



From Waste to Value

The Australian Waste &
Resource Recovery Industry

Prepared by the National Waste
and Recycling Industry Council

NWRIC

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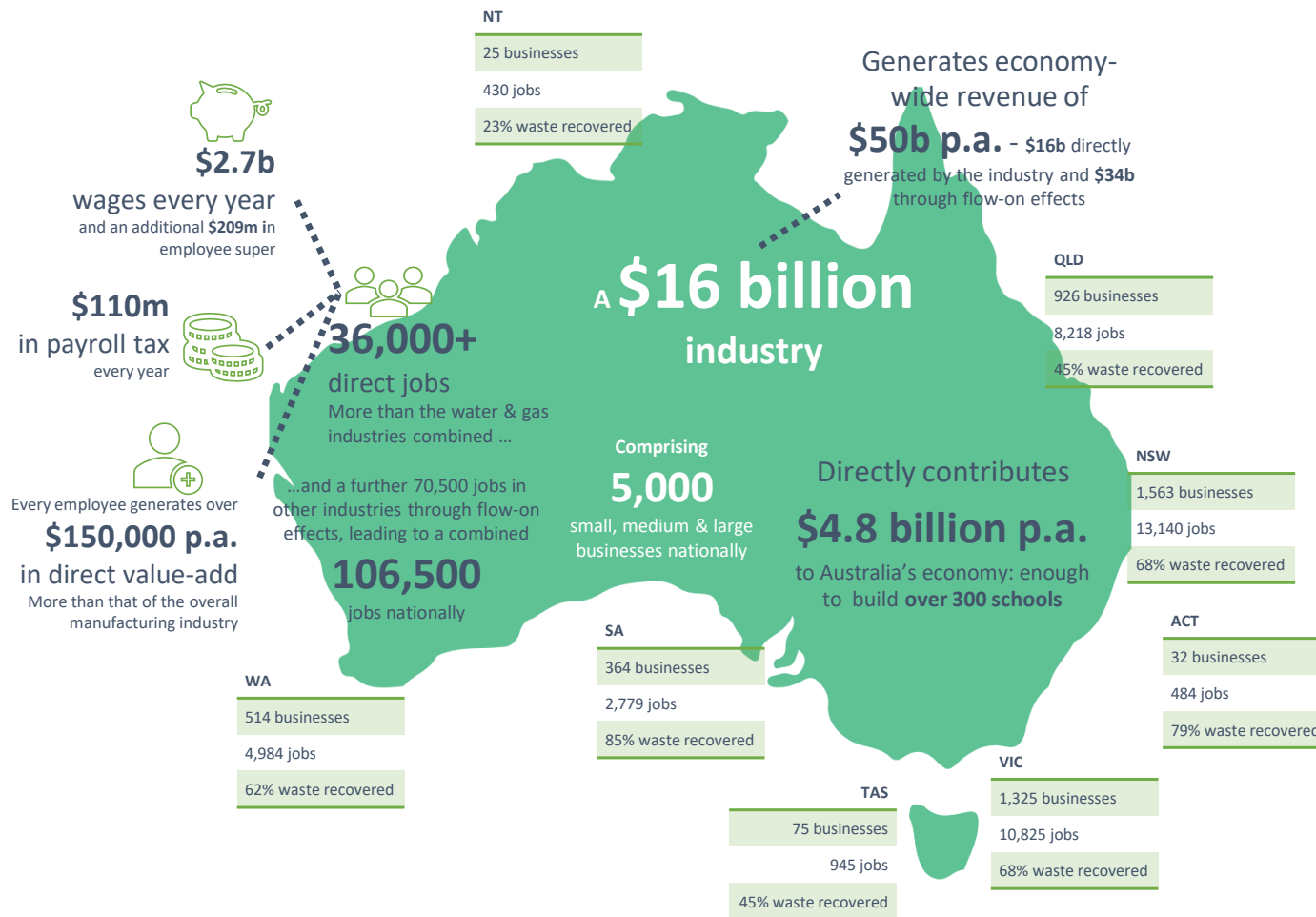
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Industry Snapshot



Sources: ABS cat. no. 4602.0, 6160.0, 8155.0; Department of the Environment and Energy, National Waste Report 2020; Department of Agriculture, Water and the Environment, Decision Regulation Impact Statement: Phasing out Exports of Waste Plastic, Paper, Tyres and Glass, Mar 2020.

Number of jobs by state are for FY2017 and refers to all jobs held throughout the year. Total number of jobs are for FY2019 and refers to the number of filled jobs at a point in time.

Taking care of Australia's waste

Australia produces **76 million tonnes** of waste annually. This equates to nearly 3 tonnes per capita. The biggest generators of waste are the manufacturing sector (12.8 million tonnes), followed by the construction sector (12.7 million tonnes), households (12.4 million tonnes) and the utilities sector (10.9 million tonnes).¹

Delivering an essential service to households, businesses and public services

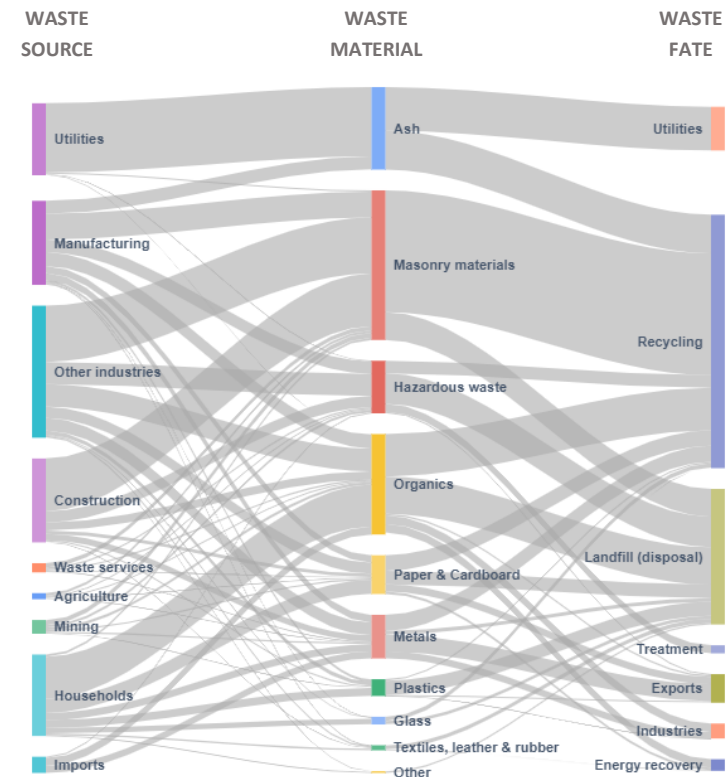
The waste and resource recovery industry comprises around **5,000** businesses nationally, roughly evenly distributed between the collection and recovery/disposal sectors. Most are small businesses, but the top 15 companies each have over 200 employees. Most of the largest businesses (with turnover of over \$50m p.a.) report their primary activity as waste recovery/disposal.²

The industry, together with local councils, helps ensure **97%** of Australian households have access to kerbside waste collection services.³

The industry supplies waste services to **108 (or 95%)** of Australia's **114** industries. These services are strategically significant because they are necessary to almost every supply chain in Australia.⁴

It also manages the **27 million tonnes** of construction and demolition waste generated each year (making up 36% of Australia's annual waste generation), including from Australia's **public infrastructure pipeline of over \$300 billion**.⁵

Figure 1: Waste Sources, Materials and Fates (in millions of tonnes)



Sources: ABS Waste Account Australia, Experimental Estimates, 2018-19, Centuria Consulting

¹ Does not include construction and demolition waste from other sectors.

² ABS, Businesses in Australia, 2018-19 cat. No. 8178.0

³ Department of the Environment and Energy, National Waste Report 2020 (2018-19 figures).

⁴ ABS, Australian National Accounts: Input-Output Tables, 2017-18 cat. No. 5209.0

⁵ Deloitte Access Economics Investment Monitor Aug 2020

Recovering materials

The industry helps recover over **40 million tonnes** of waste materials annually, channelling **over half** of all waste into productive use through recycling, composting and energy recovery.⁶

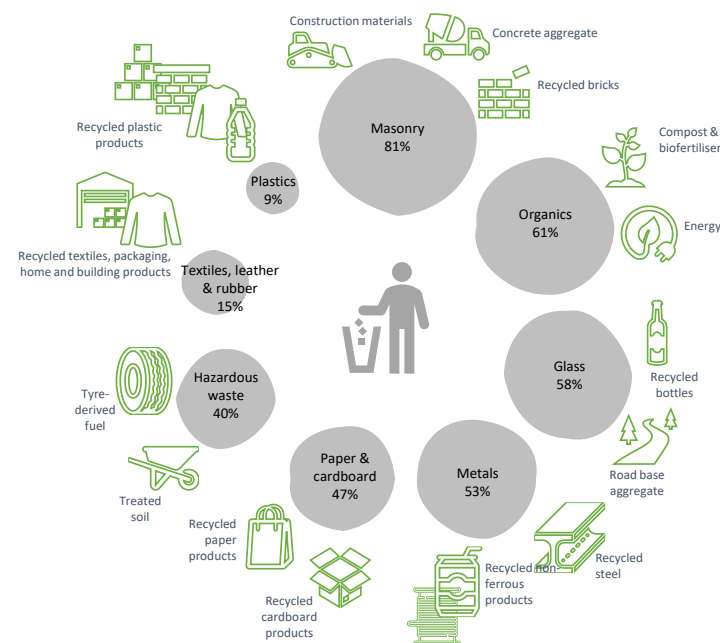
This returns some **\$2.9 billion** worth of materials back into productive circulation.⁷

A further **4 million tonnes** is exported overseas, although this is expected to reduce significantly with the progressive implementation of export bans on certain waste materials from 2021.

Examples of recovered waste materials:

- Masonry from construction and demolition waste is reused as recycled concrete aggregate, road base, and other recycled construction materials
- Food and garden waste, as well as timber waste and organic waste from agriculture and other industrial processes, can be composted or used for energy recovery e.g. through anaerobic digestion, creating biofertiliser as a by-product
- Glass can be processed and remanufactured as glass bottles, or crushed and used as a substitute for sand in road base or construction materials
- Metals are recycled for construction, packaging, wiring and other uses
- Recycled paper and cardboard require significantly less energy, water and trees to produce, compared to virgin products
- Some hazardous waste, including tyres and contaminated waste, can be processed as fuel or have their contaminants removed through thermal and chemical treatment
- Textiles, leather and rubber can be reused, or processed and made into new clothes, packaging, building materials, and a variety of other uses
- Plastics can be recycled into packaging, manufactured and construction products

Figure 2: Domestic recovery capacity (as a % of specific waste material) and examples of recycled products from these materials



Sources: ABS Waste Account Australia, Experimental Estimates, 2018-19, Centuria Consulting. Domestic recovery capacity is measured as onshore recycling and energy recovery as a percentage of total waste volume of the material in question, e.g. 9% of plastics waste is recovered onshore.

⁶ ABS Waste Account Australia, Experimental Estimates, 2018-19. Figures include fly ash from coal-fired power stations.

⁷ Centre for International Economics, Headline economic value for waste and materials efficiency in Australia, Oct 2017

Managing and developing infrastructure

The waste and resource recovery industry, together with local councils, manage considerable waste and recycling assets across all Australian states and territories.

These include around **870** transfer stations, **810** resource recovery facilities, and an estimated **1,200** landfills in Australia – with **75%** of landfilled waste going to **38 sites**.⁸

Landfilled waste has raised an estimated **\$1.13 billion in levies** in 2018-19, with an estimated **\$282 million** reinvested by to states and territories into improving waste management and resource recovery.⁹

Australia's waste and resource recovery infrastructure is essential to the country's roadmap towards a more resilient and stronger economy.

It enables us to:

- Better manage our growing waste and depleting resources levels
- Reduce reliance on finite natural resources
- Reduce vulnerability to shocks to supply chains

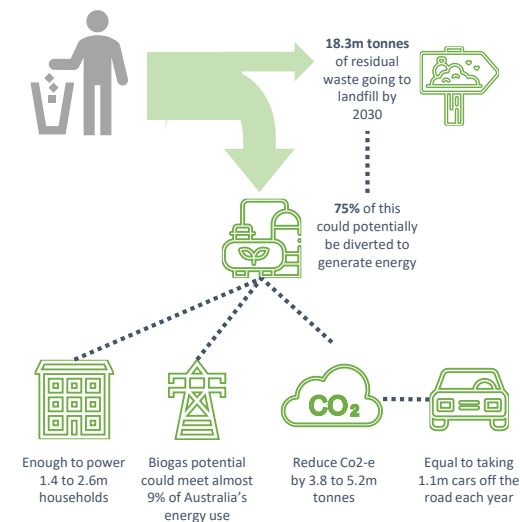
Recognising this, developing our waste and recycling infrastructure has been identified by **Infrastructure Australia** as a **high priority with a near-term (0-5 years) window** to address key opportunities in this area.

The recycling and clean energy industry is also among the six **National Manufacturing Priorities** under the Government's Modern Manufacturing Strategy, announced in October 2020, which reflect Australia's competitive advantages or emerging areas of priority.

Up to 75% of waste going to landfill could be potentially used for **energy from waste**, creating an investment opportunity of **\$8.2 to 13.7 billion by 2030**.

This would potentially generate enough power energy to power **1.4 to 2.6 million households** and reduce CO₂-e by **3.8 to 5.2 million tonnes**.

Figure 3: Energy from Waste potential by 2030



Source: Infrastructure Partnerships Australia, Putting waste to work: developing a role for energy from waste, 2020

⁸ L.E.K., International Comparison of Australia's Freight and Supply Chain Performance, Oct 2019; and Blue Environment, Analysis of Landfill Survey Data, 20 June 2013

⁹ NWRIC, Review of Waste Levies in Australia White Paper, Oct 2019

Generating jobs

The waste and resource (both materials and energy) recovery industry supported **36,000 jobs** directly in 2018-19: more than the water and gas industries combined.¹⁰

It is also estimated to indirectly employ another **70,500 people indirectly** across Australia, through flow-on effects.¹¹

This means the industry supports **over 106,500 jobs** both directly and indirectly.

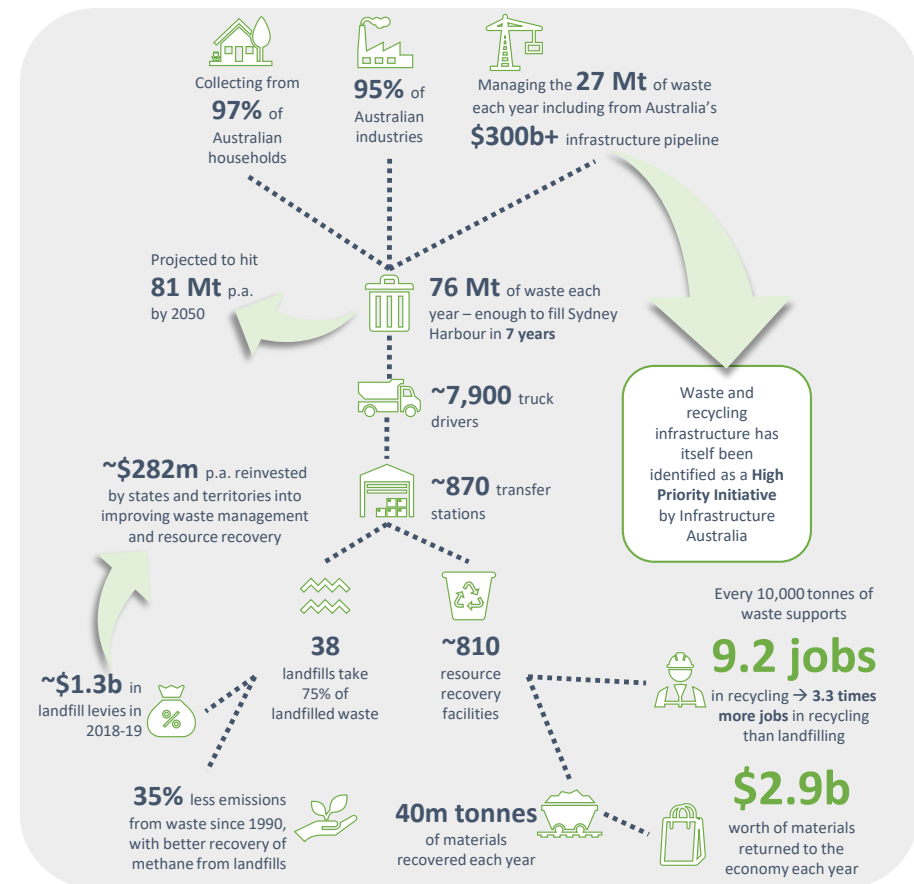
On average, every employee in the industry generates **\$150,000 in direct value add to the Australian economy**: more than that of the manufacturing industry.

The industry pays **\$2.7 billion** in wages per annum, and an additional **\$178 million** in employee superannuation. It also contributes **\$110 million** in payroll tax per year.¹²

For every 10,000 tonnes of waste, there are **9.2 jobs in recycling** and **2.8 jobs in landfill**.¹³

Every **\$100 million invested** in productivity improvements in waste-related activities is estimated to generate an additional **\$350 million** to Australia's GDP and create **1,670 jobs**.¹⁴

Figure 4: The Waste & Resource Recovery Ecosystem



¹⁰ ABS, Australian Industry, 2018-19 cat. no. 8155.0

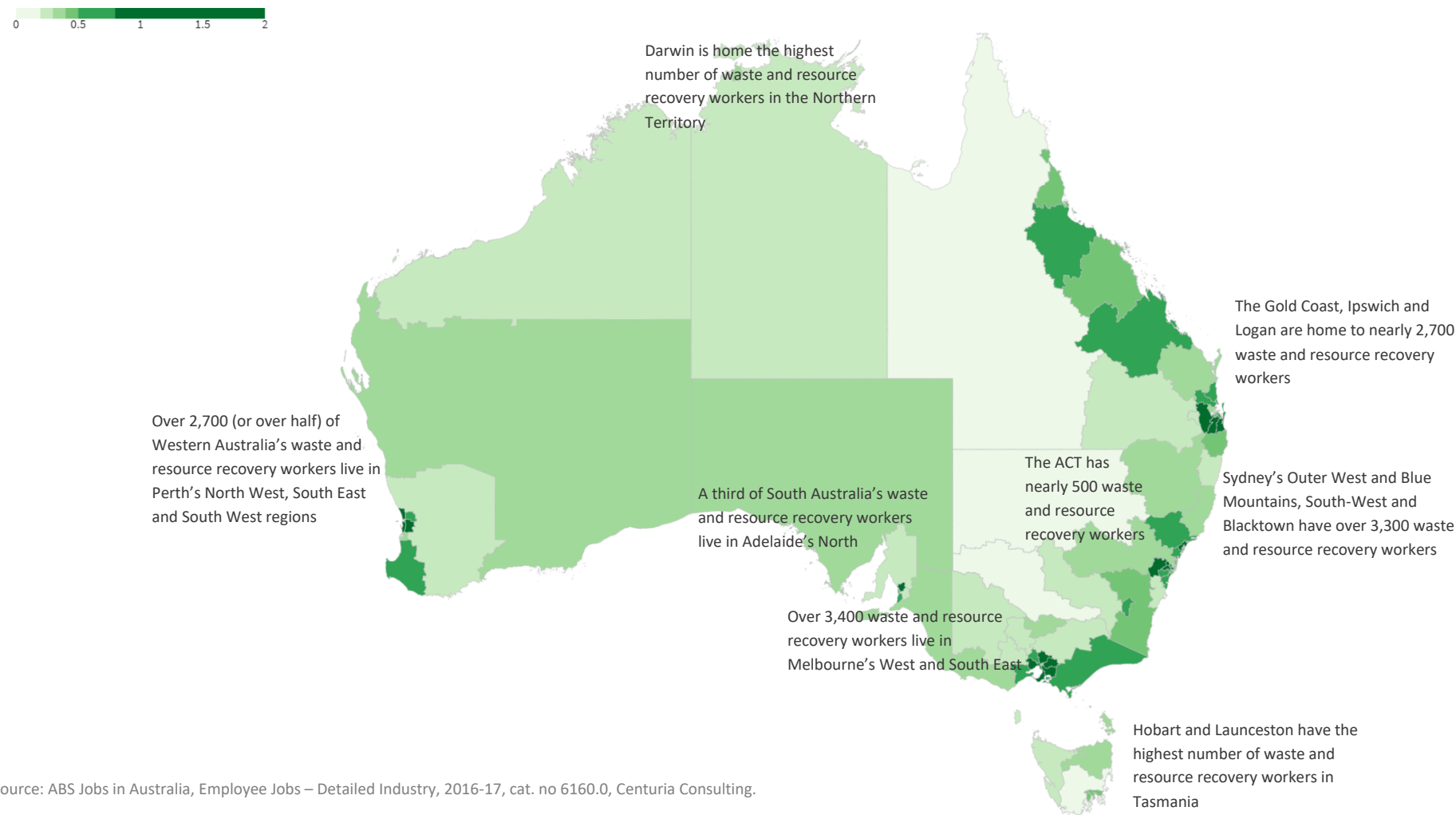
¹¹ Department of Agriculture, Water and the Environment, Decision Regulation Impact Statement: Phasing out Exports of Waste Plastic, Paper, Tyres and Glass, Mar 2020

¹² ABS, Australian Industry, 2018-19 cat. no. 8155.0

¹³ Access Economics, Employment in waste management and recycling, July 2009. Recycling jobs include manufacturing of recycled products.

¹⁴ Centre for International Economics, Headline economic value for waste and materials efficiency in Australia, Oct 2017

Figure 5: Jobs in the Waste and Resource Recovery industry, by region ('000)



Source: ABS Jobs in Australia, Employee Jobs – Detailed Industry, 2016-17, cat. no 6160.0, Centuria Consulting.

The economic value of the industry today

Economic contribution

The waste and resource recovery industry
contributes \$4.8b p.a. directly to the economy.

This figure has been growing at an average annual rate of **6%** for the last decade.¹⁵

In the five years to 30 June 2019, the industry's value add grew by **17%**, outperforming other utilities industries (Figure 6).¹⁶

Total revenue generated by the industry was **\$16 billion** in 2018-19. Flow-on effects from the industry's activities generated an additional **\$34 billion** across the rest of the economy, leading to a **total revenue impact of \$50 billion**.

Impending restrictions on specified waste exports from 2021, with government initiatives to boost domestic recycling, are expected to result in an additional **1,900 jobs**, **\$3.6 billion in turnover** and **\$1.5 billion to GDP** over a 20-year period, as a result of higher value-added activity occurring onshore in Australia.¹⁷

Jobs growth

Jobs in the industry have also grown by **13% or 4,000 jobs** over the five years to 30 June 19, compared to the water and gas industries (no change) and electricity

industry (-4%, -2,000 jobs). It also **outperformed** total jobs growth in the economy over this period by ten percentage points.

Over that five-year period the number jobs in the industry held by females more than doubled.¹⁸ However, there is still room for further advancement, with male employees still outnumbering females by four to one currently.

Figure 6: Growth in annual Industry Value Added and Jobs (rebased to 100)



Source: ABS 8155.0 Australian Industry 2018-19

¹⁵ Department of Agriculture, Water and the Environment, Decision Regulation Impact Statement: Phasing out Exports of Waste Plastic, Paper, Tyres and Glass, Mar 2020

¹⁶ ABS Waste Account, Experimental Estimates, 2016-17; Australian Industry, 2018-19 cat. No. 8155.0

¹⁷ Department of Agriculture, Water and the Environment, Decision Regulation Impact Statement: Phasing out Exports of Waste Plastic, Paper, Tyres and Glass, Mar 2020

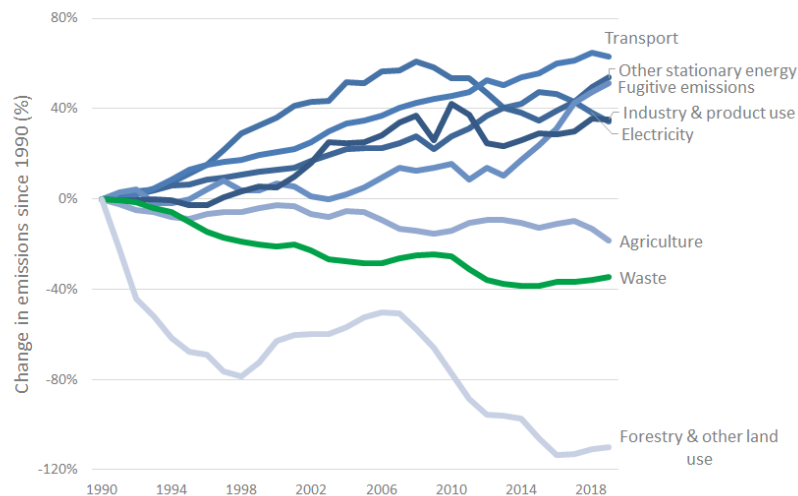
¹⁸ ABS Labour Force, Australia, Detailed, Quarterly, Cat. No. 6291.0.55.003

Emissions reduction

Australia has been generating waste at an average annual rate of **2.8%** over the last decade.¹⁹ This is projected to hit **81 million tonnes** by 2050.²⁰

Despite this, the industry has **reduced waste emissions by 35%** since 1990 with sustained improvement in the recovery of waste methane gas from landfills.²¹

Figure 7: Change in emissions since 1990



Source: Department of Industry, Science, Energy and Resources

¹⁹ Department of Agriculture, Water and the Environment, Decision Regulation Impact Statement: Phasing out Exports of Waste Plastic, Paper, Tyres and Glass, Mar 2020

²⁰ Infrastructure Australia, An Assessment of Australia's Future Infrastructure Needs: The Australian Infrastructure Audit 2019, June 2019

Building a cleaner, stronger and more resilient future

The waste and resource recovery industry is well placed to support Australia's economic recovery, as:

An essential service

The waste sector provides an essential service and, like other utilities, virtually every sector and household relies on it.

A supplier of resources

Australia's waste generation is projected to reach 81 million tonnes by 2050. Reprocessed waste has many uses as a resource, with economic and environmental benefits. It can be used as an input in manufacturing, construction, soil improvement and energy generation.

A driver of economic and environmental resilience

Moving towards a circular economy will support more sustainable jobs and supply chains. It will also improve how we manage our resources. Recognising this, developing our waste and recycling infrastructure has been identified by Infrastructure Australia as a high priority with a near-term (0-5 years) window to address key opportunities in this area.

²¹ Net waste emissions in 2019 was only 13 Mt CO₂-e.

