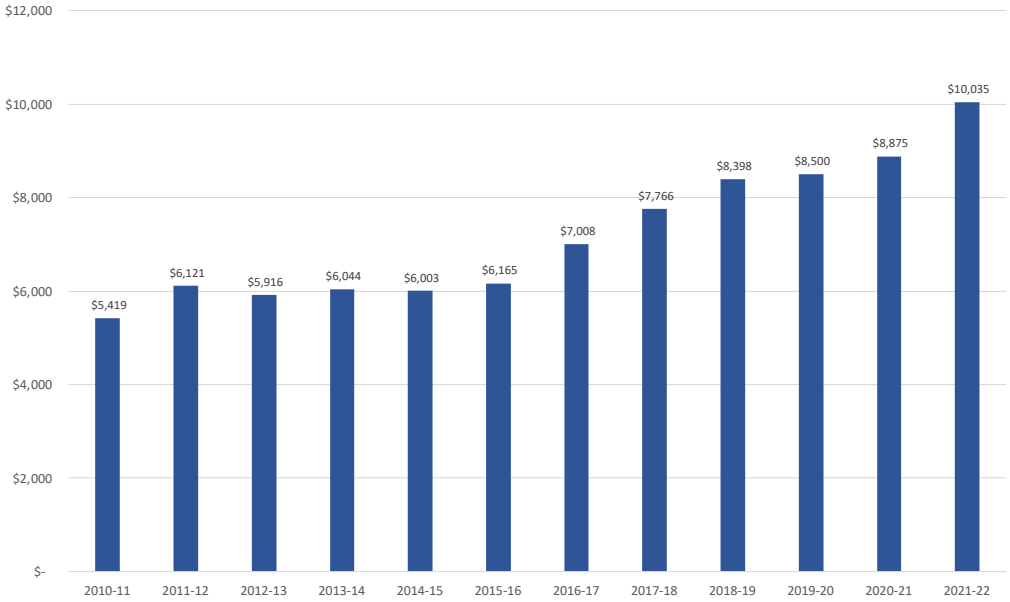


Source: AEAS 2022

6.5 Supply Chain Expenditure

In 2021–22, Australian recycling businesses supported over $10 billion ($10,035 million) of supply chain expenditure procuring goods and services from other Australian businesses. NSW recycling businesses spent $3,157 million in expenditure, Victorian businesses spent $3,053 million, Queensland businesses spent $1,426 million, South Australia spent $1,049 million, Western Australia spent $1,059 million, Tasmania spent $102 million, ACT spent $168 million, and Northern Territory recycling businesses spent $20 million. Each recycling business, on average, supported a $5.5 million supply chain. Expressed alternatively, Australian recycling industry's supply chain expenditure is estimated at $247.20 per tonne of recycled organic material.

Figure 10: Recycling industry supply chain expenditure by state, 2021–22 ($ millions)



Source: AEAS 2022

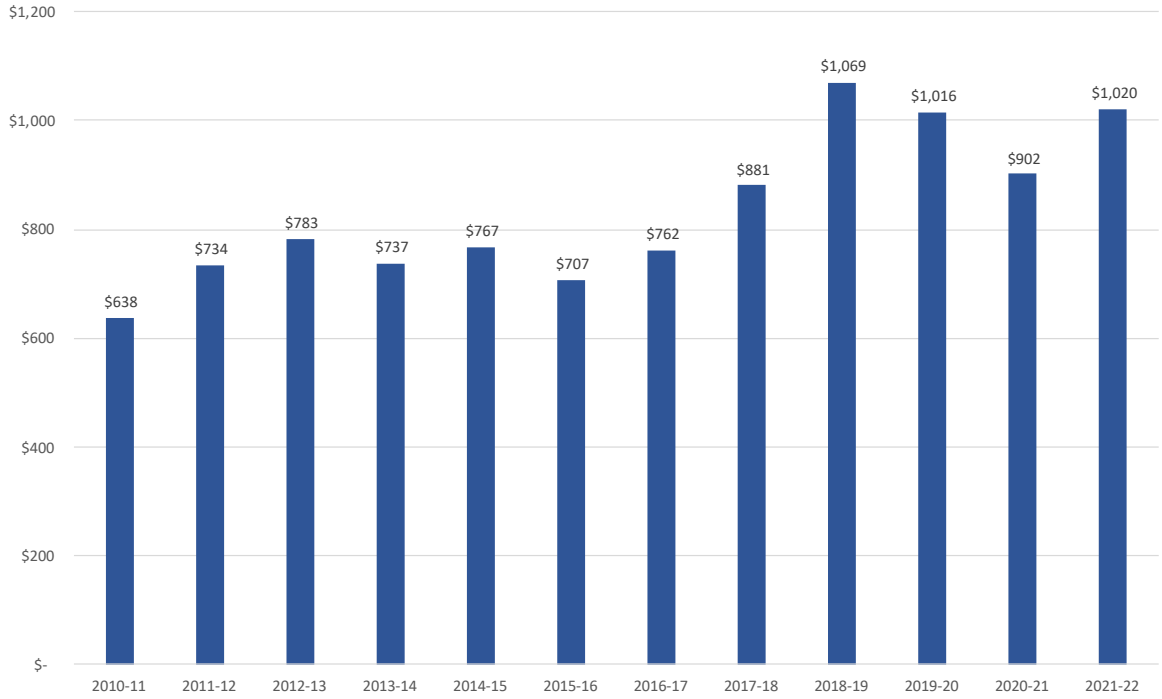
6.6 Capital Expenditure

The Australian recycling industry invested over $1 billion ($1,020 million) in 2021–22 in land, buildings, plant and equipment, vehicles and other recycling infrastructure. NSW recycling businesses invested $321 million, Victorian recycling businesses invested $310 million, Queensland recycling businesses invested $145 million, South Australian

recycling businesses invested $107 million, Western Australian recycling businesses invested $108 million, Tasmania recycling businesses invested $10 million, ACT recycling businesses invested $17 million and Northern Territory recycling businesses invested $2 million in land, buildings, plant and equipment, vehicles and other recycling infrastructure.

AEAS notes that this represents actual expenditure during 2021–22 and the total pipeline of planned, committed to and already underway investment is considerably more. The highest level of investment occurred in the area of resource recovery and recycling plant and equipment. Each recycling business, on average, invested $559,210 in land, buildings, plant and equipment, vehicles and other recycling infrastructure in 2021–22.

Figure 11: Recycling industry capital expenditure, 2021–22 ($ millions)



Source: AEAS 2022

6.7 Profits and Taxes

The Australian recycling industry is no different to other industry sectors in that it operates profitability. In 2021–22, the Australian Recycling's Industry's profits before tax were estimated at $2.1 billion.

The Australian recycling industry is also a major provider of Commonwealth, State and Local Government taxes, fees, rates and royalties, contributing $494 million in receipts to the three tiers of government, helping fund frontline services such as hospitals, education, transport, roads and social infrastructure. Commonwealth taxes included company tax and GST, State taxes included payroll tax, duties, land taxes and royalties, and Local Government collected rates.

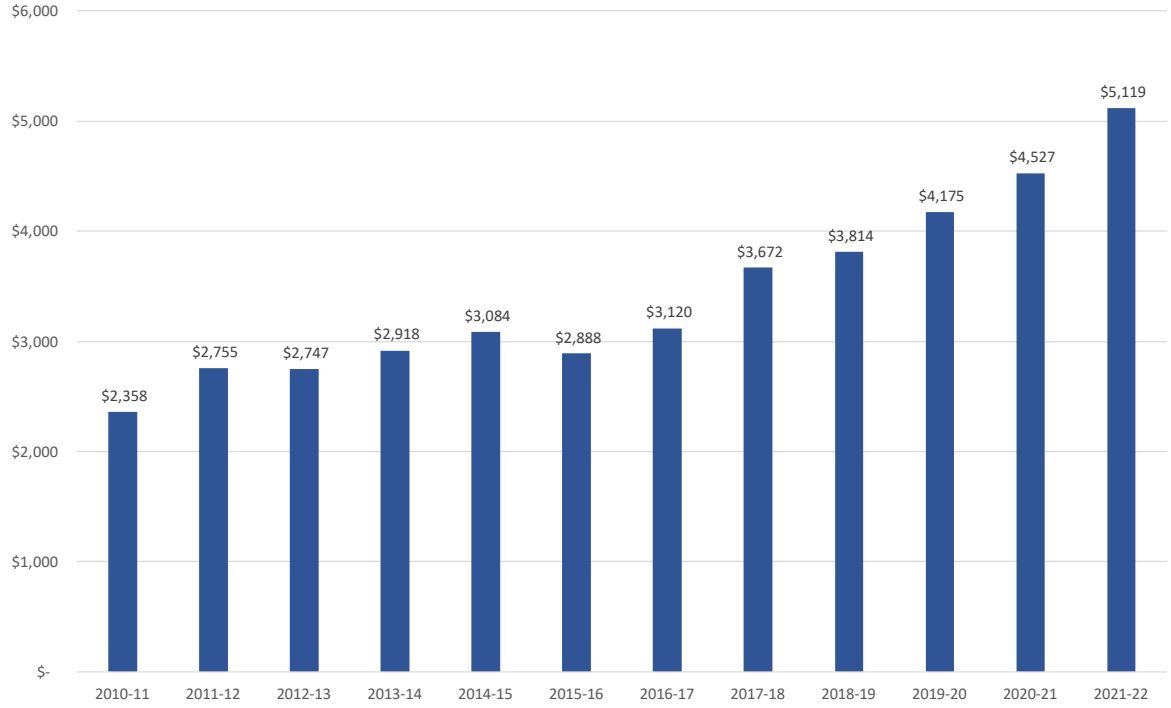
6.8 Total Direct Contribution to the Australian Economy

While gross sales or turnover is an easy concept to understand, 'value added' is a better measure in the context of an industry's contribution to the economy. Value added for an industry is comprised of wages and salaries, gross operating surplus of businesses operating in the industry and indirect taxes (e.g., payroll tax). From the data, the direct value added attributable to the Australian recycling industry has been estimated. Australian recycling industry's direct value add (contribution to GSP) in 2021–22 is estimated by AEAS to be $5.1 billion ($5,119 million).

A state breakdown of the recycling industry's value add to the economy indicates NSW recycling businesses' direct contribution to the economy was $1,611 million, Victorian recycling businesses contributed $1,557 million, Queensland recycling businesses contributed $727 million, South Australia recycling businesses contributed $535 million, Western Australian recycling businesses contributed $540 million, Tasmania recycling businesses contributed $52 million, ACT recycling businesses contributed $86 million and Northern Territory recycling businesses contributed $10 million to the territory economy.

In addition to the direct contribution of the economy, the Australian recycling industry is estimated to have contributed indirectly to Australian GDP through flow-on demand for goods and services, including production-induced and consumption-induced effects. These estimates are provided in section 7.0.

Figure 12: Australian recycling sector's direct economic contribution ($ millions)



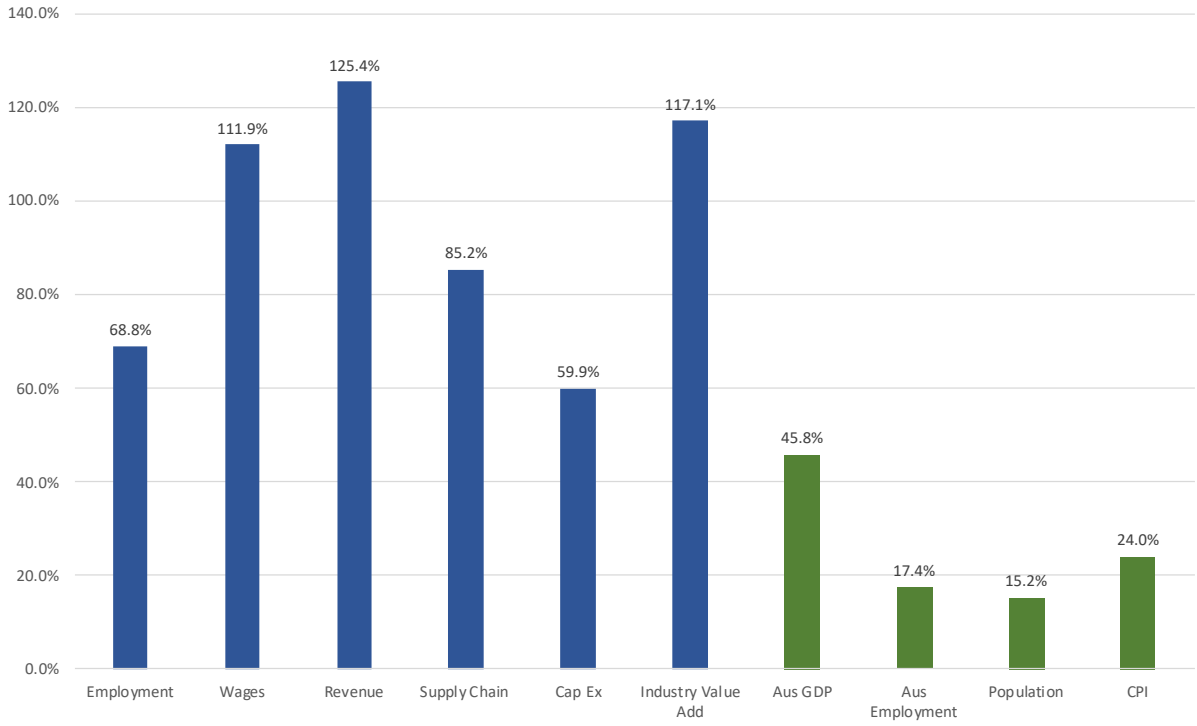
Source: AEAS 2022

6.9 Industry Growth – 2010–11 to 2021–22

The Australian recycling industry has grown at a higher rate than commensurate economic indicators for the Australian economy over the past decade. The industry's value add in current prices has grown across the past decade by 117.1 per cent, significantly higher than Australia's gross domestic product (45.8 per cent).

The percentage growth of Australian recycling industry's metrics also compares favourably against national employment growth (17.4 per cent), population growth (15.2 per cent) and CPI growth (24.0 per cent) and are provided in Figure 13 below.

Figure 13: Australian recycling industry growth, 2010–11 to 2021–22, benchmarked against key National Metrics (%)



Source: Australian Bureau of Statistics and AEAS 2022

The consistently higher growth rates are reflective of Australia's commitment to increasing recycling and promoting Australia's circular economy.

A summary of the growth of the Australian recycling industry's economic contribution since 2010–11 is provided in Table 1 below.

Table 1: Economic contribution to Australian economy, 2010–11 to 2021–22 ($ millions – current prices)

	Employment at end of June	Wages and salaries	Sales	Supply Chain Expenditure	Capital expenditure	Operating profit before tax	Industry value added
2010–11	18,131	$1,193	$7,090	$5,419	$638	$461	$2,358
2011–12	20,853	$1,353	$8,138	$6,121	$734	$690	$2,755
2012–13	22,238	$1,390	$7,804	$5,916	$783	$186	$2,747
2013–14	20,926	$1,491	$8,184	$6,044	$737	$662	$2,918
2014–15	21,790	$1,589	$8,514	$6,003	$767	$908	$3,084
2015–16	20,090	$1,470	$8,319	$ 6,165	$707	$683	$2,888
2016–17	21,658	$1,602	$9,569	$7,008	$762	$ 959	$3,120
2017–18	25,031	$1,917	$10,729	$7,766	$881	$1,106	$3,672
2018–19	27,116	$2,086	$11,458	$8,398	$1,069	$948	$3,814
2019–20	27,356	$2,109	$11,754	$8,500	$1,016	$1,161	$4,175
2020–21	29,173	$2,236	$12,964	$8,875	$ 902	$1,882	$4,527
2021-22	30,606	$2,529	$14,660	$10,035	$1,020	$2,129	$5,119

Source: AEAS 2022

In respect to overall growth in tonnes recycled not only is this influenced by the recycling rate but there is also causation in growth based on population growth and resulting waste generation. That is the recycling rate is being applied to a higher base of generated waste resulting in higher tonnes recycled. Accordingly, higher-population-growth states, such as Queensland, have had higher growth in economic metrics than lower-population-growth states.

6.10 Economic Summary – State Breakdown

A summary of the State breakdown of Australian recycling industry's economic contribution metrics is provided in Table 2 below.

Table 2: Economic contribution by state, 2021–22 ($ millions)

	Employment at end of June	Wages and salaries	Sales	Supply chain expenditure	Capital expenditure	Operating profit before tax	Industry value added
NSW	9,630	$796	$4,613	$3,157	$321	$670	$1,611
VIC	9,311	$769	$4,460	$3,053	$310	$648	$1,557
QLD	4,349	$359	$2,083	$1,426	$145	$303	$727
SA	3,200	$264	$1,533	$ 1,049	$107	$223	$535
WA	3,231	$267	$1,547	$1,059	$108	$225	$540
TAS	311	$26	$149	$102	$10	$ 22	$52
NT	62	$5	$ 30	$ 20	$ 2	$4	$10
ACT	513	$42	$246	$168	$17	$36	$86
AUS	30,606	$2,529	$14,660	$10,035	$1,020	$2,129	$ 5,119

Source: AEAS 2022

There is a high correlation for states with a higher recycling tonnage and rate and their recycling industry's economic contribution and importance.

7.0 Indirect Economic Contribution

7.1 Indirect Contribution Explained

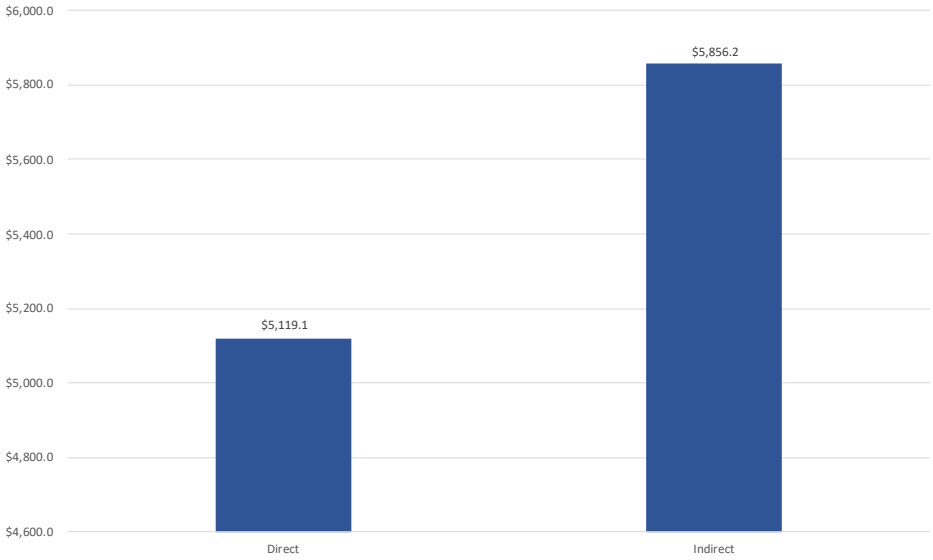
In addition to the direct contribution to the Australian economy, the Australian recycling industry also significantly contributes to Australia's GDP and employment through flow-on demand for goods and services, including production-induced and consumption-induced effects.

The flow-on or indirect effects (i.e., the multiplier effects) have been estimated in two parts: production-induced and consumption-induced effects. The production-induced effects arose from expenditure by recycling businesses on goods and services supplied by other firms in Australia. The consumption-induced effects arise from expenditure of industry employee's income on goods and services supplied by other Australian businesses.

77.2 Indirect Economic Contribution

The Australian recycling industry's indirect economic contribution in 2021–22 as a result of both producer- and consumer-induced effects is estimated at $5.9 billion ($5,856.2 million).

Figure 14: Australian recycling sector's indirect economic contribution, 2021–22 ($ millions)

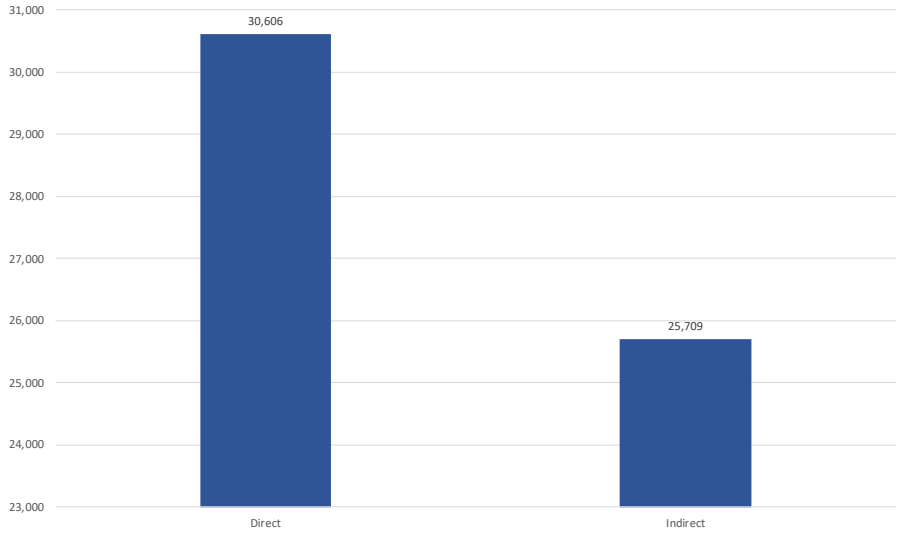


Source: AEAS 2022

7.3 Indirect Employment Contribution

AEAS estimates that a further 25,709 indirect jobs are created as a result of the flow-on activity estimated above by the Australian recycling industry in 2021–22.

Figure 15: Australian recycling sector – indirect employment (persons)



Source: AEAS 2022

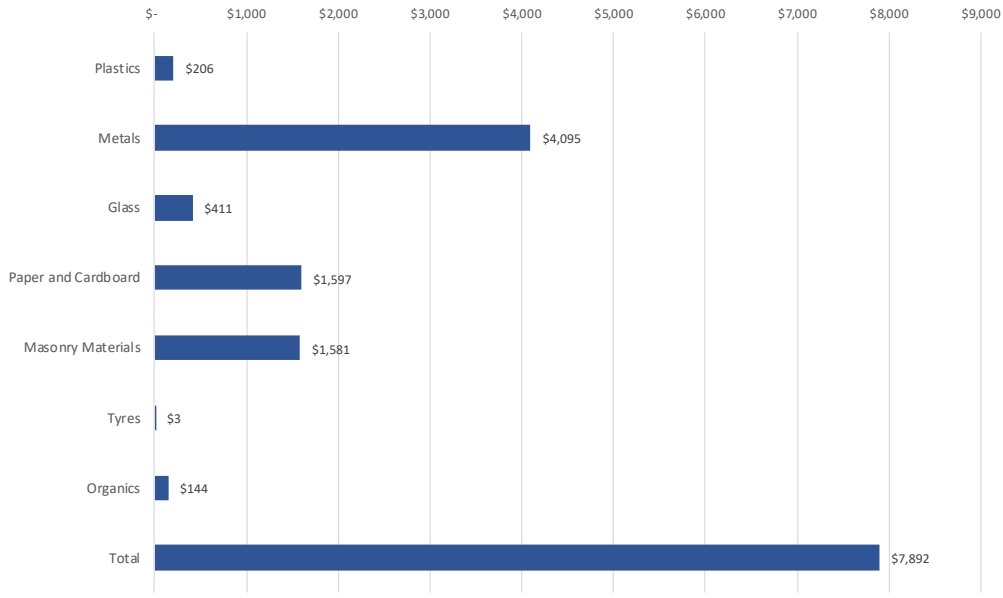
8.0 Enabled Economic Contribution

The Australian manufacturing and agricultural industries usage of recyclates including plastics, metals, glass, paper and cardboard, masonry materials, tyres and organics creates further economic and employment benefit. That is, the Australian recycling industry's creation of recycled materials can be used as inputs for further value in the Australian economy. This economic and employment is also considerable.

The Australian recycling industry is 'enabling' the operation of Australian industry. As such, it underpins the sovereign capability to manufacture and grow many products that are of long-term strategic and economic importance to Australia. Without the availability of recyclates across many product streams, the operational costs of Australian manufacturing would be higher and Australian agricultural productivity lower.

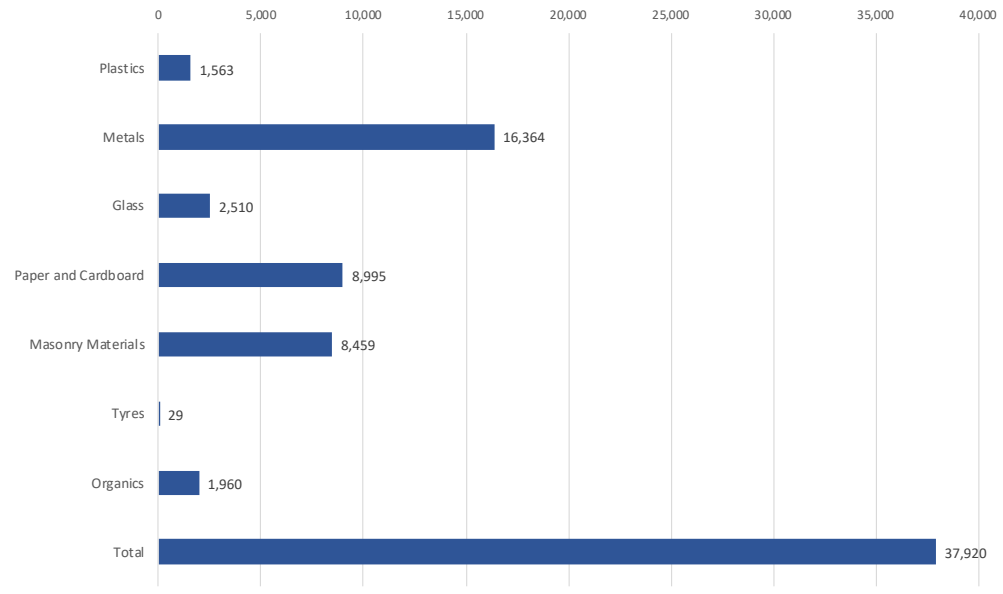
Estimates prepared by AEAS for 2021–22 of the value of this enabled benefit are in the order of $7,892 million. A breakdown of enabled benefit by recycled material is provided in Figure 16. The recycling of plastics and its usage for value add in the economy creates $206 million in further economic activity, metals is $4,095 million, glass is $411 million, paper and cardboard is $1,597 million, masonry materials is $1,581 million, tyres is $3 million and organics is $144 million.

Figure 16: Enabled value add to Australian manufacturing and agriculture, 2021–22 ($ millions)



Source: AEAS 2022

Figure 17: Enabled employment in Australian manufacturing and agriculture, 2021–22 (Persons)



Source: AEAS 2022

Usage of recycled materials for further value add in the Australian economy also creates significant employment, with an estimated 37,920 jobs. A breakdown of jobs created by recycled material is provided in Figure 17 above. The recycling of plastics is estimated to create 1,563 jobs, metals is 16,354 jobs, glass is 2,510 jobs, paper and cardboard is 8,995 jobs, masonry materials is 8,459 jobs, tyres is 29 jobs and organics is 1,960 enabled jobs.

9.0 Total Economic Contribution

9.1 Total Economic and Employment Contribution

Combining direct, indirect and enabled economic benefits, the Australian recycling industry is estimated to have contributed $18.9 billion in value add to the Australian economy in 2021–22.

Table 3: Total economic contribution to Australian economy, 2021–22 ($ millions – current prices)

	$ millions
Direct	$5,119.1
Indirect	$5,856.2
Enabled	$7,892.2
Total	$18,867.5

Source: AEAS 2022

Combining direct, indirect and enabled employment, the Australian recycling industry is estimated to have employed 94,235 persons in 2021–22.

Table 4: Total employment contribution, 2021–22 (persons)

	persons
Direct	30,606
Indirect	25,709
Enabled	37,920
Total	94,235

Source: AEAS 2022

9.2 Importance – Proportions of Total Economy and Employment

On their own, the above estimates are considerable, but it is important to contextualise them to establish how important the Australian recycling industry is as both an economic and employment contributor. For example, the Australian recycling industry provides 0.82 cents in every dollar of economic activity in Australia. Expressed alternatively, $465 in net economic activity is created for every one tonne of material recycled in Australia.

The Australian recycling industry provides 0.7 jobs in every 100 jobs in Australia; that is, for every 142 jobs that exist in the Australian economy, the Australian recycling industry provides one of those jobs. Expressed alternatively, one job is supported for every 431 tonnes of material recycled in Australia.

Of key relevance is the National Waste Policy and associated action plan's target for an overall resource recovery rate of 80 per cent for all waste streams by 2030. This will lead to the economic and employment contribution measures in this report progressively rising over the period to 2030 and beyond.

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ACOR

ACOR is the peak industry body for the resource recovery, recycling, and remanufacturing sector in Australia. Our membership is represented across the recycling value chain, and includes leading organisations in advanced chemical recycling processes, CDS operations, kerbside recycling, recovered metal, glass, plastics, paper, textiles and e-product reprocessing and remanufacturing, road recycling and construction and demolition recovery. Our mission is to lead the transition to a circular economy through the recycling supply chain.

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AEAS

Australian Economic Advocacy Solutions delivers services in economic analysis, research and advocacy in Australia and was set up by Nick Behrens following two decades of experience applying these skills in the real world for Australia's business community. More specifically, AEAS provides:

- economic analysis and market research;
- government relations and submissions;
- media relations; and
- stakeholder relations.

AEAS delivers services nationally to exemplary organisations including AORA, Australian Industry Group, Australian Gas Industry Trust, Australian Steel Institute, BASF, Brisbane Airport Corporation, CCIQ, Canegrowers, IOR Petroleum, LifeFlight, Master Builders Australia, Natroads, NWRIC, Port of Brisbane, Property Council of Australia, Queensland Resources Council, RACQ, Remondis, Suncorp, VTA, Victorian Waste Management Association, unions, local government authorities, the Commonwealth and State Governments and many others.

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