Waste, Recycling and Resource Recovery Investment Prospectus

RECYCLING VICTORIA

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A new chapter in Victoria's resource recovery sector

Victoria's waste, recycling, and resource recovery sector is undergoing a pivotal transformation in the move to a more circular economy. With leadership and oversight from Recycling Victoria, and support from an extensive government investment ecosystem, opportunities are available across the sector.

The inaugural Victorian Recycling Infrastructure Plan (VRIP) represents a step forward in our transition to a circular economy. The VRIP offers investors confidence in our long-term vision for waste and recycling infrastructure.

This prospectus builds on the VRIP to highlight investment opportunities in Victoria's waste, recycling, and resource recovery sector.

Together with industry, investors and government partners, Recycling Victoria will continue to lead the move to a world class circular economy system in Victoria.

About the Victorian Recycling Infrastructure Plan

The VRIP guides the development of waste, recycling and resource recovery infrastructure for the next 30 years. It identifies Victoria's infrastructure needs and contains information to support investment decisions.

How do I use the VRIP?

The VRIP is an essential resource for investors, providing insights and investment directions, including:

- In-depth infrastructure needs analysis that considers capacity and capability
- Place-based assessments for each material stream
- Residual waste and waste to energy
- Regional opportunities
- Land use planning.

Working in synergy with broader sector reform

The VRIP is an integral component of the Victorian Government's broader 10-year action plan *Recycling Victoria: A new economy.* Established in 2020, this action plan aims to transform our recycling sector, reduce waste, create thousands of jobs, and prepare Victoria for a more sustainable future.

The plan includes a suite of reforms led by Recycling Victoria, including:

- An annual Circular Economy Market Report that highlights opportunities to improve circularity in the management of materials
- The Recycling Victoria data hub that provides sector data, intelligence and insights
- CDS Vic, Victoria's container deposit scheme (CDS), that enables people to return eligible cans, bottles, and cartons for a refund
- Standardising household recycling including the transition to a four-stream household waste and recycling system
- A Waste to Energy Scheme, that supports investment while prioritising recycling and material recovery
- An annual Circular Economy Risk, Consequence, and Contingency Plan (CERCC Plan), that will identify, describe and manage risks to service continuity and the transition to a circular economy.

This is complemented by broader policy measures and initiatives across the wider portfolio, including:

- New recycling laws and governance to support best practice waste management, resource use and recycling
- A state-wide ban of single-use plastics and promotion of reusable items that reduce waste and pollution for a cleaner and healthier environment
- Fit-for-purpose landfill levies to encourage diversion away from landfill
- Public leadership in recycling and using public purchasing power to support recovered materials
- Supporting safe and effective hazardous waste management.

This prospectus showcases the waste, recycling and resource recovery market in Victoria, highlighting opportunities for future investment.

The Victorian Government is advancing investment in Victoria's circular economy

Recycling Victoria

Our long-term vision is for a worldclass, circular economy system that helps build a more sustainable future for all Victorians.

Recycling Victoria plays an essential role in delivering Victoria's once-in-a-generation reform of the waste, recycling and resource recovery system.

Recycling Victoria's strategic objectives are to:

- contribute to a strong and robust circular economy
- increase the resilience of the Victorian waste and resource recovery system
- enable sector investment and growth
- build system capacity and capability.

Recycling Victoria provides leadership, stewardship and oversight of waste, recycling and resource recovery services to support a strong and resilient circular economy with robust market investment and growth.

Through the VRIP and other complementary initiatives, Recycling Victoria identifies and enables sector infrastructure investment and growth opportunities to support increased waste, recycling and resource recovery capacity to meet future demand.

An important focus of Recycling Victoria is to pursue state-wide market growth and investment, building capacity, resilience and reliability in the sector.

Read more about the role of Recycling Victoria here: https://www.vic.gov.au/our-role-recycling-victoria

A Victorian Government investment ecosystem

Victoria has a cross-government approach to driving investment into Victoria's waste, recycling and resource recovery sector.

Together, these agencies help to achieve the Victorian Government's vision to build a sustainable and thriving circular economy.

Department of Energy, Environment and Climate Action (DEECA)

- DEECA is the Victorian Government Department that leads coordination for waste, recycling and resource recovery sector and Circular Economy policy and strategy.
- Recycling Victoria is the business unit within DEECA, with responsibility for providing leadership oversight and stewardship to the sector.
- The Climate Change and Circular Economy (CACE) division in DEECA leads the development of policy, laws and regulations and provides governance oversight and coordination of policy implementation.

Sustainability Victoria

- Partners across industry, community, and government to help shape Victoria's circular economy.
- Provides investment facilitation support to businesses in Victoria's waste, recycling and resource recovery sector and delivers various programs and initiatives to advance Victoria's circular economy.

Environment Protection Authority (EPA)

- Victoria's environmental regulator is responsible for issuing permissions under the Environment Protection Authority framework, and monitoring and enforcing ongoing compliance with relevant regulations and standards.
- Provides information and guidance to support businesses to understand their regulatory obligations to meet their requirements.

Invest Victoria

- The Victorian Government's investment attraction agency.
- Provides advice and support to businesses looking to set up or expand in Victoria through a range of investment facilitation services.

Global Vic

- The Victorian Government's trade facilitation agency, with offices in 23 of Victoria's key export markets.
- Works with Victorian businesses to support connections with international markets, buyers, partners and business leaders.

LaunchVic

- Victoria's startup agency has strong links with Victorian startup founders, venture capitalists, angel investors and community partners, and delivers programs for startup founders and investors.

Regional Development Victoria (RDV)

- Lead agency for rural and regional economic development across the State.
- Provides information to industry and investors on Victoria's regions, and facilitates connections to regional industry bodies, regional agencies, and local governments.

Small Business Victoria

- Provides tailored support and advice to small businesses in Victoria, including those in, or wanting to expand into, Victoria's waste, recycling and resource recovery sector.

Breakthrough Victoria

- A private investment company for Victoria, providing private capital and investment that impacts the State's economy and wellbeing.
- It provides long-term capital to innovation businesses.

Recycling Victoria can connect you with these other agencies across the Victorian Government. Further information on the pathways and supports available to you is outlined here.

Why invest in Victoria's waste, recycling and resource recovery sector?

By fostering innovative design, encouraging reuse, and accelerating end markets for recovered materials, Victoria can unlock pathways for sustainability and economic growth.

Victoria's commitment to a sustainable circular economy

Victoria's plan for a circular economy

Recycling Victoria: A new economy is the Victorian Government's 10-year action plan to to transform the State's recycling sector, reduce waste, create jobs, and set Victoria up for a sustainable future. As part of this, the Victorian Government has invested $515 million in initiatives, reflecting our commitment to create the systemic change needed to cut waste and boost recycling and reuse of precious resources.

Since the launch of *Recycling Victoria: A new economy*, significant progress has been made in delivering these transformational reforms, positioning Victoria as a leader in the circular economy. Highlights include:

- $84 million in grant funding to improve the waste and recycling sector, attracting $254 million of further private infrastructure investment plus $40 million Commonwealth funding.
- 957,000 tonnes of newly installed waste and resource recovery capacity, with 1,629,000 tonnes of additional installed capacity by 2025.
- Under the Transfer Station Upgrade Fund, 38 councils are in contract to upgrade regional and rural Victorians access to glass and food organics and gardens organics services with 68 new drop off points and 156 transfer station upgrades.
- Recycled First projects resulting in 40 road and 12 rail projects committed to use 2.9 million tonnes of recycled and reused materials, which in volume is enough to fill the MCG.
- 79 local government funding agreements in place to enable councils to deliver the new 4 stream waste and recycling system.
- More than 600 CDS Vic refund collection points in place across Victoria with over 1,100 direct and indirect jobs created arising from the introduction of the scheme in its first year of operation.

Building Victoria's circular economy | vic.gov.au (www.vic.gov.au)

Our targets for 2030

These targets demonstrate our commitment to the circular economy.

Victoria's recycling targets include:

- Divert 80% of waste from landfill by 2030, with an interim target of 72% by 2025.
- Cut total waste generation by 15% per capita by 2030.
- Halve the amount of organic material going to landfill by 2030, with an interim target of 20% by 2025.
- Ensure 100% of households have access to food organics and garden organics (FOGO) services or local composting by 2030.

The transition to a circular economy is a key component of our goal to reduce greenhouse gas emissions by 45%–50% from 2005 levels by 2030 and reach net zero emissions by 2045.[1]

Stronger laws and governance of the sector

The Victorian Government has introduced new laws and regulations to provide stronger oversight of Victoria's waste and recycling sector. The *Circular Economy (Waste Reduction and Recycling) Act 2021* (CE Act) provides the foundation for Victoria's transition to a sustainable circular economy, including establishing Recycling Victoria, and enabling laws for the container deposit scheme and new state-wide 4-stream household waste and recycling system.

These new laws, supported by our regulatory framework, are creating a safer operating environment and a more resilient sector. This has lifted the quality and standard of the industry and created a level playing field to build confidence to invest.

Waste levies

Victoria's industrial and municipal waste levies were increased as part of the Victorian Budget 2024–25. The levy for metropolitan industrial waste will increase to $132.76 in FY 2025, and to $167.9 per tonne in FY 2026. The increased levies bring Victoria in line with New South Wales.

Higher waste levies in Victoria will support further investment in the waste, recycling and resource recovery sector. Increasing the cost of landfilling changes the dynamics of resource recovery and encourages higher rates of recycling in Victoria, enhancing the economic viability of resource recovery.

1 Climate action targets (climatechange.vic.gov.au)

An active, dynamic and resilient waste and recycling market

$4.4 billion

The estimated value of Victoria's waste, recycling, and resource recovery sector.[2] This is expected to grow as our circular economy strengthens.

Around 13,000

The number of workers employed in Victoria's waste, recycling and resource recovery sector.[3]

674

The number of recycling, reprocessing, transfer and disposal infrastructure facilities in Victoria.[4]

Around half of these facilities are in metropolitan Melbourne, and half in regional Victoria. There are opportunities to invest in areas according to market demand, including co-locating with or expanding existing facilities to realise operational efficiencies.

Recycling Victoria maintains an online map https://www.vic.gov.au/victorias-waste-and-resource-recovery-infrastructure-map.

Over 600

CDS Vic refund collection points.

In addition to Victoria's recycling, reprocessing, transfer and disposal facilities, this sees more than 1,000 waste, recycling and resource recovery locations across the state.

Unlocked resource efficiency and spending power

From moving to a circular economy, supporting growth and investment, including:

- 25x more jobs when moving from landfill to reuse of materials, with 3.3x more jobs when moving from landfill to recycling[5]
- $6.4 billion from materials efficiency can unlock (1.78% GSP)[6]
- $3.9 billion increase in household consumption with less waste, increasing spending power as efficiency of production improves.[7]

$1.2 billion

The total market value of Victoria's recovered materials.[8]

Current commodity values and market trends are tracked in the Circular Economy Market Repor prepared by Recycling Victoria and published on the Recycling Victoria Data Hub: Recycling Victoria Data Hub | vic.gov.au (www.vic.gov.au).

2 (Australian Bureau of Statistics, 2020) Waste Account, Australia, Experimental Estimates. Retrieved from https://www.abs.gov.au/statistics/environment/environmental-management/waste-account-australia-experimental-estimates/latest-release. Estimate of the value in the 2018–19 financial year based on this data.

3 Derived from ABS, Detailed Labour Force Survey (May 2024). Available at: https://www.jobsandskills.gov.au/data/labour-market-insights/industries/electricity-gas-water-and-waste-services
Includes employment in 'Waste collection services' and 'Waste treatment and remediation services' sub-industry classifications. Assumes a 27% share of employment in Victoria, consistent with the share of employment in the Electricity, Gas, Water and Waste Services industry.

4 VRIP, 2024

5 Access Economics (2009), Employment in waste management and recycling.

6 The Centre for International Economics (2017). Headline economic value for waste and materials efficiency in Australia.
Note: The potential costs of introducing material efficiency measures are not counted in this estimate.

7 Circular Economy report, 2024

8 https://www.mckinsey.com/industries/packaging-and-paper/our-insights/filling-the-gap-boosting-supply-of-recycled-materials-for-packaging

End-market demand

The demand for high-quality recycled materials is increasing in Australia and globally. For example , if brands with public recycled-content commitments follow through on their plans, the US demand for recycled polyethylene terephthalate (rPET) in 2030 would outpace supply by about three times.[9] This is being driven by a range of factors, such as:

- Consumer interest in the circular economy and shifting preferences towards recycled products
- Increasing applications for recycled products, supported by programs such as EcologiQ which is finding new and innovative applications for recycled materials in infrastructure projects as part of Victoria's Big Build
- Recycled content targets set by industry, and supported by governments, such as the national packaging targets
- The introduction of government procurement policies. For example, Victoria's Recycled First Policy, the measures which are included as part of the National Waste Policy Action Plan, and the inaugural Environmentally Sustainable Procurement policy, released in 2024, are bolstering the domestic market for products with recycled materials.

This is building resilience in the market, supporting industry confidence to invest in research and development in the infrastructure and technologies required to meet this demand.

9 ecologiQ – Victoria's Big Build

Improved recovery and collection

Continued generation of feedstock driven by population and economic growth, along with improving recovery and collection of waste and requirements for local reprocessing, presents significant opportunities for investors in the Australian and Victorian markets.

More domestic recycling and resource recovery infrastructure and facilities will not only boost Victoria's economy and support the creation of local jobs, but also build the longer-term resilience of the industry to navigate external shocks and disasters.

Improved collection supported by Victoria's reform agenda

Victoria has set a target to divert 80% of its waste from landfill by 2030, which will require increasing resource recovery rates.

Increases to recovery rates are being supported by the Victorian Government through measures such as product stewardship schemes and regulatory reforms. These will also help improve collection systems to support increased quality of feedstock for processing.

- CDS Vic, Victoria's container deposit scheme, will help create a cleaner stream of material for recycling and reduce the number of beverage containers ending up in landfill or littering land and waterways.
- Victoria's transition to a standardised 4 stream household recycling system (glass, FOGO, mixed recycling and general rubbish) will reduce contamination, increasing the volume and quality of materials that can be recovered for recycling and reuse.

Growing demand for local reprocessing capacity

The Australian Government's national export regulations on critical waste streams provide an opportunity to build and invest in domestic processing capacity and capability. The regulations are impacting the export of plastic, paper, glass, and tyres, and are intended to ensure exported materials are clean, low in contamination and ready to use.

The Victorian Government advocates for strong and effective product stewardship arrangements to support a successful circular economy and is actively supporting the Australian Government to develop new product stewardship schemes for solar panels and packaging.

The Victorian Government's EcologiQ program contributes to a Victorian circular economy by increasing the use of Victorian reused and recycled materials, and reducing waste in transport infrastructure construction.

Significant increasing landfill levies in Victoria are expected to improve resource recovery rates, reduce waste going to landfill and increase the demand for local reprocessing.

Fertile ground for business: why Victoria is the place to invest

Victoria is open for business and committed to attracting the best organisations, capability, and talent. Investment remains critical to securing the skills, capabilities and technology that will ensure Victoria's long-term growth.

Fastest growing State

Victoria is a driving force in Australia's economic landscape.

- As at January 2024 it has the fastest growing economy in Australia, with a gross state product reaching $569 billion in 2022–23 and a growth rate of 2.6%.[10]
- The population is projected to reach 10.3 million by 2051[11], making us the fastest-growing population in Australia.

Most liveable capital city

- Melbourne repeatedly ranks as one of the most liveable capital cities globally.
- By 2032, it is expected to become Australia's largest city with over six million people.[12]
- Its robust infrastructure, efficient healthcare system, and high-quality education institutions create a solid foundation for attracting and retaining a skilled workforce.[13]

Growing regions

- Victoria has thriving regional cities that are projected to grow significantly as Victoria's population increases.
- The Victorian Government is working closely with regional communities and with industry and business to support regional investment. More information can be found on Regional Development Victoria's website.

World-class infrastructure and connectivity

- Victoria boasts well planned and efficient road, rail, and freight networks, which connect Victoria's metropolitan and regional areas.
- There is easy access to major transport hubs, including Australia's largest port and two curfew-free international airports.

Highly skilled workforce

- Victoria benefits from the most educated workforce in Australia.[14]
- It has a pipeline of skilled workers equipped to support the circular economy, enabled by strong education and training programs, an emphasis on innovation and technology, and ongoing collaboration between educational institutions and industry.

A powerhouse for research and innovation

- Victoria is home to world-leading universities and research institutions.
- It attracts top-tier talent and is undertaking ground-breaking research, including in the circular economy.
- Victoria's focus is bringing academic research to commercial success, which is backed by substantial State investment.

Strategically located industrial land

- Melbourne offers a range of strategically located and well-connected industrial precincts that are suitable for new infrastructure and commercial use. Planning and protection of industrial and commercial land is outlined in the Melbourne Industrial and Commercial Land Use Plan (MICLUP).
- Zoned industrial and commercial land in growing peri-urban areas, regional centres and rural townships also offer the advantage of strong transport links, affordable land and are home to some of Victoria's fastest growing communities.

The VRIP provides further information to guide investors on suitable development areas for infrastructure investment across the State. VicPlan can also be used to understand land zoning in Victoria: https://mapshare.vic.gov.au/vicplan/

For further information on investing in Victoria, visit Invest Victoria's website.

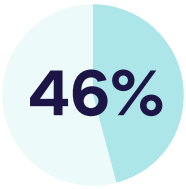
10 Current economic developments - Invest Victoria
11 Victoria in Future (planning.vic.gov.au)
12 Centre for Population, 2022 Population Statement, The Australian Government
13 One of the world's most liveable cities - Invest Victoria
14 Highly skilled talent - Invest Victoria

Exploring investment opportunities in Victoria

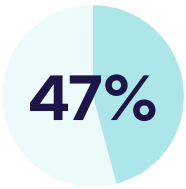
Victoria's waste, recycling and resource recovery sector: an overview

Investment in waste, recycling and resource recovery infrastructure in Victoria is critical to ensure it has the capacity to meet future demand to process its waste.

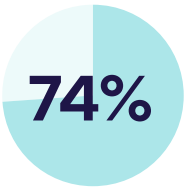
In 2023, Victoria generated a total of 14.6 million tonnes of waste.[15] With a growing population over the next three decades; this is expected to nearly double to 27.8 million tonnes by 2053.



Nearly half of Victoria's waste by weight stems from the construction and demolition (C&D) sector, which is one of the largest and growing industry sectors in the State.



Aggregates, masonry, and soils is the largest material stream, contributing around 47% of the estimated total state-wide waste generation in 2023.



The Port Phillip region (metropolitan Melbourne) generated the majority of total waste, with Barwon South West and Gippsland regions contributing 7% and 5%, respectively. (Note – these figures are for kerbside collection waste.)

There is a significant investment opportunity to support Victoria and Australia's ambition to achieve its target to recover 80% of all waste, by increasing capability and capacity to recycle and recover diverse types of waste.

Approx 10.1m tonnes (69%)

of waste in Victoria was recovered in 2023.[16]

Over 90%

of this was processed locally (around 9.1 million tonnes).

A further 1m tonnes

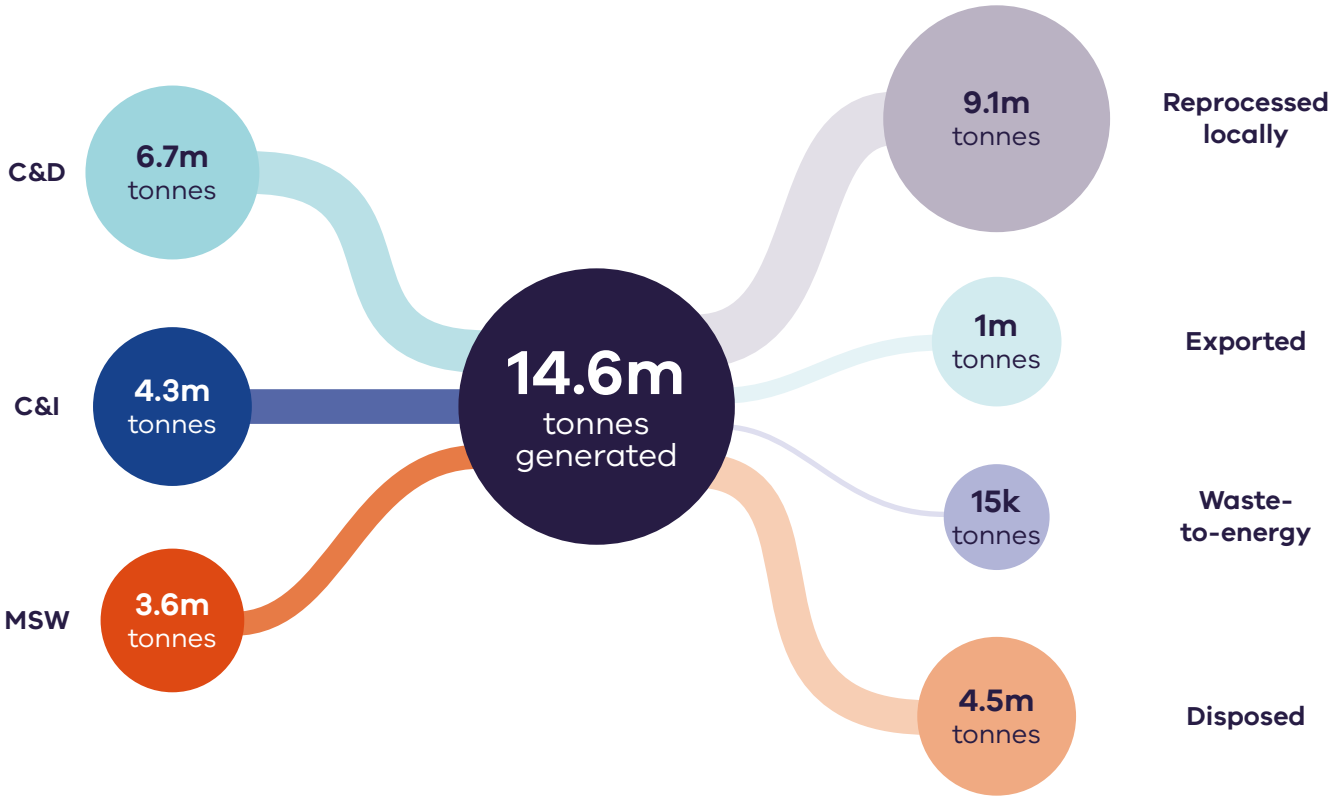
was exported.

A small percentage

of waste was also transformed into energy

15 Recycling Victoria (2024). Victoria's waste projection model dashboard.
16 Recovered waste refers to wastes that are recycled, processed by Waste to Energy (WtE) and/or exported from Victoria (both interstate and internationally).

2023 overview of Victoria's waste flows[17]



Overview by material stream[18]

Waste stream	Waste generated (2023)	Recovery rate (2023)	Projected volume (2053)	Volume increase (2023–2053)
Aggregates, masonry, and soils	6.9 M	83%	15.6 M	126%
Glass	0.4 M	64%	0.6 M	50%
Metals	1.4 M	88%	2.4 M	71%
Organics	3.1 M	49%	5.0 M	61%
Paper and cardboard	1.6 M	59%	2.3 M	44%
Plastic	0.8 M	21%	1.3 M	63%
Textiles	0.3 M	38%	0.5 M	67%
Tyres and rubber	0.06 M	74%	0.1 M	67%

17 Source: Recycling Victoria's Waste Data Hub
18 Source: Recycling Victoria's Waste Data Hub

Unlocking economic potential: investment prospects

With a strong commitment to a circular economy, Victoria is a fertile ground for investment, innovation and growth.

- The VRIP sets out the priorities for development across all material streams and infrastructure types. It considers the capacity needed to meet future demand, the capability needed to meet the needs of the market, and potential locations across the State suitable for new facilities.
- The VRIP also sets out short-, medium- and long-term investment directions for each material stream. These consider the current and expected future market dynamics, including the economic viability of potential investments.
- The Circular Economy Market Report further outlines a range of market opportunities to achieve circularity across the waste streams and reduce the use of virgin resources.

This investment prospectus highlights investment opportunities across material streams.

- The VRIP identified certain material streams that required increased infrastructure capability to meet market requirements as priority areas, as the capability shortfall meant they were not well placed to respond to current and future market needs.
- However, it is important for the State to have infrastructure in place that meets its needs across all these categories, including the more established material streams, and that each provides for investment opportunities.

The following pages feature a non-exhaustive list of investment opportunities in priority material streams.

Click on the links to find out more about the investment opportunities available in each area.

Plastics
Investing in Victoria's plastics market is promising due to increasing global plastic consumption, demand for plastic recycling, government support, and technological advancements.

Organics
The Victorian organic waste market is predicted to grow sevenfold annually by 2053, offering investment opportunities due to increased organics recovery and technological innovation.

Tyres and rubber
Victoria's tyre and rubber recycling industry is expanding, with high investment potential due to rising crumb rubber use and demand for tyre-derived low-emission fuel.

Textiles
Victoria generates over 300,000 tonnes of textile waste, with growing industry circularity movements seeking to increase resource recovery.

E-waste
This rapidly growing material stream contains high value material such as precious metals and critical minerals that could be extracted through innovative new technologies

Recovery and sorting infrastructure
The Material Recovery Facilities (MRF) market in Victoria offers strong investment opportunities due to increasing waste recycling demand, CDS Vic scheme, strict export rules, and quality product demand.

Waste-to-energy
Victoria's waste-to-energy market provides environmental and economic benefits, reducing landfill waste, supporting decarbonisation, and offering financial gains from energy production within a robust regulatory framework.

Other material streams
The established material streams market in Victoria offers robust investment opportunities with the potential for substantial returns, as the market responds to future capacity demands and government policies. This includes: paper and cardboard; glass; metal; aggregates, masonry, and soil.

Plastics

Why invest in plastics?

The current market value of Victoria's recovered plastic waste is estimated to be $70 million per annum. Increasing recovery rates to 70%, the end market value could be more than $360 million per annum by 2053.[19]

Rising demand for plastics recycling

- Australia's plastic consumption is on the rise, with global projections indicating a doubling in usage by 2040.[20] In Victoria, this will see plastic waste generation increasing by 57% over the next 30 years.

A critical commodity

- Recycled plastic plays a critical role in a wide variety of industry sectors. Nationally, 76% of recycled plastics are being used as packaging, with 27% used in industrial applications. However, there is limited use across agriculture, built environment, transport, electrical and electronics.[21]
- Priority applications include using recycled plastics for remanufacturing of packaging and products so they can be recycled again. Other potential applications include use as additives in manufacturing of building materials, timber substitute products, plumbing fittings, textiles, and asphalt additives.
- The market price for virgin-equivalent recycled plastics fluctuates however, depending on the type and quality, they can command higher prices than virgin plastics. Currently, the price of virgin equivalent PET and HDPE plastics are between 50%–100% higher than virgin PET and HDPE on global markets.[22] This reflects an increasing demand from manufacturers to integrate recycled contents in their packaging, both locally and internationally.

Supportive policy and regulatory environment

- The Australian packaging industry is targeting a 70% recycling rate for plastics packaging by 2025, with a mandate to include at least 50% recycled contents into all new packaging.
- In October 2022, Australia's Environment Ministers agreed to reform packaging regulation by 2025. Reforms will ensure all packaging available in Australia is designed to be recovered, reused, recycled and reprocessed safely in line with circular economy principles. National advice for industry on the anticipated design requirements, including recyclability, recycled content requirements and designing out chemicals from packaging, are expected to be released at the end of 2024.
- CDS Vic will result in clean and well sorted streams of recyclable material supporting high quality recycling outcomes.
- The introduction of a standardised 4-stream system will help reduce contamination and increase the volume and quality of materials recovered for recycling and reuse.
- In 2022, the Australian Government banned the export of unprocessed plastic waste, thereby increasing the volume of material requiring domestic reprocessing.
- The listing of plastics in healthcare on the Federal Minister for Environment and Water's product stewardship Priority List in 2023–24 holds promising prospects for enhanced collection and reprocessing from this sector.

19 Source: Circular Economy Market report – estimated 2053 value is based on 70% recovered waste volume of 0.87m tonnes, at $420 / tonne (average 2020–21 price).
20 Source: Australian Plastics Flows and Fates Study 2020–21 – National Report
21 Source: Australian Plastics Flows and Fates Study 2020–21 – National Report
22 Kerbside plastic packaging | vic.gov.au (www.vic.gov.au)

Key investment opportunities in Victoria

Investing in Victoria's plastics market offers significant business opportunities, driven by a projected doubling of global plastic consumption and rising demand for plastic recycling.

Future market growth creates an attractive investment climate for investors. Future growth will be underpinned by:

- the crucial role of recycled plastic in various industries
- supportive government policies and regulations
- the ban on unprocessed plastic waste exports
- technological advancements in reprocessing facilities
- ongoing R&D efforts.

Further investments in existing technologies

Invest in mechanical reprocessing facilities to improve the capacity for reprocessing rigid plastics. This is a proven technology, and the introduction of export bans have increased demand for domestic reprocessing capacity, while the introduction of the CDS has produced a new stream of high-quality feedstock material for recycling.

Scale up emerging technologies

Build commercial-scale chemical reprocessing facilities to increase capability to process soft plastics. The developed service standards provide for kerbside collection of soft plastics, and the commercial sector provides other collection opportunities to secure feedstock to support economies of scale. While the domestic market is not yet well developed, there are potential offtake opportunities for the outputs of chemical reprocessing.

Research and development

Explore new approaches that are environmentally sustainable and cost-effective and capable of producing virgin equivalent plastics (e.g. enzymatic recycling technologies for PET plastics). Plastics is a material stream where additional capability is needed. The volume of unprocessed materials and limits of current technology means there is a significant potential market for breakthrough new technologies.

Regional Opportunities

- Aggregate regional waste volumes can support additional regional reprocessing facilities.
- There are regional specific waste types, such as agricultural waste plastics and silage wraps that present potential investment opportunities.

Case study

APR highlighting the possibilities of advanced chemical recycling to make soft plastics good as new

Australian Paper Recovery (APR) Plastics in Dandenong South is piloting new systems to transform the sorting and recycling of soft plastics.

Traditionally, the recycling of most plastics has relied on mechanical processes involving shredding, washing, and melting plastics into new pellets for manufacturing. However, with each recycling cycle, the plastic quality diminishes, leading to eventual disposal in landfill.

APR is exploring advanced chemical recycling, also known as feedstock recycling. This cutting-edge technology enables the conversion of plastic waste, including post-consumer soft plastics, into a plastic crude oil, which can be refined back into high-quality raw material for manufacturing, equivalent to virgin plastic.

APR is looking to scale its advanced chemical recycling and establish a $3.8 million plant with a processing capacity of 5 tonnes per day (1,800 tonnes per annum).

For more information, read Funded project – Recycling soft plastics into plastic crude oil and watch Ministers visit APR Plastics.

Source: Adapted from Sustainability Victoria.

Current market overview

As a leading hub for plastic recycling in Australia, Victoria is home to 48 facilities that collectively recycle almost half of the country's total recovered plastics.

The existing facilities in Victoria process 16% of the State's total plastic waste (127,400 tonnes) and have a combined capacity of approximately 160,000 tonnes per annum.

Victoria's current infrastructure is primarily equipped with mechanical processing technology. The emerging chemical reprocessing technology offers the capability to handle a broader range of plastic types, including soft plastics. With two pilot facilities already operational in Victoria, there are opportunities to further develop this market and support processing of soft plastics and other complex polymer types.

Case study

ecologiQ

ecologiQ is a Victorian Government initiative supporting the State's Big Build Projects to optimise the use of recycled and reused materials as Victoria transitions to a circular economy. ecologiQ is building supply chain capability for the recycled and reused material market by making connections, removing barriers and supporting suppliers to get innovative products into trials. Since 2020, ecologiQ has facilitated the delivery of over 4.5 million tonnes of recycled materials across the Victorian Big Build Projects, from metropolitan road upgrades in Melbourne's South East to regional rail line upgrades across the State. For example, installing noise walls that were made from 75% recycled plastic for the Mordialloc Freeway Upgrade. The ecoloigQ networking events are helping drive innovation and collaboration across the industry, with ecologiQ's buyer/supplier exchanges helping connect contractors to the recycled supply chain and giving suppliers an understanding of project needs. Further information can be found here – ecologiQ – Victoria's Big Build.

Case study

Exploring joint venture investments to capture opportunities in bottle-to-bottle plastics recycling

Circular Plastics, Australia's new PET plastic recycling facility processes over one billion plastic bottles every year, equivalent to more than 150 bottles for every Victorian. This joint venture between Coca-Cola Europacific Partners, Asahi Beverages, Pact Group and Cleanaway stands as a prime example of a complete, bottle-to-bottle solution, where plastic bottles sourced from household recycling bins and container deposit schemes are recycled and remanufactured into new packaging at PACT Group's Altona North facility.

It exemplifies best-practices in closing the loop between design, manufacturing, and recycling, integrating waste processing and manufacturing to replace virgin materials with recycled resources, while promoting collaboration across supply chains.

This is the second Circular Plastics Australia PET recycling facility in Australia, following the opening of a similar sized plant in Albury, NSW which commenced operations in March 2022. Circular Plastics also runs Australasia's largest end-to-end PET recycling facility that processes more than 20,000 tonnes of HDPE and PP plastic milk bottles, containers and food tubs each year in Laverton, Victoria.

For more information, read Victoria's biggest PET plastic bottle recycling plant opens for business in Melbourne and watch Circular Plastics Australia PET.

Source: Sustainability Victoria.

Plastics data at a glance

In 2022–23, Victoria generated 792,000 tonnes of plastic waste. This is set to increase to at least 1.24 million tonnes (57% increase) by 2053.

- 21% of total plastic waste was recovered in Victoria – with the remainder sent to landfill. This recovery rate is consistent with other Australian jurisdictions and reflects continued challenges with the collection across all plastic types and reprocessing capabilities of certain plastics (i.e., soft plastics, PVC and mixed plastics).
- Primary plastics (PET, HDPE, PE, PP, and PS) have higher recovery rates (18% to 36%) than other plastics such as PVC and mixed plastics, which have low recovery rates (4% to 8%), although there is a decline of manufacturers using these plastics.
- Plastics are mainly recovered from municipal solid waste (MSW) and commercial and industrial (C&I) waste (each at 22%), with a lower recovery rate (15%) from C&D waste.

Plastic waste flows 2022–23

Source: Recycling Victoria's Waste Data Hub

Where can I find out more?

- Prices, demand, and supply for recycled plastics: https://www.vic.gov.au/kerbside-plastic-packaging
- Market insights and recent market developments: https://www.vic.gov.au/circular-economy-market-report
- Plastic waste flows: https://www.vic.gov.au/victorias-waste-projection-model-dashboard
- Rigid plastics packaging fact sheet: https://documents.packagingcovenant.org.au/public-documents/APCO%20Material%20Factsheet%20Rigid%20Plastics
- Flexible plastics packaging fact sheet: https://documents.packagingcovenant.org.au/public-documents/APCO%20Material%20Factsheet%20Flexible%20Plastics
- Solving Plastic Waste Cooperative Research Centre (CRC) was established on 1 July 2024: https://www.plasticwastecrc.com/

Organics

Key drivers for investment

Increasing organics recovery from 49% to 75% has the potential to drive the market value of Victoria's recovered organics to $520 million per annum by 2053, up from $70 million.[23]

Improved collection increasing feedstock for organics reprocessing

- Source-segregated organic waste is set to increase by over 60% up to 5 million tonnes per annum by 2053.
- The rollout of FOGO collection services in Victoria will provide increased supply of feedstock for reprocessing.
- Victoria is Australia's largest food and fibre producing State, with significant opportunities to leverage agricultural waste as biomass in the production of biomethane.

Supportive regulatory environment

- Improving recovery and processing of organics is a priority for the Victorian Government. As part of its 10-year action plan, Victoria has targets to:
  - Halve the amount of food waste going to landfill by 2030, with an interim target of 20% by 2025.
  - Ensure 100% of households have access to food and organic waste services or composting by 2030.
- Achieving these targets requires additional capability in the marketplace to support increased recovery rates of organics, which in turn will drive increased demand for reprocessing capacity.

Bioenergy can support the transition to net zero

- Anaerobic digestion has been identified as a priority infrastructure to recover more organic waste[24] and can support the transition to cleaner energy sources.
- With Australia's strong agricultural sector, local market demand for compost, digestate, and biochar is well-established.
- The bioenergy potential of Victoria's organics waste is estimated at 24.9 petajoules, which is equivalent to 12% of the current gas consumption in Victoria in 2020.[25] This translates to $420 million of economic value per annum.[26]
- Renewable gas is a key component of the Victorian Government's Gas Substitution Roadmap.

23 Source: Circular Economy Market report – estimated current market value is based on 49% recovered waste volume of 1.5m tonnes, at $40 / tonne (average 2020–21 price). Assuming the 25% additional recovery rates is for organics conversion to biogas which will result in 24.9 petajoule biogas production potential. Methodology and data inputs to be tested and refined.

24 Recycling Victoria: A New Economy

25 Sustainability Victoria (2021). Assessment of Victoria's Biogas Potential. https://assets.sustainability.vic.gov.au/susvic/Report-Energy-Assessment-of-Victorian-biogas-potential.pdf

26 Calculated from the Victorian biogas potential and assuming gas price of $16.84 per gigajoule from Statista https://www.statista.com/statistics/1299037/australia-gas-market-price-victoria/

Key investment opportunities in Victoria

The organic waste market in Victoria offers substantial commercial opportunities due to anticipated market growth from $70 million to $520 million annually by 2053, providing the opportunity for significant returns for investors.

Market expansion will be driven by an increase in organics recovery and organic waste, in addition to opportunities in technological expansion and innovation, which could generate an additional $420 million in economic value each year.

Further investments in existing technologies

- Invest in bioenergy technology. Including anaerobic digestion plants to convert organics waste stream into biogas. Bioenergy presents an opportunity to capitalise on feedstock opportunities and support the move to net zero. The Victorian Government's Gas Substitution Roadmap supports the path to Net Zero emissions, including through the use of renewable gases, such as biomethane and renewable hydrogen.
- Invest in composting facilities to capitalise on the feedstock opportunities presented by the improved organics waste stream collection systems from food organics and FOGO collection.
- Invest in decontamination infrastructure to remove higher volume of contamination in feedstock. The nature of organics collections means that some level of contaminants will inevitably be present in MSW and C&I streams. Pre-sorting and pre-processing infrastructure to remove contaminants and packaging will improve the quality of processed organics.
- Utilise post biological treatment steps in existing reprocessing facilities to improve end-product quality and produce different grades of products to access diverse and improved markets.

Research and development

- Explore new approaches that are environmentally sustainable, fit-for-purpose and cost-effective to reprocess organics (e.g. pyrolysis, insects farming). The combination of limits to the capabilities of existing reprocessing technologies, projected increases in feedstock and ambitious government targets means there are market opportunities for breakthrough technologies.

Regional Opportunities

- Organics is a material stream with strong regional investment potential. Regional settings provide opportunities for buffer distances, and two stage processing, with initial decontamination in urban areas near where the waste is generated, followed by further processing in regional and rural areas.
- Victoria's strong agricultural sector provides opportunities for feedstock generation, end markets and co-location of facilities to support organics processing and bioenergy generation.

Market overview

Victoria is home to 81 organics reprocessing facilities, with a capacity of 2.5 million tonnes per annum.

Many of these facilities are based in regional and rural areas, with organics as one of the few material streams with material transported out of Melbourne for regional reprocessing.

Three significant facilities in metropolitan Melbourne pre-process organics which are further processed in regional and rural areas.

Current facilities use a range of technologies, such as open windrow, in-vessel and anaerobic processing, to turn organic waste into outputs including compost, biofuel, and animal bedding.

In addition, there are currently eight anaerobic digestion facilities in Victoria. These are primarily co-located with water corporations to produce bioenergy.

Organics: key data

In 2022–23, Victoria generated more than 3.1 million tonnes of organics waste. This is projected to increase to 5 million tonnes by 2053 (a 61% increase).

- 49% of organics in Victoria were recovered in 2022–23. This is relatively low compared to some Australian jurisdictions (NSW, ACT, and SA) with recovery rates anticipated to continue to increase with the rollout of FOGO kerbside services by 2030.[27]
- Food waste and woods / timbers have the lowest recovered rates of organic materials (25% and 28% respectively) owing to limited – but growing – collection of food waste (60% of local councils currently collect FOGO, with all councils to have FOGO services by 2030) and limited capability to deal with treated woods / timbers.
- Garden organics and other organics have higher recovery rates (76% and 59% respectively) resulting from well-established collection services.

Organics waste flows 2022-23

Source: Recycling Victoria's Waste Data Hub

27 https://www.dcceew.gov.au/sites/default/files/documents/national-waste-report-2022.pdf

Case study

Victoria's water authorities are highlighting the possibilities of investing in anaerobic digestion infrastructure

The water sector plays an important role in the circular economy. Organisations in the water sector are well placed to support the transition to a circular economy due to their access to suitable land, expertise in managing organic waste and treatment technologies, and commitments to resource recovery and reducing greenhouse gas emissions.

One such leader is Yarra Valley Water, which operates an anaerobic digestion facility at its Aurora Sewage Treatment Plant in Wollert.

The digester at the facility accepts 33,000 tonnes of food waste per year (sourced from markets and food manufacturers) and produces 22,000 kilowatt-hours of electricity a day, enough to power 1,300 homes. This bioenergy is used to power not only the waste to energy facility itself, but also the neighbouring sewage treatment plant. The remaining energy is exported to the grid.

There are opportunities for further investments in systems like this in Victoria, which can reduce costs, divert waste from landfill, reduce greenhouse gas emissions and produce renewable energy.

Source: Recycling Victoria.

Where can I find out more?

- Funded organics waste infrastructure projects: https://www.cebic.vic.gov.au/learn/explore-by-industry/food-and-organics
- Recycled organics market: https://www.sustainability.vic.gov.au/recycling-and-reducing-waste/product-stewardship/recycled-organics-products
- Victoria's biogas potential: https://assets.sustainability.vic.gov.au/susvic/Report-Energy-Assessment-of-Victorian-biogas-potential.pdf
- AORA strategic plan: https://aora.org.au/wp-content/uploads/2024/05/AORA-Vision-2031-Roadmap-web.pdf
- Victorian Bioenergy network: https://vicbioenergy.com.au/

Tyres and rubber

Key drivers for investment

The current market value of Victoria's tyre and rubber waste is estimated at $16 million. By developing local capability and increasing recovery rates to 80%, the end market value could double to $36 million per annum by 2053.[28]

End markets

- The domestic reuse of crumb rubber in road construction or other surfacing applications is currently one of the most common end markets for recycled tyre and rubber products.
- Recent work led by government and industry is broadening the possibilities for use of recycled rubber. TSA has committed over $9 million to explore and develop domestic markets for reprocessed tyres.[29]
- EcologiQ, which supports Victoria's Recycled First Policy, has undertaken significant work to identify multiple other applications for crumb rubber and tyre-derived aggregate, which have been used in Victoria's Big Build infrastructure projects.[30]
- Industry is actively exploring wider end markets and opportunities for improved circularity to reduce reliance on exports and instances of illegal dumping and stockpiling.
- Tyre-derived fuel (TDF) generates approximately 60% fewer greenhouse gas emissions than coal.[31] As Australia works towards its legislated net zero target by 2050, TDF emerges as a potential substitute for industries involving the use of power plants, paper mills, smelters, and cement kilns.

Established reprocessing technologies

- Thermal processing is a well-established technology to convert tyre materials into valuable products such as oil fuel, lubricants, and waxes for years to come. The maturity of this technology makes it a low-risk, attractive investment option.

Supportive regulatory environment

- Australia actively regulates the export of waste tyres under the *Recycling and Waste Reduction Act 2020 and the Recycling and Waste Reduction (Export – Waste Tyres) Rules 2021*.[32] This prevents export of whole baled tyres for use as a low grade fuel, which will encourage local capability and capacity development.
- The TSA scheme aims to improve tyre recycling rates and promote the use of recycled tyre materials in environmentally beneficial applications, both domestically and internationally.

28 Calculated based on the 2020–21 market price for tyres and rubber $380
29 (Australian Competition & Consumer Commission, 2024)
30 Crumb rubber – Victoria's Big Build
31 (Warnken Industrial and Social Ecology Pty Ltd, 2016)
32 (Australian Government DCCEEW, n.d.)

Key investment opportunities in Victoria

The tyre and rubber recycling industry in Victoria has seen considerable advancement in promoting sustainable waste management practices.

The sector presents solid investment opportunities with the potential market expansion predicted to increase twofold to $36 million per annum by 2053. Factors such as increased domestic usage of crumb rubber, driven by government and industry initiatives, and a growing demand for low-emission, tyre-derived fuel, contribute to its appeal.

Further investments in existing technologies

- Invest in fibre separation facilities to increase domestic reprocessing and reuse of crumb rubbers.

Research and development

- Further piloting of pyrolysis plants to produce tyre derived fuels, consumer-grade fuels, lubricants, and waxes along with high value carbon black.

Market overview

Australia's ban on the export of whole baled tyres came into effect in December 2021. Exports are still allowed for processed tyre materials, such as crumbs, buffing and shreds. Exports to overseas re threading facilities and for second-hand reuse is also still allowed.

The Port Phillip (metropolitan Melbourne) region has emerged as a hub for tyre recycling, hosting all six of Victoria's reprocessing facilities. Three plants specialise in transforming end-of-life tyres into rubber granules and crumb rubbers, which are commonly used as inputs into asphalt for roads and other surfacing applications. The other three facilities shred tyres to meet export specifications, enabling tyres to be used as tyre-derived fuels.

The demand for recycled tyre and rubber products in Victoria does not meet the current generation of end-of-life tyres. Victoria therefore relies heavily on the export of its recycled materials, although there has also been a rise of illegal dumping and stockpiling, which can pose serious fire risks. This is consistent with the market in other jurisdictions in Australia.

Tyres and rubber: key data

Over the next 30 years, Victoria's generation of tyres and rubber will increase from 56,000 tonnes to 120,000 tonnes.

- In 2022–2023, 74% of the total tyre and rubber waste was recovered in Victoria, with 42% being processed locally and 32% being exported for processing.[33]
  The remaining 26% was sent to landfill.
- Due to the large demand for using tyres as alternative fuel internationally, many tyres are only pre-processed to meet the criteria for export requirements under the Australian tyre export ban.

Tyres and rubber waste flows 2022–23

Source: Recycling Victoria's Waste Data Hub

Where can I find out more?

- Funded TSA projects: https://www.tyrestewardship.org.au/handbooks/tsa-funded-projects-brochure/
- https://www.sustainability.vic.gov.au/grants-funding-and-investment/invest-in-victorias-circular-economy/invest-in-materials-and-infrastructure/invest-in-tyres
- Tyres export restrictions: https://www.dcceew.gov.au/environment/protection/waste/exports/tyres

33 Source: Recycling Victoria's Waste Data Hub

Textiles

Key drivers for investment

The current market value of Victoria's textile waste is estimated at $13 million. By developing local capability and increasing recovery rates to 80%, the end market value could triple to $43 million per annum by 2053.[34]

Growing industry circularity movements

- Industry product stewardship schemes like Seamless have developed a roadmap to establish multiple recycling facilities for clothing by 2030. The scheme aims to divert 60% of end-of-life garments from landfill by 2030.

Strong government support

- Clothing was first listed on the product stewardship priority list in 2021–22, in recognition of the significant volume of clothing entering landfill.
- The Australian Government has since funded the development of Seamless and has stated its intention to make it mandatory if insufficient clothing manufacturers and importers sign up for the scheme.
- Mattresses have been included on the product stewardship priority list since 2022–23 as they are bulky and present fire hazards. Significant improvements in product stewardship actions across the supply chain are expected, with a report due back to the Minister on the industry led Bedding Stewardship Scheme by the end of 2024.
- Textiles have been identified as a priority waste stream in many government recycling infrastructure grants.

Market overview

The capacity and capability for textiles processing in Victoria and Australia is currently limited. Three textile recycling facilities are based in Victoria, including two dedicated to mattress reprocessing.

Textile reprocessing in Australia largely uses mechanical fibre recycling techniques.

There are several other recycling processes used internationally, such as mechanical polymer recycling, chemical polymer recycling, and chemical monomer recycling.

These technologies involve melting or dissolving textiles to break down the fibres to enable the creation of new fibres or plastics or, in some cases, produce virgin-quality fibres.

Textiles: key data

In 2022–23, Victoria generated 348,600 tonnes of textile waste. This is set to increase to 535,000 tonnes by 2053 (an increase of 53%).

- Clothing is the largest contributor to textile waste, accounting for just over half of this waste stream. Other sources of textile waste include upholstery, carpets, mattresses and manufacturing offsets.
- While a significant volume of Victoria's waste is exported internationally, Victoria also exports some of its textiles interstate. If Victoria were to boost its capacity to reprocess the textile waste it currently exports to other Australian States, it is estimated that Victoria would require additional capacity of 27,000 tonnes per annum by 2035.
- Around half of Victoria's clothing waste is channelled into clothing donation services.[35] However, it is estimated that only 13% is reused in Victoria, and 27% is exported mostly for reuse overseas. Approximately 60% of Victoria's discarded clothing ends up in Victoria's landfills.

34 Assuming a conservative $100/tonne market value [Methodology to be reviewed and confirmed by DEECA]
35 https://content.vic.gov.au/sites/default/files/2024-03/circular-economy-market-report-2024_0.pdf

Case study

Building from the success of UPPAREL's Textile Recycling Collection Program

UPPAREL is Australia's leading textile recovery and recycling company. Its Textile Recycling Collection Program addresses the fashion industry's impact on the environment by preventing textiles from reaching landfills, extending the lifespan of clothing through efficient sorting and recycling, and raising awareness about the environmental impact of textile waste.

UPPAREL has been established as a nation-wide collection program to intercept textiles before they enter landfills, reducing soil and water contamination and greenhouse gas emissions. The company uses a manual sorting method for its collected garments. Sorted garments are then reused, repurposed, or recycled, transformed into recycled fibres for reuse or a fully recyclable product called UPtex which can be used for packaging, signage and homewares.

The program has successfully diverted more than 450 tonnes of textiles from landfill, translating to around 2.8 million individual garments, and reduced 1,600 tonnes of carbon dioxide equivalent emissions.

The success of UPPAREL highlights how investment in textile collection and recycling infrastructure can find end markets for fit-for-purpose textiles.

Source: Sustainability Victoria.

Where can I find out more?

- Fashion roadmap to circularity: https://ausfashioncouncil.com/wp-content/uploads/2023/06/Roadmap-to-Clothing-Circularity.pdf
- Further investment opportunities in textiles: https://www.sustainability.vic.gov.au/grants-funding-and-investment/invest-in-victorias-circular-economy/invest-in-materials-and-infrastructure/invest-in-textiles

E-waste and renewable energy technologies

Key drivers for investment

This waste stream contains precious metals and critical minerals which have been sent to landfill due to limitations with current mechanical recycling technologies. Investing in advanced technologies will open better market opportunities for this sector.

Key drivers for investment

Increasing feedstock

- E-waste is a growing material stream due to the rapid pace of technological change, leading to increased volumes of obsolete electronics generated by consumers and industry.
- There is rapid uptake of renewable energy technologies across Australia, such as solar panels and wind turbines, with some products now reaching their end of life.
- As governments further drive towards renewable energies and net zero, there is a significant opportunity for investment in infrastructure that can manage this emerging waste stream.

Supportive regulatory environments

- In 2019, the Victorian Government banned e-waste from landfill and invested more than $16.5 million in upgrading e-waste collection and storage facilities, and infrastructure to support e-waste to be safely recycled.
- The Australian Government has committed to establishing a mandatory product stewardship scheme for electrical products and solar PV systems, and options are being investigated for a scheme for batteries.[36]
- Once operational, these schemes will lead to a significant increase in feedstock of waste solar panels and batteries, presenting a significant opportunity for cost effective recycling and resource recovery technologies.

Valuable resources

- E-waste and renewable energy technologies contain highly valuable materials, such as gold, silver, copper, nickel, palladium, and critical minerals such as cobalt and tungsten, which can be reused in electronics and electrical equipment.
- Advanced technologies, such as chemical reprocessing, could recover these resources which have high commodity values.

Regional Opportunities

- Most large scale solar and wind generation will take place in regional areas.
- Victoria's Climate Change Strategy identifies six Renewable Energy Zones, all in regional areas
- The generation of large volumes of bulky waste presents potential opportunities for regional recycling and resource recovery.

Market overview

Victoria is home to 29 e-waste recycling facilities. These are primarily dedicated to white goods, with only one lithium-ion battery recycling facility.

E-waste recovery in Victoria is primarily achieved either through manual labour or mechanical reprocessing. This traditional method only recovers plastics and metal parts of the e-waste, reflecting capability challenge in recovering the valuable materials from e-waste.

Recycling and recovery of e-waste is also challenged by significant changes in its composition as new technologies are introduced and old technologies become outdated.

Victoria's capability to deal with waste from renewable energy technologies and batteries remains limited.

36 https://www.dcceew.gov.au/environment/protection/waste/e-waste and https://www.dcceew.gov.au/sites/default/files/documents/emm-communique-10-nov-2023.pdf

E-waste and renewable energy technologies: key data

In 2021, Victoria generated around 170,000 tonnes of e-waste.

- This is estimated to increase to approximately 250,000 tonnes by 2035. In addition, solar photovoltaic (PV) and battery energy storage are expected to have significant waste generation over the next decades due to their rapid uptake.[37]
- Although the recovery rate for e-waste is relatively high (60% in 2021)[38], existing recycling technologies are only capable of recovering plastics and some metals, meaning that valuable critical and rare earth metals often end up in landfill. Recovery of solar PV and battery energy storage is occurring at a small scale due to limited recycling infrastructure and low economic viability at this stage.

Where can I find out more?

- In 2023, Sustainability Victoria published a report 'Victorian e-waste material flow analysis (MFA)' which projected material flows of 60 different types of e-waste.

Case study

Infinitev is demonstrating an innovative solution to capitalise on a growing market for old EV batteries

Getting more electric vehicles (EVs) on the road is crucial for Australia's transition to a low-carbon economy and achieving net-zero emissions. What we do with the thousands of EV batteries set for replacement over the next decade is one of our newest waste challenges.

Infinitev has been operating in the automotive circular economy for 40 years, specialising in the remanufacturing and repairing of complex electronic components. Infinitev has capitalised on the emerging need for solutions to EV battery waste to create a state-of-the-art, future-focused facility in Cranbourne, Victoria to house its burgeoning EV battery circular economy operations.

Infinitev created a three-tiered circular business model for EV batteries:

- Re-use: Refurbishment of batteries for re-use, providing EV owners a more affordable and sustainable option for replacing their old battery.
- Re-purpose: When the batteries can no longer be used, Infinitev will repurpose them by transforming them into a battery energy storage system. Infinitev's battery energy storage system will have many potential functions, extending the battery's potential lifespan by an estimated 5 to 10 years.
- Recycle: Where neither re-use nor re-purposing are possible, the battery's valuable materials are recovered to be used again.

For more information, please watch a video to find out how Infinitev is repurposing old EV batteries.

Source: Sustainability Victoria.

37 Sustainability Victoria, 2023. Victorian e-waste material flow analysis.
38 Randell Environmental Consulting (2022)

Recovery and sorting infrastructure

Key drivers for investment

As the first entry point into the recycling system for many materials, recovery and sorting infrastructure, including MRFs, are critical for providing feedstock that are more competitive in the local and global markets.

Key drivers for investment

Increasing feedstock through co-mingled recycling collection

- Co-mingled recycling waste generation is projected to nearly double in Victoria over the next 30 years. Additional MRF processing capacity of 266,000 tonnes would be required by 2053 to meet future demands based on existing trends, with the potential for increased recovery rates to further drive capacity demands.
- CDS Vic will change the composition of material flows through MRFs, however eligible containers that are collected through co mingled recycling will also provide a revenue source for MRFs.
- The 4-stream waste and recycling system reforms will optimise the volume, quality, and value of material that can be recovered for recycling and reuse, and increase the commodity values of these resources.[39]

Export bans driving domestic demand

- The export restrictions on mixed plastics, and contaminated paper and cardboard are intended to support increased domestic reprocessing capacity, which provides alternative markets for materials that are of sufficient quality.

Established market for high quality products

- There is established demand for high-quality recycled plastics, paper, metals, and glass – locally and internationally.
- Domestically, there is the capability and capacity to reprocess all these materials, if the feedstock is of sufficient quality.
- Export markets for recyclables remain, however some are raising requirements to remove the market for low-quality, mixed materials.
- For example, China's National Sword Policy requires a very low (0.5%) contamination rate, whereas Australian MRFs have been operating at up to a 5% contamination rate.[40]

39 https://engage.vic.gov.au/download/document/35768
40 https://www.parliament.vic.gov.au/4948c6/contentassets/c9bf31a5367249fc8989200cfb52850b/submission-documents/s699---government-of-victoria.pdf

Key investment opportunities in Victoria

Victoria's Material Recovery Facilities (MRFs) market offers significant opportunities for investors with high market demand due to the doubling of co-mingled recycling waste generation in Victoria over the next 30 years.

There are opportunities for investors to meet future demands and generate substantial income. Factors strengthening investment opportunities in this market include the implementation of the of the CDS Vic scheme, which provides a new revenue stream for MRFs; export restrictions, which are increasing domestic reprocessing capacity; and an established market for high-quality products. There are also opportunities for improved sorting technology, such as automated and AI based systems, as well as geographic expansion opportunities into regional Victoria.

Further investments in existing technologies

- Invest in additional MRF capacities (including regional areas) to meet the projected demand and projected feedstock composition/quality. The VRIP analysis suggests that additional MRF capacity is needed in the short to medium term to meet projected demand based on current trends. With no MRF located west of Bendigo, there is potential to service the west of the State.
- Increased sorting capability. The export restrictions on low-quality mixed plastics, paper and cardboard, combined with the changing composition of material flows, mean improved sorting capability is needed to access alternative domestic and international markets that require higher quality feedstock – which in turn represent more valuable commodities.
- Advanced sorting technologies (automated and AI-based sorting systems) to effectively sort plastics (including soft plastics), paper, and cardboard, present the opportunity to increase efficiency of the sorting process and provide higher quality materials from MRFs and other sorting facilities.

Regional Opportunities

- Managing regional waste. There are currently no MRFs west of Bendigo, though aggregated regional waste volumes are sufficient to support facilities, with 6 regional facilities currently operating in Victoria, and savings in transport costs can support regional investment.

Market overview

Victoria's MRFs are using a mix of mechanical and manual sorting methods. Existing sorting facilities have difficulties in sorting different types of papers and plastics, leading to mixed plastics and mixed paper bales being stockpiled or landfilled.

While 6 out of Victoria's 12 MRFs are outside of Melbourne, there are currently no MRF facilities in the Grampians Central West or Barwon South West region. These regions transport their waste to Melbourne facilities.

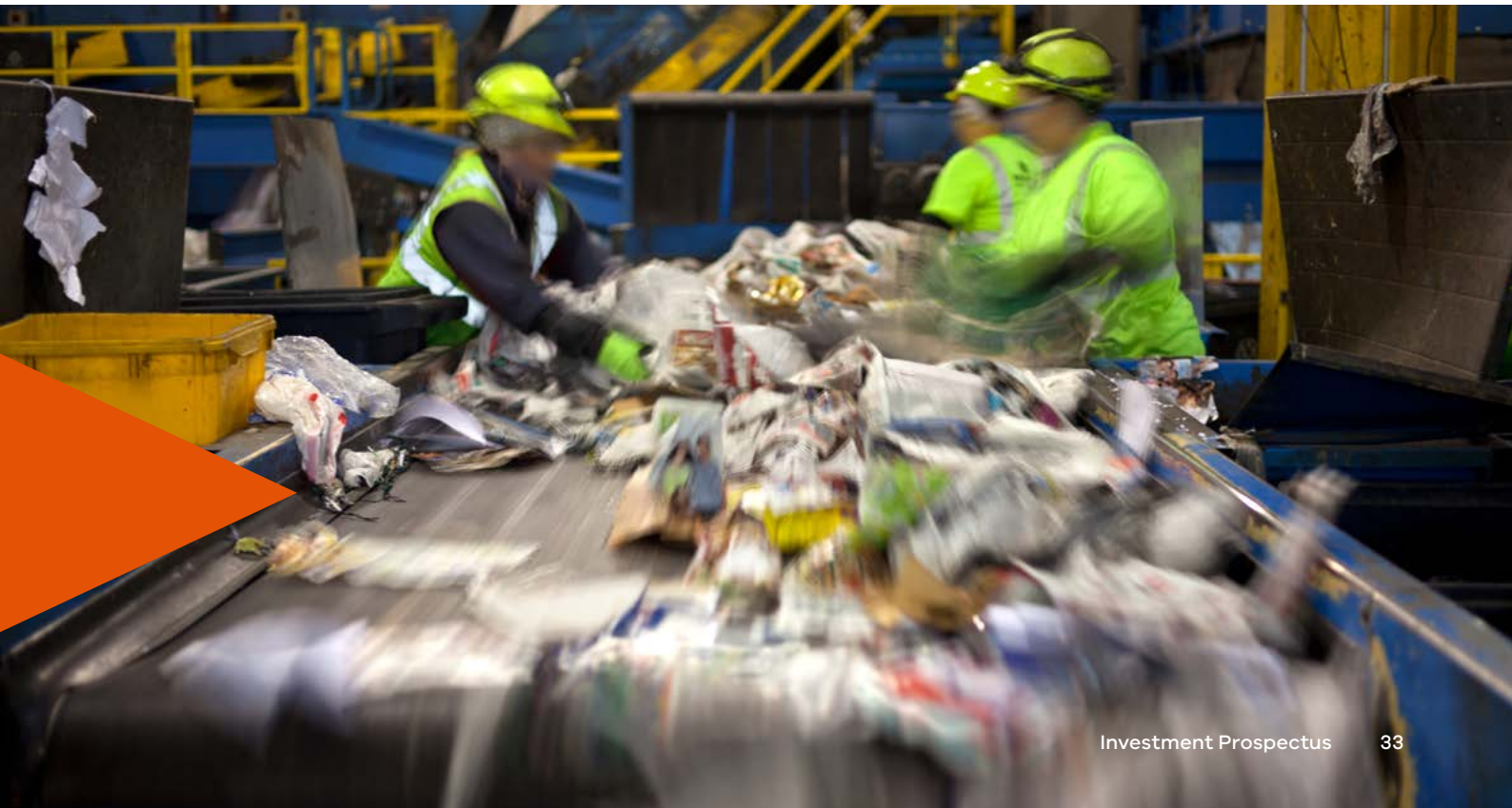
Material recovery facilities: key data

Over the next 30 years, the growth in the collection of plastic, paper, glass, and metal containers will be driven by programs such as CDS Vic, the transition to a 4 stream household waste and recycling system, as well as potential soft plastics collection.

The contamination rate of Victorian MRFs is around 5% which is higher than Chinese National Sword Policy requirement (i.e. 0.5%), making exports of sorted recyclables challenging.

Where can I find out more?

- Different types of MRFs: https://assets.sustainability.vic.gov.au/susvic/Guide-Waste-Resource-Recovery-Technology-Guide.pdf
- Market insights for different kerbside materials: https://www.vic.gov.au/market-summary



Waste to energy

Key drivers for investment

Waste to energy is an important part of the Victorian Government's 10-year circular economy policy.

Why invest in waste to energy?

Waste to energy provides an alternative to landfills for multiple material streams, reducing the State's reliance on landfills for non-recyclable or recoverable waste, and supporting the Government's landfill diversion targets.

It also provides opportunities to support the decarbonisation of Victoria, including the gas sector as described in the Gas Substitution Roadmap and Update.

Waste to energy involves turning waste material into useful energy resources, such as heat, electricity, gas and liquid fuels. After waste avoidance, reuse, and recycling, waste to energy is the final opportunity to get value from material that would otherwise go to landfill.

Waste to Energy Scheme

Recycling Victoria administers the Waste to Energy Scheme to regulate thermal waste to energy facilities. The scheme strikes the right balance between support for sustainable and appropriate industry investment to develop new technologies, and prioritising resource recovery and recycling in Victoria's transition to a circular economy.

The scheme is a licensing and regulatory system for thermal waste to energy facilities. The scheme sets a limit or 'cap' on the amount of 'permitted' waste that can be processed, as set out in the CE Act.

Permitted waste is residual waste that cannot reasonably be the subject of any further sorting or recycling. The scheme also defines exempt waste types, which can be thermally processed without the need for a licence from Recycling Victoria.

All new thermal waste to energy facilities seeking to process permitted waste will require a cap licence to operate. This includes facilities that:

- Recover energy from waste in the form of heat, which may be converted to steam or electricity
- Produce fuel from waste.

Non-thermal waste to energy

Waste to energy facilities using non-thermal processes are not required to obtain an existing operator licence or a cap licence from Recycling Victoria in order to operate, however they do need relevant EPA permissions and other relevant regulatory approvals, such as planning permissions.

Under the CE Act, non-thermal waste to energy processes include advanced recycling processes, biological waste to energy processes, such as anaerobic digestion, and landfill gas collection and combustion. Recycling Victoria has published detailed guidance material on when certain processes require a licence under the CE Act.

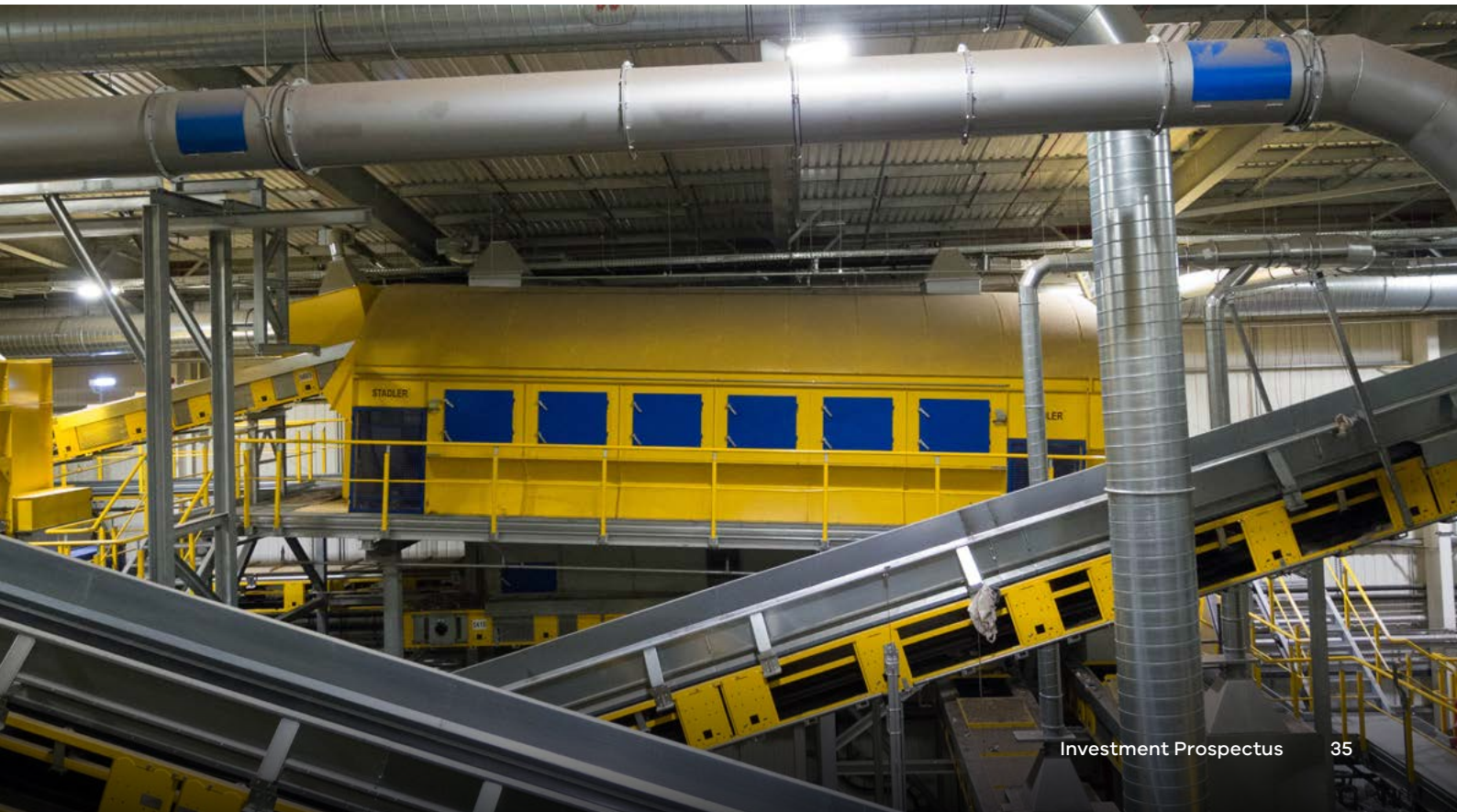
Your invitation to apply for a cap licence

Victoria is committed to thermal waste to energy being part of the solution to waste management over the coming decades.

Applications for a cap license will be invited once supporting regulations are in place, which is anticipated to be in late 2024. Once the cap allocation has been exhausted, there may be limited further opportunities for investment in new thermal waste to energy facilities that process permitted waste (municipal waste) in Victoria.

Cap licences will be issued to the most competitive applicants best positioned to help Victoria to achieve its goals to support a circular economy, establish an efficient and reliable waste system in Victoria and divert waste from landfill.

You can follow the latest updates at: www.vic.gov.au/waste-energy-scheme.



Established material streams

Overview

These material streams have more established markets and higher recovery rates than the other material streams set out in this prospectus. The VRIP analysis found there was capability in the market to respond to future capacity demands.

The established markets for these material streams present investment opportunities to meet future demand and support further diversion from landfill for materials that can be readily recycled.

Paper and cardboard

- In the near term, increased domestic capacity is needed to respond to the 2024 Australian Government export restrictions.
- In the longer-term, there is a need for increased capacity to meet future reprocessing demand and to increase the diversion of paper and cardboard away from landfill to higher order uses.
- In 2023, an estimated 0.66 million tonnes of paper and cardboard went to landfill.[41] As one of the main contributors to Victoria's residual waste, this presents opportunities to increase recycling and resource recovery.

Aggregates, masonry and soils

- This is the largest material stream in Victoria, with volumes expected to increase to over 16 million tonnes per year by 2053.
- There are strong regional investment drivers. As a heavy, bulky material, transport costs are high, as are landfill levies, and there are potential re-use opportunities with construction activity across the state.
- Increased reprocessing capacity to meet future demand is important to keep material out of landfill and improve regional circularity.
- Over one million tonnes of aggregates, masonry and soils was estimated to go to landfill in 2023, with around 80% of this being non-contaminated soils. An estimated 0.35 million tonnes of contaminated soils also went to landfill.

Glass

- While there is sufficient capability and capacity in the system, the CDS Vic and rollout of glass-only kerbside collection present opportunities to maximise bottle-to-bottle recycling and improve material circularity.
- Where higher order circularity is not possible (due to feedstock contamination or low volumes), there are potential opportunities for increased glass crushing in regional Victoria to reduce transportation costs and emissions, where economical to do so.

Metals

- The metal recycling sector will need increased capacity to meet future demand. With a new stream of feedstock being provided by CDS Vic, there may be opportunities to replace exports with local reprocessing, while e-waste presents a growing opportunity to recover valuable metal components.
- Prices for recovered steel cans and aluminium beverage cans have recovered strongly over the last three years from the mid-2020 lows. Baled steel packaging is now priced at around $400–$450 per tonne, compared to the $90–$100 per tonne seen in mid-2020.

41 VRIP, 2024

Empowering investors: pathways and supports tailored for you

What support is available to me?

There is a range of pathways and supports available to you at all stages of your project, from early advice through to more direct investment facilitation.

For holistic support to facilitate your investment in Victoria	Contact Invest Victoria at: https://www.invest.vic.gov.au/
For specific advice on investing in Victoria's waste, recycling and resource recovery sector	Contact Sustainability Victoria's Investment Facilitation Services via invest@sustainability.vic.gov.au
For business advice in understanding and navigating Victoria's regulatory approvals	Contact Invest Victoria at: https://www.invest.vic.gov.au/
For specific advice on environmental regulatory obligations and EPA permissions	Contact the EPA via Contact us | Environment Protection Authority Victoria (epa.vic.gov.au) or find out more here: 1995: Permissions proposal pathway guideline | Environment Protection Authority Victoria (epa.vic.gov.au)
For advice on your eligibility for current government grants	• For Victorian and Australian Government grants, contact Invest Victoria at: https://www.invest.vic.gov.au/ • For specific circular economy grants, contact Sustainability Victoria at invest@sustainability.vic.gov.au • Grants for investing in Regional Victoria, contact RDV at: Contacts and Assistance - Regional Development Victoria (rdv.vic.gov.au)
For support to invest in regional Victoria	Reach out to a local regional business centre here: Contacts and Assistance - Regional Development Victoria (rdv.vic.gov.au)
For financing your 'breakthrough' technology	Contact Breakthrough Victoria at: Contact Us | Breakthrough Victoria
For tailored advice for small businesses	Contact Small Business Victoria at: Contact us | Business Victoria
For establishing or investing in startups	Contact Launch Vic at: https://launchvic.org/contact-us/
For advice on how your business can 'go circular'	Contact the Circular Economy Business Innovation Centre (CEBIC) at: Contact us | CEBIC
For financing investments in Victoria's waste, recycling and resource recovery sector	Sustainability Victoria's Investment Facilitation Services via invest@sustainability.vic.gov.au
For investments related to Waste to Energy	Contact Recycling Victoria here: Waste to Energy Scheme - Recycling Victoria

If you can't find the right pathway for you here, contact Recycling Victoria to discuss your investment opportunity and navigate what supports are available across Victoria's investment ecosystem.

Contact Recycling Victoria at: https://www.vic.gov.au/contact-recycling-victoria.

Expanding your business or establishing a presence in Victoria

Our partner agencies can provide reliable and valuable advice and support that is tailored to your project. Their aim is to address any barriers to investment, reduce risk and increase the likelihood of a successful investment outcome for you.

Investment facilitation

Invest Victoria offers holistic investment facilitation support for any business looking to invest in Victoria. Sustainability Victoria also provides similar services, for investments specific to the waste, recycling and resource recovery sector. In practice, they collaborate to offer a comprehensive set of services tailored to an individual business' needs. Together, their teams can assist any business looking to invest in waste, recycling and resource recovery infrastructure across all stages of the life of a project, including complex projects requiring extensive cross government coordination and negotiation. Their services are free of charge and include:

- helping you understand the local market
- facilitating introductions across industry, government, regulators and the community to support you to broaden your networks
- assisting with building your business case
- site selection guidance and advice, tailored to your specific project requirements.

For further information, get in touch:

- **Sustainability Victoria:** You can reach out to Investment Facilitation Services via invest@sustainability.vic.gov.au
- **Invest Victoria:** For further information about Invest Victoria's range of supports visit About Us - Invest Victoria

Investing in regional Victoria

Regional Development Victoria can support you to understand the range of promising opportunities for investors in Victoria's waste, recycling, and resource recovery sector. Their support includes:

- Providing information on the profile of the region, such as local industry, businesses and existing or potential waste management streams
- Providing guidance on funding available for investments in regional areas
- Providing advice on available industrial land and planning considerations
- Facilitating connections to regional industry bodies, regional agencies, and local governments.

For more information on Victoria's regions, visit: Victoria's regions and regional cities - Regional Development Victoria (rdv.vic.gov.au)

The Regional Economic Development Strategies are also helpful resources for understanding Victoria's regions: Regional Economic Development Strategies (REDS) - Regional Development Victoria (rdv.vic.gov.au)

RDV has numerous locations throughout regional Victoria. You can reach out to a local regional business centre here: Contacts and Assistance - Regional Development Victoria (rdv.vic.gov.au)

Understanding and navigating regulatory approvals

Victoria's regulatory framework is designed to strengthen the resilience of the sector and prevent risks of harm that may undermine the State's transition to a circular economy or disrupt waste, recycling and resource recovery services.

As part of any investment in Victoria's waste, recycling, and resource recovery sector, a range of regulatory approvals may be required. Depending on your project, this could include:

- EPA permissions, including various registrations, permits and licences
- Planning permits
- Cultural heritage management plans
- Recycling Victoria waste to energy licences.

Invest Victoria and Sustainability Victoria provide tailored advice to assist you with understanding the regulatory approvals that may be required for your specific project.

For further information, get in touch:

- Site Selection and Approvals - Invest Victoria
- Waste to Energy Scheme - Recycling Victoria

Engaging with EPA

EPA plays a key role in ensuring that Victoria's waste, recycling, and resource recovery sector is a safe place to operate. Through its careful consideration of applications, EPA is raising the standard of the industry and building resilience in the sector by ensuring the safety and quality of waste processing and technologies in operation, and that operators have a clear plan for managing risks.

Before submitting your application, the EPA can provide information and guidance to support your business to understand your regulatory obligations. This can include early-stage advice on the type or nature of permissions required, through to ensuring the application is submitted with all relevant information.

You can submit a **Pathways Advice Request** via the EPA portal, or via this link: 1995: Permissions proposal pathway guideline | Environment Protection Authority Victoria (epa.vic.gov.au).

Using the VRIP to guide applications

The VRIP provides information you can use to show how a proposal addresses a market or infrastructure need in Victoria. This could include demonstrating that it meets a capacity or capability need. The VRIP also provides information about market structures and criteria for suitable development locations in metropolitan, peri-urban and regional areas set to inform location decisions. To inform permissioning decisions, the EPA may consider whether an application is inconsistent with the VRIP.

If you would like to discuss how your proposal aligns with the VRIP, please reach out to Recycling Victoria here: https://www.vic.gov.au/contact-recycling-victoria

Opportunities for government financing and private sector investment

Grant funding opportunities

The Victorian and Australian Governments have a range of grant programs that may be available to support your expansion or establishment in Victoria.

Various agencies across the Victorian and Australian Governments maintain a list of current grants and programs which may be relevant to support investment in Victoria's waste, recycling and resource recovery sector, including:

- Grants and funding | Sustainability Victoria
- Incentives, grants and programs | Invest Victoria
- Grants and programs | Regional Development Victoria
- Waste and recycling | DCCEEW

Contact these agencies if you would like to discuss potential funding opportunities available to you.

Breakthrough Victoria

Breakthrough Victoria was launched in 2021 to be a private investment company for Victoria, providing private capital and investment that impacts the State's economy and wellbeing.

It provides long-term capital to innovation businesses that will improve people's lives, benefit Victoria's economy and bring together commercial and government partners to build on Victoria's track record for innovation.

Over the next 10 years, the fund will invest in five priority sectors:

- Clean economies
- Advanced manufacturing
- Digital technologies
- Agri-food
- Health and life sciences.

Breakthrough Victoria has already invested in a number of companies in the waste and recycling sector and is actively looking for opportunities to invest in more new, innovative technologies.

You can reach out to Breakthrough Victoria to discuss your eligibility and how to submit your prospectus.

For more information, visit:
breakthroughvictoria.com

Case study

Investment to activate a new value for agricultural waste[42]

Breakthrough Victoria is investing $1 million in Bygen to turn agricultural waste into activated carbon – a toxin filtering material – via a low-cost process with a better carbon footprint than conventional carbon activation production methods.

The Victorian company's patented process uses agricultural waste both as a source of carbon and heat for the activation process. Bygen's technology replaces a greenhouse gas intensive coal-based activation process, reduces CO2 emissions and water consumption footprint and reduces cost of producing activated carbon.

It also creates an alternative use for wastes such as nut shells that otherwise have little value for agriculture producers.

"Bygen is an outstanding Victorian company. We are investing in an innovative technology that not only creates value across multiple sectors through a circular economy approach, but also reduces the carbon footprint associated with the use of activated carbon in Victoria." – Breakthrough Victoria CEO, Grant Dooley

42 Bygen media release | Breakthrough Victoria

Establishing or investing in a startup

Victoria is home to a thriving startup ecosystem, with more than 3,500 startups at an estimated value of $123 billion.

There is a significant amount of activity and interest in startups that are advancing the circular economy. These startups will play a vital role in addressing some of the critical needs in Victoria's waste and recycling sector and strengthening the end markets for recycled waste.

Launch Vic has provided support to over 1,000 startups since its establishment. They provide a range of programs and support for:

- **Founders and aspiring founders** – Providing advice on how to secure funding and preparing them to get 'investment ready' Startup Programs, Courses & Accelerators | LaunchVic
- **Investors** – Supporting investors to become educated about the startup market in Victoria and strategies for successfully investing in startups

  Startup Programs, Courses & Accelerators | LaunchVic

Case study

RMIT (Royal Melbourne Institute of Technology) [Re]Launch Pre-accelerator program

The RMIT [Re]Launch Pre-accelerator supports Victorian circular economy Startup Entrepreneurs. Spanning 17 months, [Re]Launch offers two tracks: Incubator and Pre-Accelerator.

- Incubator is a five-week incubator program for Startup Entrepreneurs to discover and address new challenges through customer interaction.
- Pre-Accelerator is a 12-week Pre-Accelerator, designed to support Startup Entrepreneurs and/or Startup Founders with venture creation and business readiness.

Find out more here: RMIT [Re]Launch Pre-accelerator program.

Small or expanding businesses

Small businesses are an essential part of Victoria's waste, recycling, and resource recovery sector. Small Business Victoria provides tailored support and advice to small businesses in Victoria, including those in, or wanting to expand into, Victoria's waste and resource recovery sector. They can also support you to scale up or partner with like businesses to achieve your business goals.

You can access this tailored support, including a range of programs and services, through the Business Victoria website: Business Victoria

Supporting businesses to 'go circular'

The Circular Economy Business Innovation Centre (CEBIC) invests in and supports businesses in Victoria to 'go circular'. This may involve transforming how resources are used, adopting innovative sustainability approaches, and developing future-proof models that design out waste.

CEBIC facilitates collaboration among businesses, governments, research organisations, and industry bodies across supply chains and sectors. This includes:

- Events and networking
- Funding support and advice for your business
- Research and case studies.

For further information, visit: Home | CEBIC

Financing investments in Victorian waste and recycling businesses

Victoria's waste and recycling market is active and growing. This presents exciting opportunities for institutional investors to invest in the infrastructure and technologies that are needed to build a sustainable circular economy for Victoria's future.

Recycling Victoria, Sustainability Victoria, Invest Victoria, RDV and Launch Vic recognise the vital role of the Australian and the international institutional investor community in achieving this vision. They understand the breadth of opportunities and market activity occurring in Victoria, and can help to connect investors of any type or scale with the right investment opportunities in Victoria.

If you would like to discuss investment opportunities in Victoria's waste and recycling sector further, you can contact:

- Sustainability Victoria's Investment Facilitation Services via invest@sustainability.vic.gov.au
- Invest Victoria: https://www.invest.vic.gov.au/
- Regional Development Victoria: https://www.rdv.vic.gov.au/

Additional resources available

Recycling Victoria provides a range of data, intelligence and insights to assist you in preparing to invest in Victoria's circular economy.

Victorian Recycling Infrastructure Plan

The VRIP guides planning and investment in waste, recycling, and resource recovery infrastructure over a 30-year period to support Victoria's transition to a circular economy. The VRIP sets out the current and future infrastructure needs, place-based and regional opportunities, and provides information about land use planning and approvals to help investors design their proposals appropriately. To ensure the VRIP represents an ongoing approach to infrastructure planning, Recycling Victoria will release annual progress reports and review and update the plan every three years in line with the CE Act.

See: https://www.vic.gov.au/victorian-recycling-infrastructure-plan

Circular Economy Market Report

This report provides information on the generation, collection, sorting, re-processing, or re-manufacturing of waste within the circular economy market. The report highlights the opportunities to improve circularity in the management of materials, with actions or market strategies provided to address the opportunities.

See: https://www.vic.gov.au/circular-economy-market-report

Circular Economy Risk Consequence and Contingency Plan

The Circular Economy Risk, Consequence and Contingency Plan (CERCC Plan) is an annual plan approved by Victoria's Minister for Environment. It aims to identify, describe and manage risks to service continuity and the transition to a circular economy in Victoria's waste, recycling and resource recovery sector. It focuses on identifying serious threats to service provision and providing responsible entities with an initial framework to assess their own preparedness and mitigation measures.

See: https://www.vic.gov.au/circular-economy-risk-consequence-and-contingency-plan-2024

Interactive data and intelligence

Victoria's data and intelligence on waste flows is of a very high standard when benchmarked against other countries and jurisdictions. This provides an unmatched level of certainty for investors. Recycling Victoria's Data Hub has developed a centralised data and insights hub that allows government and waste sector decision makers to make informed decisions based on the best available data.

- Victoria's waste projection model dashboard – projections of Victorian waste generation 30 years into the future.
- Victorian local government waste data dashboard – kerbside collection data based on survey results from Victorian councils, which can be viewed at the state, regional and council level and filtered by a combination of waste material, council area and year.
- Victoria's waste and resource recovery infrastructure map – a map of the current locations of Victoria's waste, recycling and resource recovery infrastructure facilities.
- Market insights reports – market profiles for key wastes streams, with updates on the market, trends and opportunities, and special topics.

Service Standards

Household waste and recycling services will be regulated by Recycling Victoria via regulations and a service standard made under the Circular Economy (Waste Reduction and Recycling) Act 2021. The CE Act requires councils and Alpine Resorts Victoria to provide the 4-stream services to households. The service standard will set out how councils and Alpine Resorts Victoria must deliver these services.

See: Standardising household recycling across Victoria | vic.gov.au (www.vic.gov.au)

Container Deposit Scheme

Recycling Victoria is responsible for the regulation, oversight, and administrative direction of CDS Vic. Its statutory role is defined in the CE Act and Circular Economy (Waste Reduction and Recycling) (Container Deposit Scheme) Regulations 2022 (the Regulations).

Recycling Victoria's responsibilities include:

- Managing, monitoring, and ensuring compliance with Scheme Coordinator and Zone Operator agreements (which set out the contractual obligations of scheme participants to establish and operate CDS Vic)
- Ensuring compliance with statutory provisions
- Making decisions in relation to first suppliers and eligible containers
- Publishing guidelines and issuing directions to scheme participants
- Establishing branding and marketing guidelines for CDS Vic
- Collecting information and providing advice to the Victorian Government
- Establishing Material Recovery Facilities and Local Government Refund Sharing protocols
- Taking action where compliance and other issues are identified.

See: https://www.vic.gov.au/cds-vic

Waste to Energy

As already outlined in this prospectus, Recycling Victoria administers Victoria's Waste to Energy Scheme. Recycling Victoria ensures that licensed facilities only accept approved amounts and specific types of residual wastes.

The CE Act provides for the Head, Recycling Victoria to:

- Issue licences
- Regulate thermal waste to energy facilities.

See: Waste to Energy Scheme | vic.gov.au (www.vic.gov.au)

Regional overviews and opportunities

Victoria is home to thriving regions. Each present their own opportunities for investment in waste, recycling and resource recovery infrastructure.

These regional overviews consider aspects of the regional economy and natural resources that may generate types of waste, provide end-markets or skills to support recycling infrastructure.

They draw on the waste, recycling and resource recovery analysis in the VRIP, Infrastructure Victoria's advice to Government on recycling infrastructure, and the Regional Circular Economy Plans (RCEPs), which are regionally developed and owned documents.

They are also informed by Regional Development Victoria's work in identifying regional strengths and opportunities.

For more information on investment opportunities in waste, recycling, and resource recovery infrastructure within Victoria's thriving regions, explore the Regional Circular Economy Plans (RCEPs) at https://www.vic.gov.au/regional-circular-economy-plans, or visit Regional Development Victoria at https://www.rdv.vic.gov.au/. These platforms provide valuable data on waste generation, recycling infrastructure, and end-markets, all tailored to the unique characteristics and opportunities within each region. They also facilitate connections with regional industry bodies, agencies, and local governments for a holistic understanding of Victoria's thriving regions.

Case study

Recycling agricultural plastics in regional Victoria

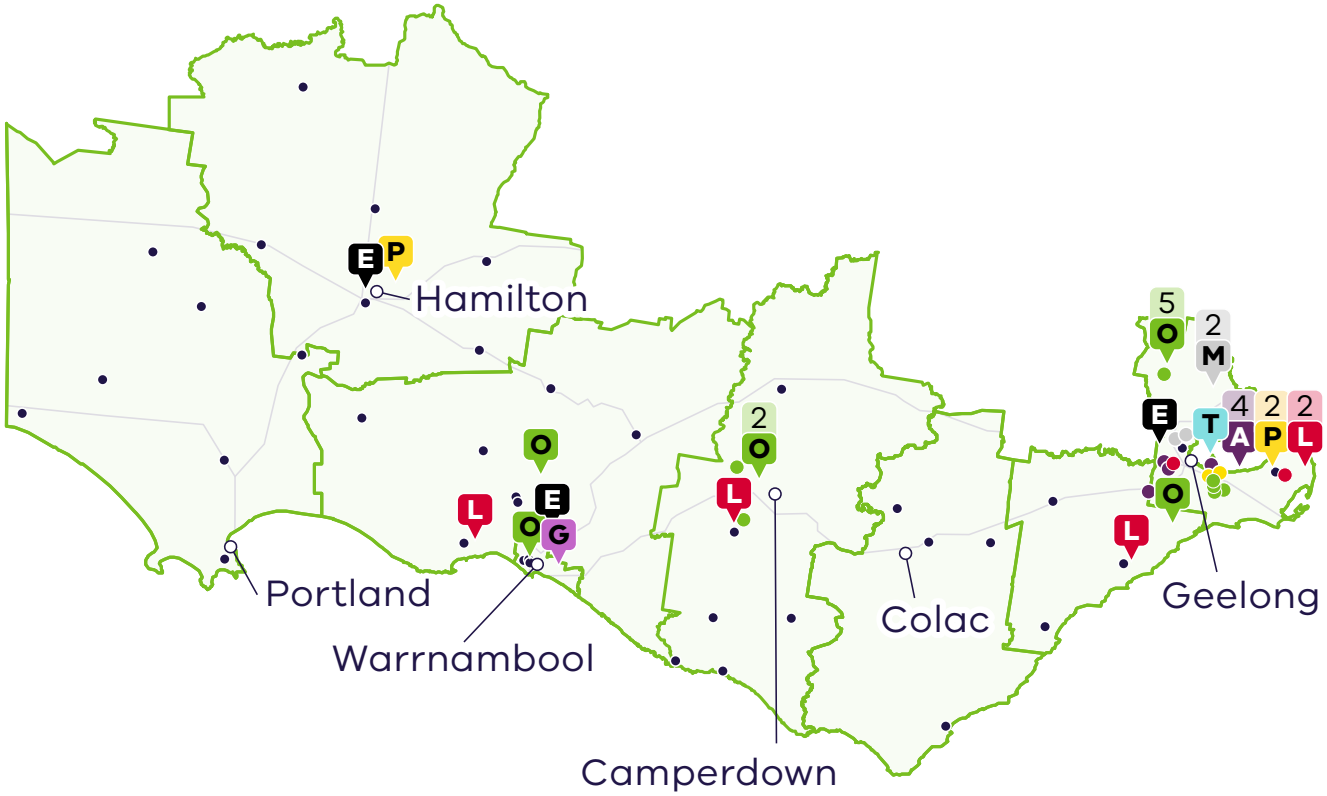
Sustainable Plastics Solutions, based near Hamilton in western Victoria, recover materials including agricultural plastics such as grain tarp and baling twine and recycle these plastic products into high grade recycled plastic resins that can be used in producing new agricultural wraps or plastics moulding, thermoforming or extrusion applications. Their focus is always on aiming for circularity wherever possible and function on the premise that any product they sell into the market, they will be happy to receive it back for recycling again.

Sustainable Plastics Solutions works closely with the agricultural sector to divert up to 8,000 tonnes of plastic each year from entering landfill, being buried or being burned, demonstrating a viable regional solution to a waste material arising from an important regional industry.

For more information visit:
sustainableplasticsolutions.com

Barwon South West

Barwon South West – current waste and resource recovery infrastructure



Material Stream / Infrastructure Type

- Organics
- Plastics
- Glass
- Metals
- Aggregate
- E-waste
- Landfill
- Resource Recovery Centre

Click here to view the online map
or visit vic.gov.au/victorias-waste-and-resource-recovery-infrastructure-map

Overview

Barwon South West has a population of around 330,000 and produces around 7% of Victoria's waste tonnes, the largest proportion of any region outside of Melbourne. Geelong, Victoria's second largest city, has a population of over 250,000. Other regional centres include Colac, Warrnambool and Hamilton.

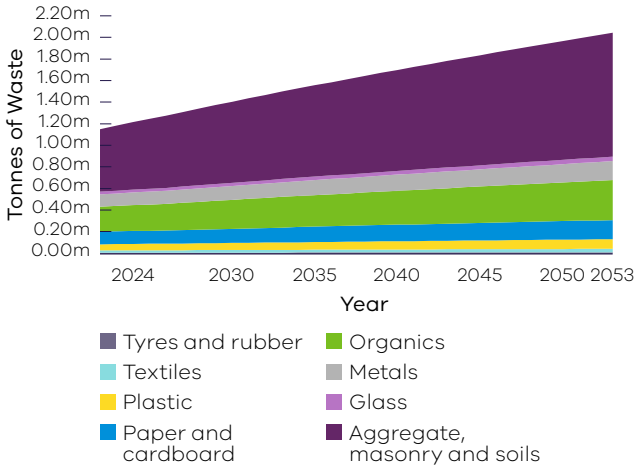
Current infrastructure

Barwon South West has 17 reprocessing facilities, which include 11 organics, 4 construction and demolition 2 plastics and a metal reprocessing facility. Most of these facilities are located around Geelong.

Outside of Geelong, there are 3 organics, 2 e-waste, and a glass reprocessing facility, as well as a plastics reprocessing facility that specialises in agricultural waste.

The region has no MRF. Additionally, there are 41 resource recovery centres distributed across the region.

Barwon South West projected waste

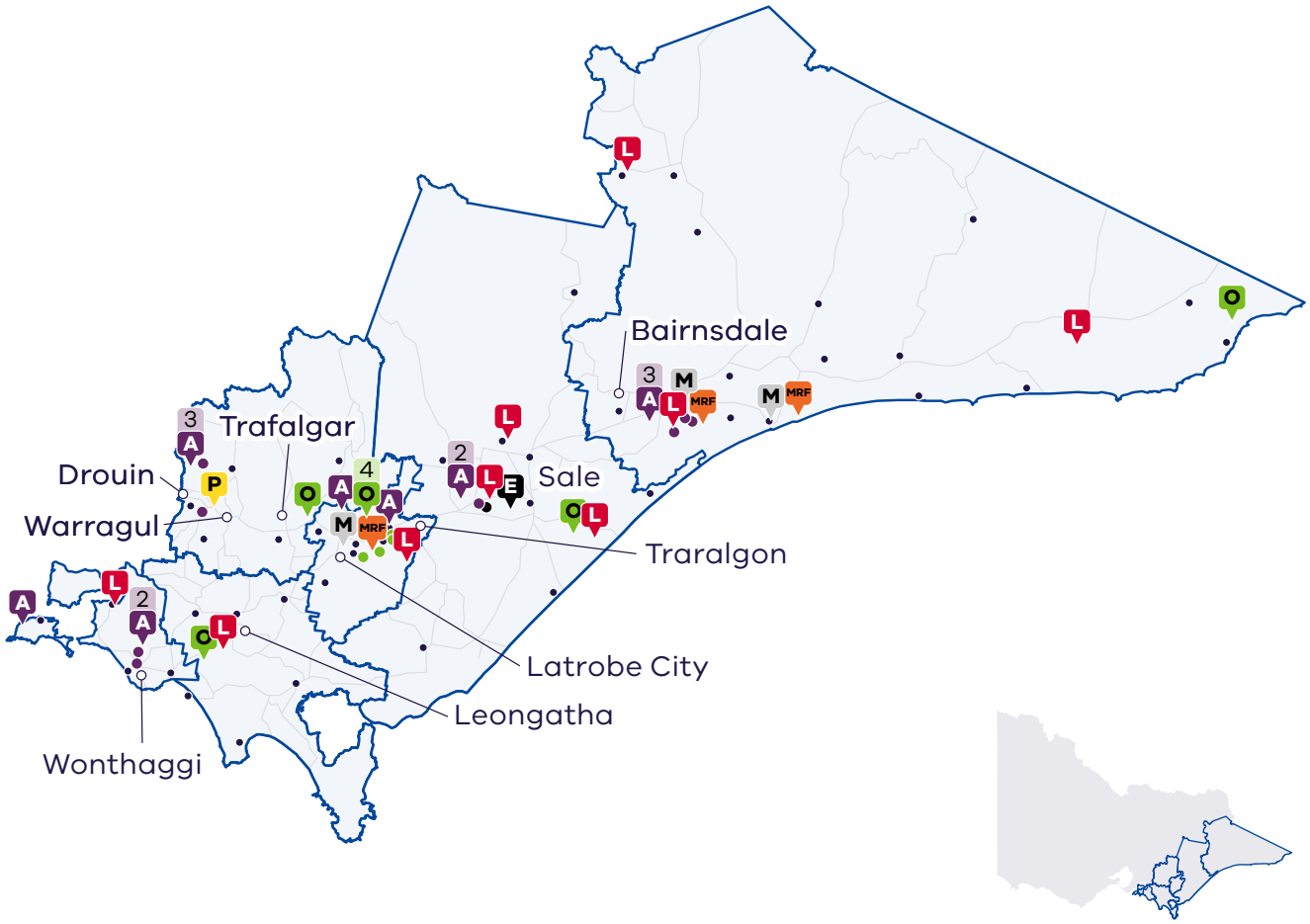


Investment Opportunities

- Geelong's size, proximity to Melbourne, and existing industries, including manufacturing and petrochemicals, make it a potential location for infrastructure across various material streams.
- Developing a MRF in the region was a priority in the Regional Circular Economy Plan with Geelong being a potential location.
- The Barwon area's strengths include diversity, high availability of brown-and greenfield sites, and good transport connections.
- There is potential to increase local reprocessing of aggregates, masonry, and soils to meet rising demand and support regional circularity.
- Agriculture is the main economic driver for the Great South Coast, providing opportunities for organics reprocessing and bioenergy.
- The area is a major producer of agricultural plastic waste, presenting potential opportunities for recycling.
- The Great South Coast has a Renewable Energy Zone and potential for wind energy.

Gippsland

Gippsland – current waste and resource recovery infrastructure



Material Stream / Infrastructure Type

- Organics
- Plastics
- Metals
- Aggregate
- Material Recovery Facility
- E-waste
- Landfill
- Resource Recovery Centre

Click here to view the online map
or visit vic.gov.au/victorias-waste-and-resource-recovery-infrastructure-map

Overview

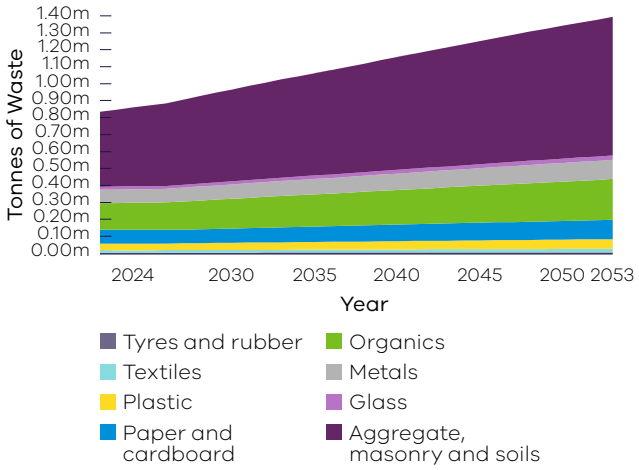
Gippsland, with a population of approximately 295,000, is responsible for generating about 5% of Victoria's waste tonnes. The City of Latrobe, with a population of around 75,000 people, is the largest population centre. Other regional hubs include Wonthaggi, Leongatha, Sale, and Bairnsdale.

Current infrastructure

Gippsland has 3 MRFs and 26 reprocessing facilities. This includes 8 organics, 13 construction and demolition, a metal reprocessing facility, and 1 plastics reprocessor.

The largest number of facilities are in the City of Latrobe, with clusters in the other regional centres, as well as facilities in more rural locations.

Total generated waste projections for the Gippsland region

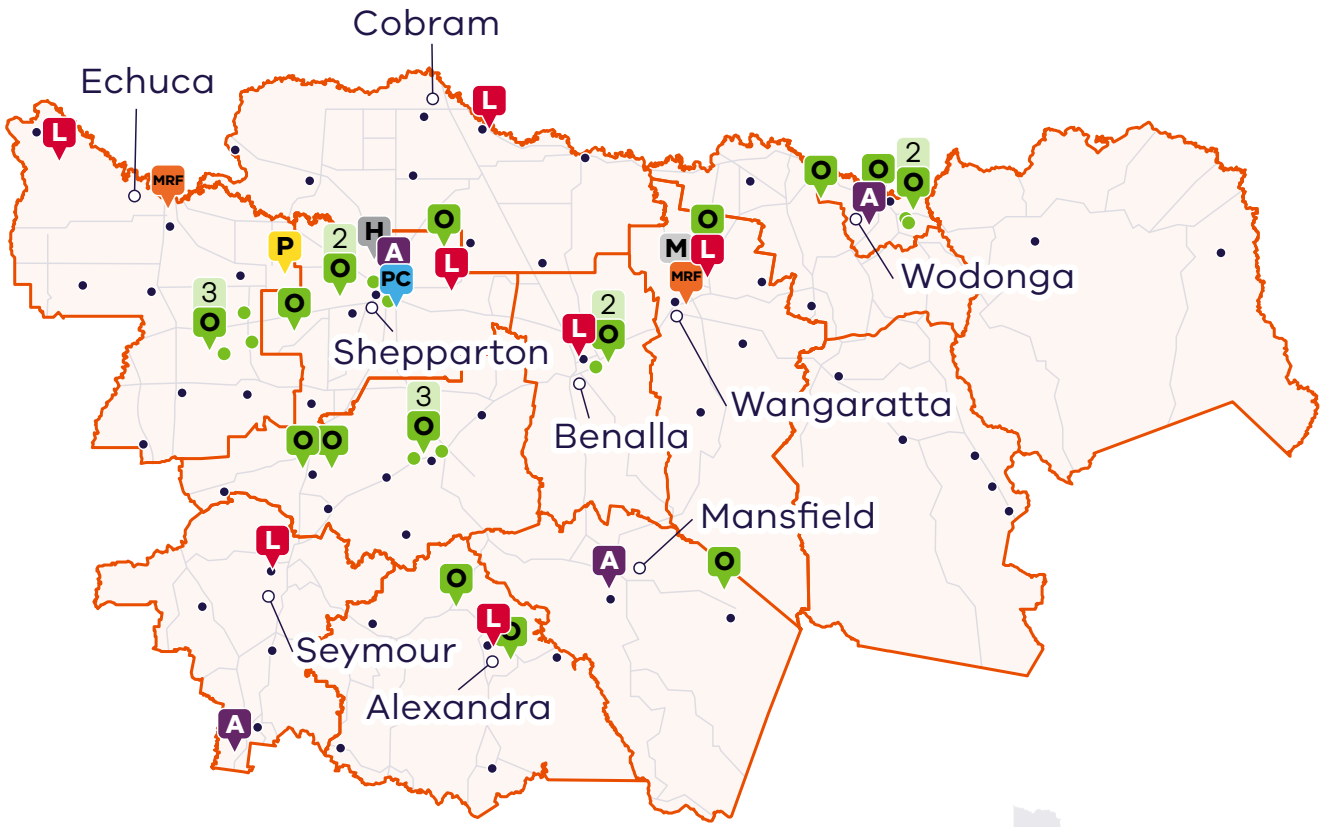


Investment opportunities

- Gippsland has a strong agricultural economy, particularly in dairy and horticulture, which provides opportunities for a circular economy, especially in areas of organics and bioenergy.
- The RCEP prioritises the expansion of organics processing, such as composting in Morwell and Bairnsdale.
- There are also opportunities for recycling feedstock, producing biochar and recycling agricultural waste including timber and plastics.
- There is a demand for recycled materials in civil construction, and there is potential for growth in glass and aggregate reprocessing.
- The transition of the Latrobe Valley from mining to a Renewable Energy Zone presents opportunities for new manufacturing and renewable energy waste processing.
- The region has strengths such as a skilled workforce, available land, and strategic locations for facility development.

Goulburn Valley & North East (Hume)

Goulburn Valley & North East (Hume) – current waste and resource recovery infrastructure



Material Stream / Infrastructure Type

- Organics
- Paper & Cardboard
- Metals
- Aggregate
- Material Recovery Facility
- Hazardous waste
- Landfill
- Resource Recovery Centre

Click here to view the online map
or visit vic.gov.au/victorias-waste-and-resource-recovery-infrastructure-map

Overview

The Hume region covers the Goulburn Valley and North East waste regions. It has a population of approximately 342,000, with major centres such as Shepparton (70,000 residents), Wodonga (43,000), and Wangaratta (30,000). Additionally, the region's 5 Alpine Resorts attract 1.4 million visitors each year.

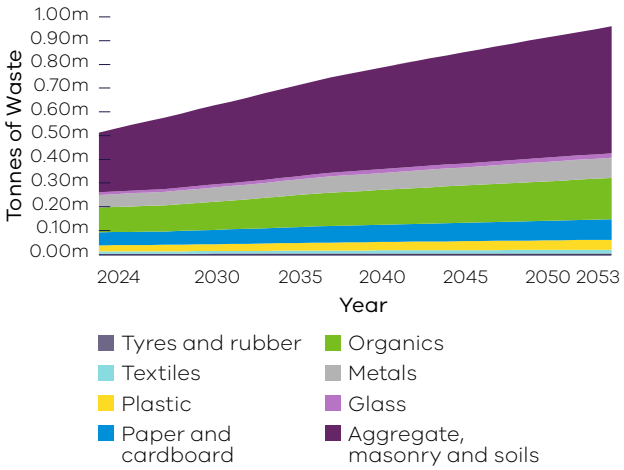
Current infrastructure

The Hume region has a range of infrastructure, including 19 organics facilities (notably in Stanhope and Shepparton). Key facility clusters are located in Shepparton Benalla, Wangaratta, and Wodonga.

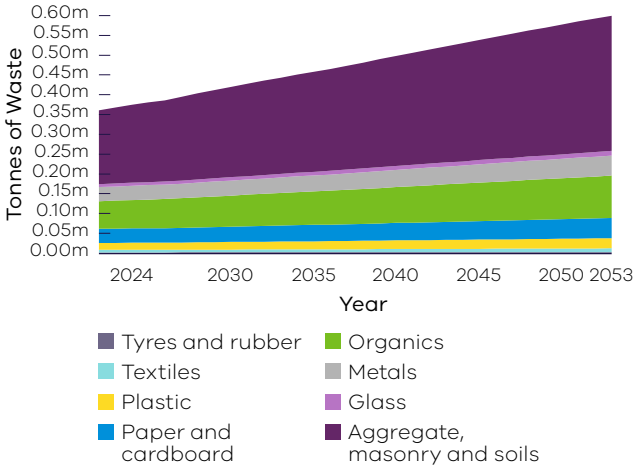
Investment opportunities – Goulburn Valley

- Hume has population centres with existing facilities for co-location, and areas of strong cross-border links providing potential development areas in Shepparton, Benalla, Echuca, Wangaratta, and Wodonga.
- It has a strong manufacturing base with opportunities for circular economy growth using strategic transport links and industrial land.
- In the peri-urban region, Mitchell Shire is expected to see strong population growth and offers development potential due to its proximity to Melbourne and the Beveridge Freight Terminal.
- Hume has well-established organics processing capability and imports material from other regions.
- The region has 4 construction and demolition recyclers, with less overall capacity than the waste generated in the region.
- Plastics reprocessing, especially for industrial and agricultural waste, is a priority. A plastics flaking and pelletising facility is recommended for Shepparton.
- Renewable energy opportunities include solar, pumped hydro, bioenergy, and hydrogen.

Total generated waste projections for the Goulburn Valley region

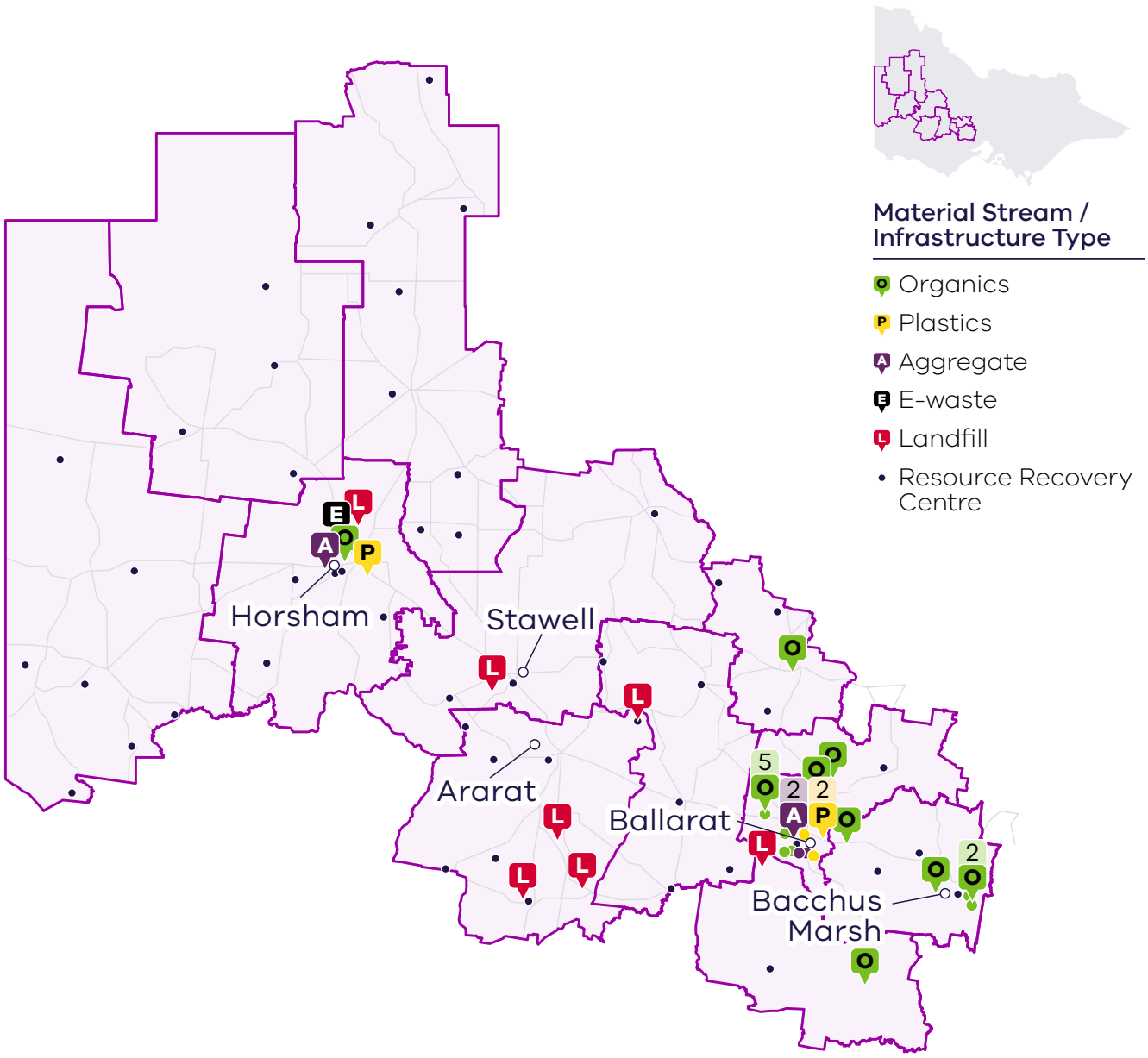


Total generated waste projections for the North East region



Grampians Central West

Grampians Central West – current waste and resource recovery infrastructure



Click here to view the online map
or visit vic.gov.au/victorias-waste-and-resource-recovery-infrastructure-map

Overview

Grampians Central West has a population of approximately 270,000. The primary population centre is the city of Ballarat, with 100,000 residents. Other regional centres, including Horsham, Ararat, and Bacchus Marsh, are connected by the Western Highway.

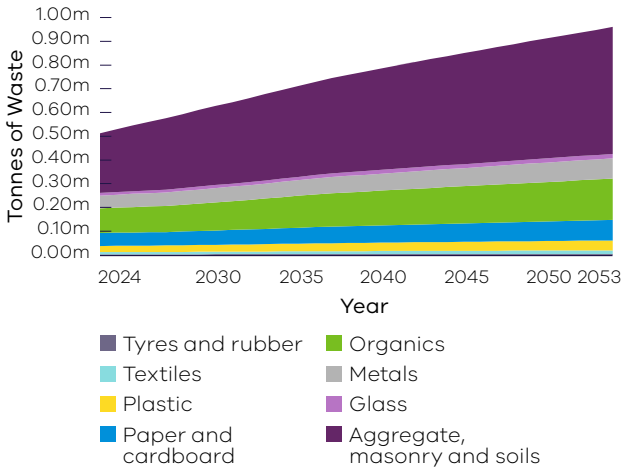
Current infrastructure

Grampians Central West has 16 reprocessors: 11 organics facilities, 3 anaerobic digesters, 3 construction and demolition reprocessors, 1 e-waste, and 2 plastics reprocessors (mostly in Ballarat).

There are 53 resource recovery stations, and no MRFs in the region.

It features 4 landfills, with Maddingley Brown Coal being the largest outside Melbourne handling Melbourne's waste.

Total generated waste projections for the Grampians Central West region

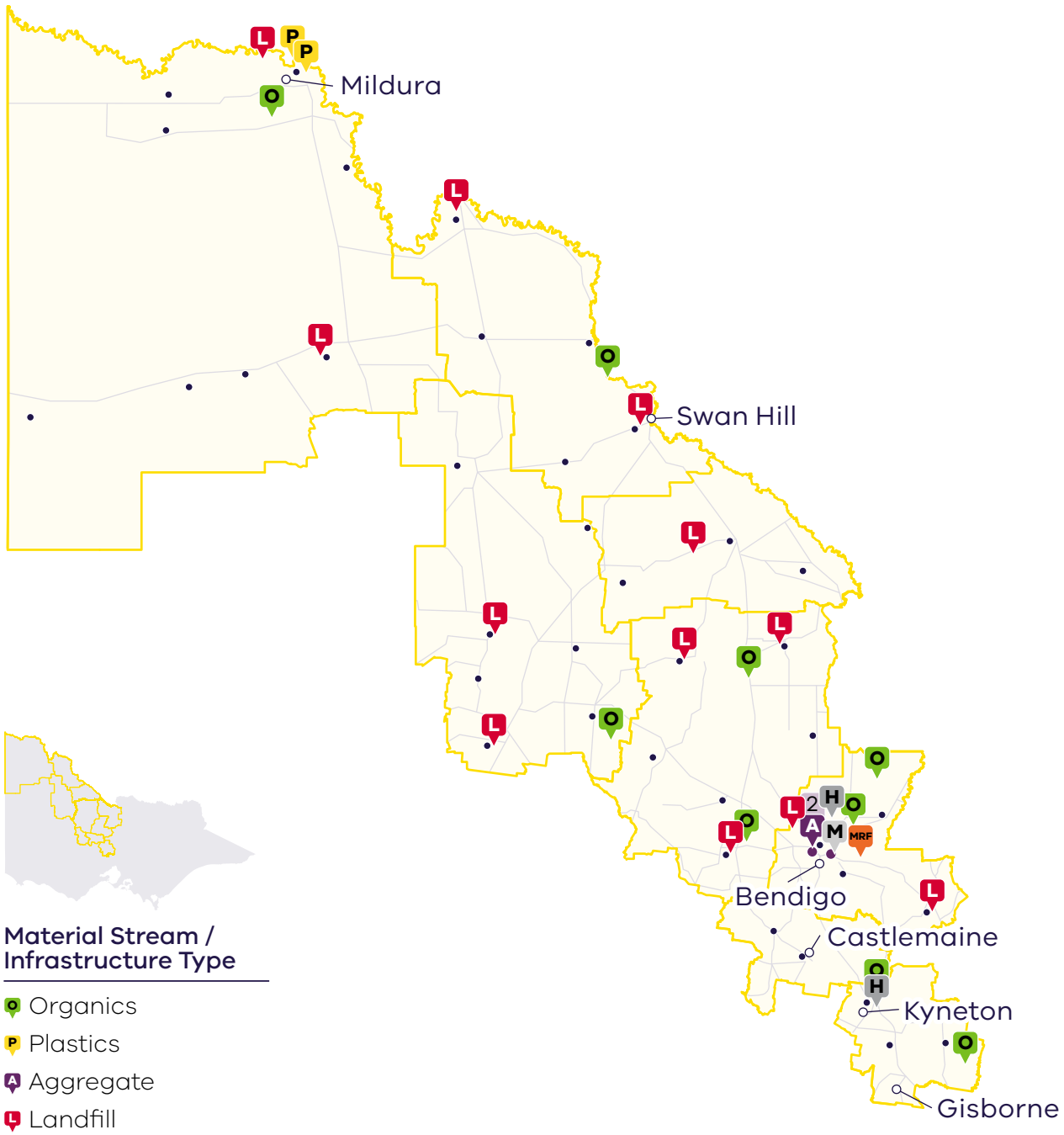


Investment opportunities

- Ballarat, located less than 100km from Melbourne's west, is a significant population centre.
- The Ballarat West Employment Zone offers a potential development area with circular economy trials already underway as noted by the RCEP.
- Infrastructure Victoria has identified Ballarat as a potential location for a new MRF.
- The proximity to Melbourne and transportation links create development opportunities in the peri-urban area, such as Bacchus Marsh.
- Agriculture plays a key role in Wimmera Southern Mallee, providing opportunities in organics reprocessing and bioenergy.
- The region's potential for renewable energy presents opportunities for e-waste and co-locating energy and resource recovery infrastructure.
- The limited number of C&D reprocessing facilities highlights the potential for improving regional circularity.
- Regional infrastructure priorities in the RCEP include scaling glass processing and soft plastic collection.

Loddon Mallee

Loddon Mallee – current waste and resource recovery infrastructure



Material Stream / Infrastructure Type

- Organics
- Plastics
- Aggregate
- Landfill
- Material Recovery Facility
- Hazardous waste
- Resource Recovery Centre

Click here to view the online map
or visit vic.gov.au/victorias-waste-and-resource-recovery-infrastructure-map

Overview

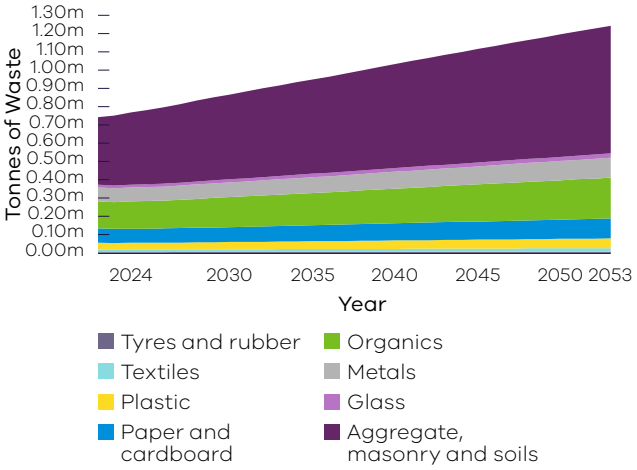
Loddon Mallee has a population of around 329,000. The major population hubs are Bendigo (approximately 120,000 people) and Mildura (approximately 35,000). Other regional centres in Loddon Campaspe include Swan Hill, Castlemaine, Kyneton, and Gisborne.

Current infrastructure

Loddon Mallee has 11 reprocessing facilities: 8 organics, 1 anaerobic digester, 2 construction and demolition, 2 plastics (Mildura), 1 metal (Bendigo), 1 refuse-derived fuel, and 2 thermal waste-to-energy facilities.

The region has one MRF (Bendigo), 39 resource recovery centres, four licensed active landfills, and several closed landfills.

Total generated waste projections for the Loddon Mallee region

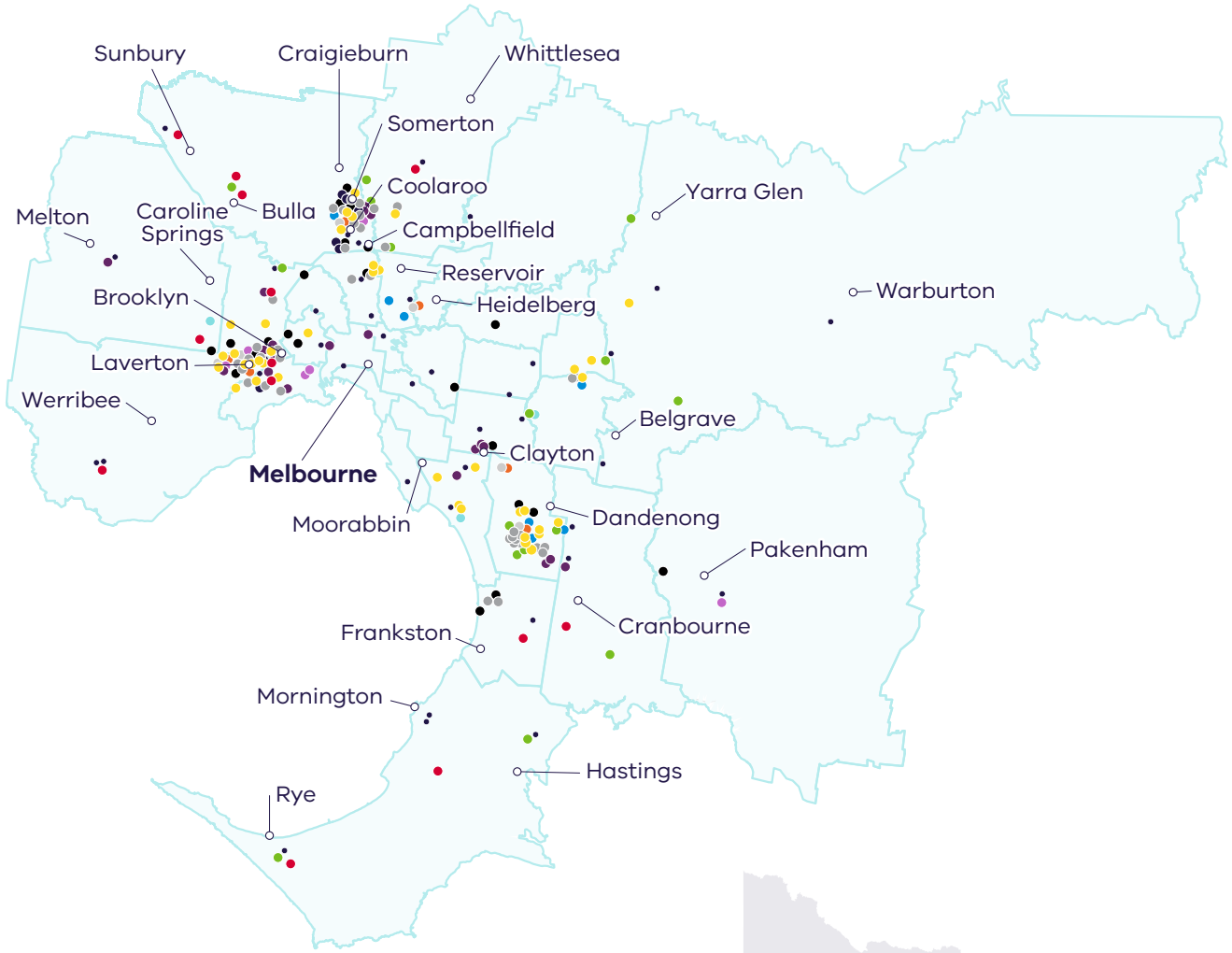


Investment opportunities

- Bendigo is a significant population centre with existing manufacturing and high potential as a regional development area.
- Gisborne, Kyneton, and Castlemaine are located on the Calder Highway in the relatively well populated peri-urban area around Melbourne.
- There are only 2 construction and demolition reprocessors in the region, providing less capacity than the waste produced.
- Infrastructure Victoria identified Bendigo, Echuca, and Mildura as potential locations for aggregate facilities.
- The Regional Circular Economy Plan included plastics sorting technologies as a goal.
- The Mallee region has a strong agriculture, sector, and potential for solar energy, and hydrogen technology.
- Mildura and Swan Hill are the main centres in the Mallee, with established transport network links between Victoria, NSW and SA being a strength.

Metropolitan Melbourne

Port Phillip – current waste and resource recovery infrastructure



Material Stream / Infrastructure Type

- Organics
- Paper & Cardboard
- Plastics
- Glass
- Tyre & Rubber
- Metals
- Aggregate
- Textiles
- E-waste
- Material Recovery Facility
- Hazardous waste
- Landfill
- Resource Recovery Centre

Click here to view the online map
or visit vic.gov.au/victorias-waste-and-resource-recovery-infrastructure-map

Overview

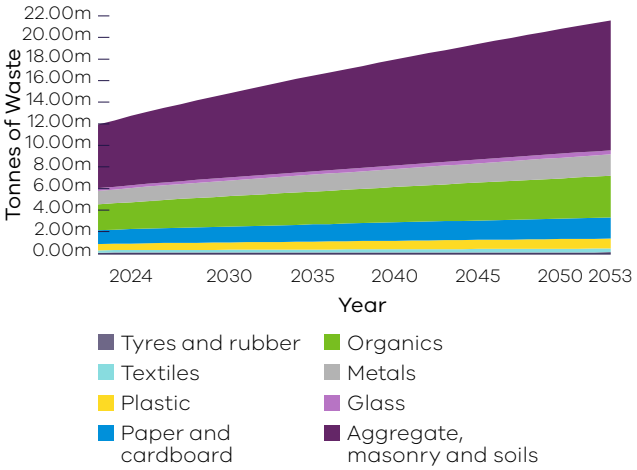
The Metropolitan Melbourne region accounts for approximately 74% of Victoria's waste tonnes. It has a population of around 4.9 million people and is divided into 31 metropolitan local government areas.

Current infrastructure

Port Phillip Region serves as Victoria's primary hub for reprocessing, with over 100 facilities covering all material streams and 6 MRFs.

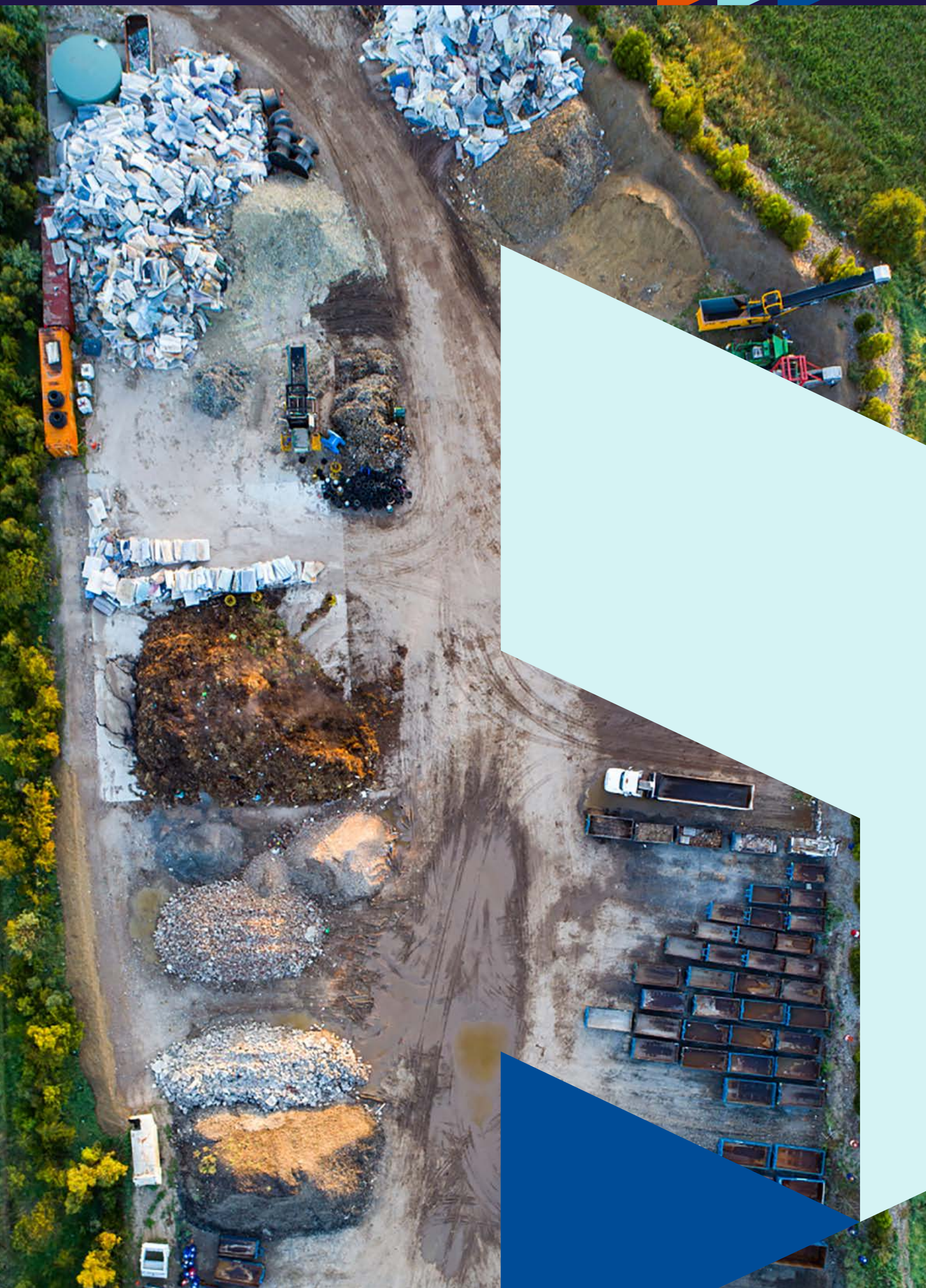
There are important clusters of facilities in strategically located industrial areas in Melbourne's North, West and South East.

Total generated waste projections for the Port Phillip region



Investment opportunities

- Melbourne offers investment opportunities across all material streams.
- It is the largest population centre in Victoria and a key location for manufacturing infrastructure. It benefits from economies of scale at the state level, a robust transportation network, and international gateways.
- The city has well-established manufacturing and research sectors that provide end markets, technology, and skilled labour.
- Melbourne has strategically designated industrial precincts that are significant at both the state and regional levels. These areas have been specifically chosen for their strategic location, buffers, and suitability for large industrial facilities.
- The presence of existing infrastructure and complementary industries, such as manufacturing, construction, extractive resources, and water treatment offers opportunities for co-location to enhance operational facilities.



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