Circular Economy (Waste Reduction and Recycling) (Risk, Consequence and Contingency) Regulations 2023

Regulatory Impact Statement

VICTORIA State Government
Energy, Environment and Climate Action

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We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.

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Executive Summary

Background

Population growth in Victoria is driving greater demand for resources and generating increasing amounts of waste. In September 2022, the population of Victoria was 6.656 million[1], and is projected to reach about 10 million by 2046[2]. Waste generation projections estimate that by 2046, Victorians will create over 40 per cent more waste than in 2017-18[3]. The waste generation that entered the waste, recycling and resource recovery (WRRR) system in Victoria in 2022-23 exceeded 15 million tonnes[4], with metropolitan Melbourne accounting for an estimated 80 per cent of this.[5]

The Victorian WRRR sector has experienced significant volatility and service disruptions and incidents in recent years, significantly impacting the environment, human health and society. The disruptions also caused a severe financial impact on industry and required substantial government intervention with a high economic impact on the state.

Victoria's circular economy policy, *Recycling Victoria: a new economy,* was released in 2020 and is modernising the State's WRRR sector to avoid waste, increase recycling and build stronger end markets for recycled materials. A key driver in improving the sector is to improve risk management to ensure the continued operation of services and reduce harms to people, the environment and Victoria's economy should essential services in the sector fail.

The *Circular Economy (Waste Reduction and Recycling) Act 2021* (Circular Economy Act) introduces a new risk, consequence, and contingency planning framework (RCC framework) to manage significant risks to the waste, recycling and resource recovery sector. The Circular Economy Act also established a new industry regulator, Recycling Victoria (RV), to oversee the new RCC framework (among other functions and responsibilities).

The Victorian government's intention for the RCC framework is to:

- support the important role of Recycling Victoria in identifying, monitoring, managing and mitigating risks and consequences impacting the delivery of waste, recycling, or resource recovery services, and developing contingency plans to minimise impacts from serious failures, disruptions or hinderance in the sector,
- address significant risks in the waste sector and wider circular economy, including national and international policy changes, natural emergencies, human health emergencies, and failures of key operators and facilities,
- recognise the significant benefit of preparedness, and
- closely align with emergency management approaches and requirements for several other sectors, including critical infrastructure sectors.

The key overarching elements of the RCC framework provided for by the Circular Economy Act and enabled with the proposed regulations include:

- a duty on providers of essential waste, recycling or resource recovery services to minimise serious risk of failure, disruption or hinderance of service (section 74 duty),

[1] Land use and population research, Victorian population statistics, population dashboard, from https://public.tableau.com/app/profile/planning.victoria/viz/PopulationDashboard_16680490256660/PopulationDashboard

[2] Victoria State Government (2019), *Victoria in Future 2019, Population Projections 2016 to 2056*, From https://www.planning.vic.gov.au/__data/assets/pdf_file/0032/332996/Victoria_in_Future_2019.pdf (p 7).

[3] Recycling Victoria. Victoria's waste projection model dashboard, from https://www.vic.gov.au/victorias-waste-projection-model-dashboard

[4] Ibid.

[5] SV data from 1016-17, from

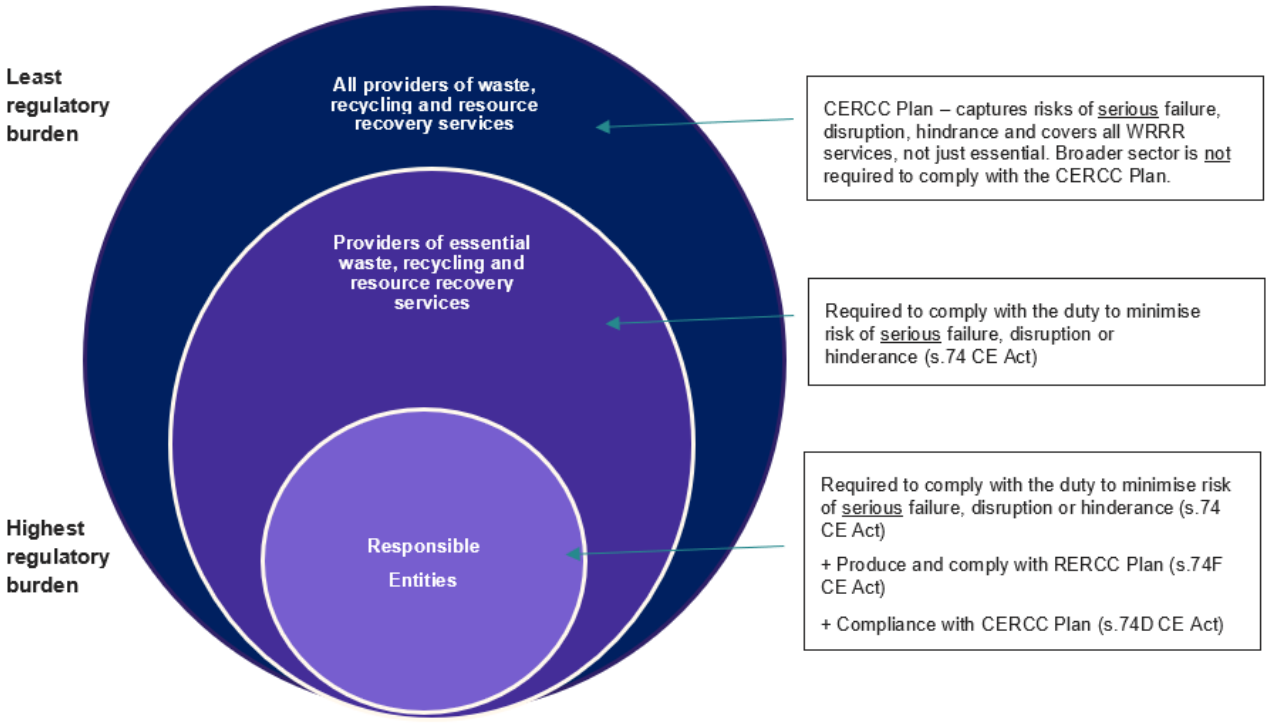
- annual preparation of a Circular Economy Risk, Consequence and Contingency Plan (the CERCC Plan) by Recycling Victoria, and a requirement that designated responsible entities must comply with this plan,
- annual preparation of Responsible Entity Risk, Consequence and Contingency Plans (RERCC Plans) by designated responsible entities, and a requirement that responsible entities must comply with their RERCC Plan,
- statements of assurance by responsible entities that their plan has been prepared in accordance with the Circular Economy Act and regulations and that it has regard to, and complies with, the CERCC Plan in force, and
- guidelines that the Head, Recycling Victoria may issue (under section 74K) with respect to risk, consequence and contingency planning by responsible entities.

The proposed regulations give effect to the legislated section 74 duty by identifying the waste, recycling and resource recovery services that are deemed to be essential services and therefore required to comply with the duty.

The proposed regulations also identify a subset of essential service providers as responsible entities that will be subject to a higher level of regulation. These entities will be required to prepare RERCC Plans in recognition that the essential waste, recycling and resource recovery supply chain is highly interdependent and that the consequences of a disruption at any point along the supply chain can be high.

Responsible entities are required to submit annual RERCC plans and implement these plans by taking required actions to mitigate risks of disruptions to their service provision. Responsible entities will also be required to submit to RV an annual Statement of Assurance attesting that they are in compliance with their RERCC plan.

Figure 1: The varying levels of regulatory burden across the WRRR sector imposed by the proposed regulations



The proposed regulations prescribe the following:

- a definition of essential waste, recycling or resource recovery services,
- a definition of responsible entities,
- matters relating to the obligations on responsible entities with respect to the content, and compliance with, RERCC Plans,

- matters relating to the preparation and content of CERCC Plans,
- related offences, and
- exemptions from requirements under the regulations.

Problem statement

In recent years, there have been frequent and damaging disruptions to the industry that have caused significant harm to the environment and human health, and cost taxpayers and the industry millions of dollars in delay, disruptions, and clean-up costs.
Several specific risk factors in the Victorian WRRR sector meant that industry was unable to quickly respond to changes or failures. These risk factors include:

- lack of market depth, including single operator dependencies,
- end market limitations and disruptions,
- variable commodity prices and demand for recyclables,
- limited capacity within Victoria and Australia to process waste,
- lack of viable alternatives when a specific WRRR service is unavailable,
- lack of agility in the system to respond to demand,
- dangers of stockpiling waste materials, and
- natural disasters.

A lack of regulatory information and oversight has made it difficult for the State to address potential dangers of disruption to the industry ahead of time, leading to significant harms when the waste, recycling and resource recovery supply chain is interrupted for a significant time. This often leads to serious consequences such as dangerous levels of stockpiling of materials, which can lead to pollution, fires, or recyclable materials being lost to landfill.

Victoria needs a reliable WRRR sector that can operate without major disruptions to service provision. This is because the WRRR sector services many industries and the community, meaning any disruptions to service provision has the potential to cause widespread flow-on effects and significant harm throughout the State. Secondary and tertiary impacts may be felt by individuals and groups who are not direct customers of the service.

The Victorian government needs to intervene to improve market-level risk management oversight in the WRRR sector and ensure the industry is prepared for significant disruptions, thereby reducing the harms caused.

The RCC framework in the Circular Economy Act is being established to ensure that risks and associated consequences specific to the WRRR sector and the wider circular economy are identified and managed, and that contingency plans are implemented to minimise the impact of any serious failures, disruptions and hinderances on waste recycling or resource recovery service delivery.

Without the proposed regulations, the RCC framework is incomplete and the Circular Economy Act alone cannot operate effectively because there would be no essential services or responsible entities identified. The proposed regulations aim to address the issues of:

(ii) lack of industry strategic coordination,
(iii) lack of sector-wide risk planning,
(iv) lack of government visibility over sector-wide risks, operations and data, and
(v) improving sector-level risk, consequence and contingency management practices by service providers.

By addressing these four key issues in the Victorian WRRR sector, it is intended that the sector will gain a market-level strategic lens that will enable better preparedness and response to major disruptions and mitigation of harms.

Regulations are needed to support the role of Recycling Victoria in identifying, monitoring, managing and mitigating risks and consequences impacting the delivery of waste, recycling or resource recovery services, and developing contingency plans to minimise impacts from serious failures, disruptions or hinderance in the sector.

The regulations will enhance community confidence and trust in risk management in the waste industry and support continuous improvement in risk management. They have also been designed to minimise the regulatory burden on the sector, by targeting the sector participants for which a failure, disruption or hinderance to their service would carry the most risk to the state.

Objectives

The objectives of the RCC framework are to:

- to minimise risk of serious failures, disruptions and hindrances to waste, recycling or resource recovery service delivery which result in harms to:
    - human health,
    - social wellbeing,
    - security,
    - the environment, or
    - the Victorian economy;
- improve regulatory oversight to enable a more stable and efficient waste and recycling industry, and
- minimising costs to industry and Government (without compromising risk reduction).

Options

Different options (regulatory and otherwise) that could achieve the Victorian Government's objectives to reduce the risks and consequences of serious failures, hinderances and disruptions to the WRRR sector were examined during the preparation of the proposed regulations.

Given that the definition of 'essential services' is needed to be prescribed in the proposed regulations to give effect to the duty in the Circular Economy Act, no other regulatory options were considered for this.

Three options have been analysed in the RIS with respect to determining how to define responsible entities in the proposed regulations. These include:

1. **Option 1 - a small cohort of responsible entities from the most significant essential service providers:** This option requires only the most significant essential service providers to be deemed responsible entities and therefore required to produce Responsible Entity Risk, Contingency and Consequence (RERCC) Plans.
2. **Option 2 - all essential service providers are responsible entities** This option treats all essential service providers as responsible entities and therefore requires all companies that provide and essential service to produce RERCC Plans.
3. **Option 3 - all essential service providers are responsible entities in 3 tiers** This option is similar to Option 2 but splits the responsible entities into three tiers of regulation. The most significant essential service providers would face the full regulatory burden as in Option 1, while regionally significant entities would have a reduced RERCC Plan burden and smaller entities would be required to produce a simple RERCC Plan.

Impact Analysis

A multi-criteria analysis (MCA) was used to assess the three options against each other. MCA is used because some of the impacts of the options are difficult quantity with precision. As this is a novel regulatory

regime, costs for both Government and industry are approximate estimates and benefits in terms of risk reduction are analysed in a break-even analysis to estimate the number of avoided incidents needed for the regulations to provide a net benefit to society. Further discussion of the MCA can be found in chapter 4 of this RIS.

Each option is analysed against a 'reference case' rather than a base case. This has been done to draw out only the differences between the options analysed and not the general duty to manage risks that described in the Circular Economy Act and enabled by the identification in the regulations of essential waste and recycling services.

The criteria and weightings in the MCA are:

- **Cost to industry – 40%:** This includes both the administrative costs of producing annual RERCC plans and statements of assurances and compliance costs of efforts to reduce the risk and severity of disruptions to operations and associated harms.
- **Cost to government – 10%:** This includes costs to produce annual CERCC plans, year-round consultation with industry and monitoring, compliance, and enforcement costs to ensure responsible entities are meeting their obligations.
- **Reduction in industry risk of service disruption – 40%:** Reducing risks of industry service disruption through mitigation actions identified in the CERCC plan and through individual entity RERCC plans, improving the resilience of waste and recycling supply chains.
- **Improved regulatory oversight and planning – 10%:** Recycling Victoria gaining much greater information about the industry and using information to develop sector wide risk planning strategies through annual CERCC plans.

Each option is scored against each of the criteria on a scale of -10 (significantly worse than the reference case) to +10 (significantly better than the reference case). The reference case for each criterion is scored at 0. This means that any option that has an overall score above 0 is better than the reference case and any option with a score of less than 0 is worse than the reference case.

Analysis of costs

Costs to Government and industry to enact and comply with this new regulatory framework are calculated across the three options relative to the reference case, based on estimates of the number of essential service providers and responsible entities captured by the framework.

Administrative costs for industry vary in line with the number of responsible entities identified in each option, with Option 1 having the lowest costs from identifying only the most significant State level essential service providers as responsible entities. Option 2 has very large costs as the entire pool of essential service providers are deemed to be responsible entities and all must create and maintain annual RERCC plans and statements of assurance.

Contingency costs vary by a smaller amount across options because the need to mitigate risks scales to an entity's relative magnitude of impact within the service it provides. That is the level of consequence to the relevant service if the entity experiences a significant disruption to its operation. Contingency costs are calculated by using a proxy measure as the cost of business interruption insurance. This is used because it is not possible to calculate likely the different kids of contingency costs over a large range of companies providing a varied range of services, with different risk profiles and current mitigation practices.

Table i: Summary of costs to industry relative to reference case, $ million present value term

Industry cost	Option 1	Option 2	Option 3
Annual RERCC Plans	$6.6	$90.1	$23.3
Record keeping	$0.6	$13.3	$2.8
Contingency costs	$15.9	$32	$32

Total costs	**$23.1**	**$135.3**	**$58.1**

Costs to Government relative to the reference case include costs relative to the year-round CERCC planning process that varies with the number of responsible entities that RV are required to consult with and regulate. Government costs do not vary to the same degree as industry costs across the analysed options, as the regulator's ability to resource its functions in scale with increases in responsible entities is not considered to be feasible given RV's size and existing resourcing and skillsets of officers. As such, the significant increase in the responsible entity cohorts under options 2 and 3 would see lower levels of effort by the regulator per entity and diminishing returns on that effort.

Table ii: Summary of costs to Government relative to reference case, $ million present value terms

Government cost	Option 1	Option 2	Option 3
CERCC plan activities	$1.4	$2.8	$1.9
RERCC plan activities	$0.6	$1.4	$1.8
Monitoring, compliance, and enforcement	$2.1	$2.4	$2.4
Total costs	**$4.1**	**$6.6**	**$6.1**

Estimating benefits

The benefits estimated for the RIS reflect the objectives of the regulations in reducing industry risks and by improving the ability of the regulator, Recycling Victoria to oversee the full essential waste and recycling industry supply chain to improve risk management planning across the State.

Benefits are evaluated relative to the reference case where essential services are identified but there are no responsible entities. Benefits in risk reduction are scored qualitatively across the options as a measure of the level of contingency investment and risk management planning undertaken and compared to the estimated total market share of essential services being regulated as responsible entities. Option 2 and 3 receives scores of +4 for industry risk of disruption reduction relative to the reference case. Both options designate all essential service providers as responsible entities. Option 1 receives a score of +3 as it is estimated to capture three quarters of essential service activity by market share as responsible entities.

Improved regulatory oversight and planning is also qualitatively scored, with Option 1 receiving a score of +4 relative to the base case. This option identifies a much smaller cohort of responsible entities than Options 2 and 3, but as described above these entities represent the bulk of activity and impact across the industry. This option allows the regulator to best use its resources on engaging, informing and compliance activities on the most significant service providers by risk profile. Option 2 receives a score of +4 reflecting that while it has oversight of all essential service providers as responsible entities, RV also must stretch its regulatory efforts thin over many times more responsible entities. Option 3 receives a score of +5 for this criterion as it also captures all providers as responsible entities, but it can better target those efforts as its three-tiered responsible entity system allowing it to better target its efforts and gain more insight from RERCC plans and CERCC consultations.

The summary table of the MCA results below shows the score for each option which is then multiplied by the weightings of each cost and benefit identified. The highest scoring option is then selected as the preferred option for the regulations.

Table iii: Summary of MCA results

MCA criteria	MCA weight	Reference case	Option 1	Option 2	Option 3
Cost to industry	40%	0	- 2	- 10	- 4
Cost to Government	10%	0	- 1	- 2	- 2

Risk reduction	40%	0	3	4	4
Regulatory oversight	10%	0	4	4	5
Weighted MCA score		**0**	**0.7**	**- 2.2**	**0.3**

Preferred option

The RIS analysis shows that Option 1 is the preferred option. It best balances the need for greater regulatory oversight of the most essential waste, recycling and resource recovery services in the State without overly burdening businesses with a lower risk and consequence profile such as small businesses. Option 1 allows Recycling Victoria to best target its regulatory efforts to inform, consult and regulate the waste, recycling and resource recovery businesses that are most likely to cause harms to human health, the environment, or the Victorian economy should they face serious disruption to their operations.

Total costs of the regulations

Costs of options in this analysis have been measured against a reference case of minimal regulations as is outlined in chapter 3.1. The total costs of the preferred option for making the regulations, including the reference case costs are included in the table below. The break-even and sensitivity analysis that follows are measured against these total costs.

Table 1iv. Total regulation costs, $ million present value terms

	Preferred option
Government costs	$4.1
Industry costs	$29.1
Total Costs 10-year NPV	**$33.2**

Break-even analysis

With the preferred option identified, the overall cost-effectiveness of the preferred option is tested. Cost-effectiveness of the new regulations is dependent on the degree that the risk of disruption to the waste and recycling supply chain is reduced relative to total costs imposed. The break-even analysis uses the average avoided cost of preventing stockpiling events, including clean-up costs of polluted sites, losses associated with the landfilling of otherwise reusable materials and the costs of fires related to stockpiling.

The breakeven uses the average avoided costs of major incidents that have occurred over the five-year period of 2018 to 2022 as this most closely reflects the current industry settings since export restrictions began on recyclables. In this time there has been ten major incidents with costs estimated of $274.7 million in 2023 dollars. This equals an average of $27.5 million per incident and $54.9 million per year. On this trend there would be twenty such incidents over the ten-year life of the regulations. When health costs and other impacts such as damage to the environment, and disruptions to third party and downstream businesses. that are not readily available are considered, these costs are likely to be significantly higher.

As the preferred option has estimated total costs of $33.2 million in real terms over the ten-year regulation period, if this new risk framework would need to prevent 1.2 average sized incidents of the projected twenty major incidents over ten years it would likely break even and provide a net benefit to society.

Small business and competition impacts

The preferred option targets the most State-significant operators that provide essential waste and recycling services and as such is not expected to have negative impacts on small businesses. Similarly, the impacts on competition from the regulations are not expected to be significant as requirements scall to the relative size of businesses within each essential service.

Implementation and evaluation

Recycling Victoria will have oversight of the implementation of the RCC framework and the proposed regulations to ensure the desired policy objectives are achieved. Recycling Victoria will engage with and support the sector and other stakeholders to understand and comply with the proposed regulations. Recycling Victoria will initially use a support-focussed approach, transitioning gradually over time to a compliance and enforcement-focussed approach.

Provisions of the Circular Economy Act requiring preparation of the CERCC Plan came into force on 1 June 2023, meaning that the first CERCC Plan must be provided to the Minister by 31 December 2023. As the regulations will address the preparation and content of the CERCC Plan, they must be delivered ahead of this deadline. By necessity, the first CERCC Plan will be developed concurrently with the regulations.

The CERCC Plan is expected to develop and evolve in content and complexity over time. The first CERCC Plan will likely be abridged, with later plans to include additional matters, informed by responsible entities RERCC Plans on an annual basis and improved data available through mandatory data reporting regulations that are planned to be made in the near future.

Evaluation of the proposed regulations will take two forms:

- Ongoing monitoring and assessment:
    - through Recycling Victoria's preparation of their annual report that must include matters relating to the RCC framework, and
    - through gathering regular feedback on how the WRRR sector is implementing the RCC framework via annual consultation with responsible entities in the course of Recycling Victoria's preparation of the CERCC Plan and through Recycling Victoria's compliance and enforcement activities.

- Review of the regulations which will take the form of a formal evaluation of the effectiveness of the regulations against its objectives in 2028, after it has been in operation for five years. The evaluation will, among other things:
    - examine whether the actual costs and benefits of implementing the regulations are similar to the expected costs and benefits,
    - whether there are any unintended consequences arising from the regulations,
    - whether any disruptions or failures that do occur could have been avoided with changes to the regulations.

Consultation

Extensive stakeholder consultation was undertaken to inform the drafting of the proposed regulations and RIS. This occurred via targeted meetings with industry and local government, Alpine Resorts Victoria (ARV), and peak bodies and via a survey to gather information on the current risk management practices of the industry relating to the service they provide and to inform the impact assessment of the three options described in this RIS. Engagement also occurred with portfolio partners and other relevant government agencies via meetings and workshops to conduct the essential services assessment which informed how essential services are defined in the proposed regulations.

This consultation was undertaken with the objective of ensuring the proposed regulations achieve the intended outcomes from the RCC framework and result in an effective and proportionate regulatory regime.

About this Regulatory Impact Statement

The preparation and making of regulations are subject to requirements specified in the *Subordinate Legislation Act 1994,* including preparing a Regulatory Impact Statement (RIS).

A RIS presents an analysis based on evidence that enables the government to consider all relevant information before making a policy or regulatory change. This RIS has been prepared in accordance with Better Regulation Victoria's *Victorian Guide to Regulation* [6], which provides a best practice approach to analysing any proposed regulatory intervention.

This RIS outlines the range of regulatory options considered when drafting the proposed regulations and assesses the impacts of each. An analysis is provided in quantitative terms, where practicable, to ensure the costs of each option are not disproportionate to the benefits. The quantitative analysis and broader context are used to describe why the Victorian Government's proposed regulations for the RCC framework are the preferred option.

Feedback on the RIS and proposed regulations

The RIS supports effective consultation by enabling stakeholders to comment on the detailed analysis, evidence and judgements being considered by the Victorian Government when preparing the proposed regulations.

This RIS and the proposed regulations will be released for a 28-day period to provide industry and local government stakeholders and the public the opportunity to provide feedback. Public consultation will close at 11.59pm, Tuesday 12 September 2023.

The RIS and proposed regulations will be made available on Engage Victoria, the Victorian Government's online consultation platform, at https://engage.vic.gov.au/project/risk-consequence-and-contingency-regulations. Those interested in providing feedback are requested to do so by completing the online survey on Engage Victoria.

DEECA will consider all submissions received during the period of public review and will prepare a formal Response to Public Comment summarising the submissions received. The Response to Public Comment document will be made available on Engage Victoria.

[6] Better Regulation Victoria (2016), *Victorian Guide to Regulation https://www.vic.gov.au/sites/default/files/2019-10/Victorian-Guide-to-Regulation.pdf*

Glossary

Abbreviation	Full name
ARV	Alpine Resorts Victoria
CDS	Container Deposit Scheme
CE	Circular Economy
CERCC Plan	Circular Economy Risk, Consequence and Contingency Plan
CIR	Critical Infrastructure Resilience
C&I	Commercial and Industrial
C&D	Construction and Demolition
DEECA	Department of Energy, Environment and Climate Action
ELA Act	*Environment Legislation Amendment (Circular Economy and Other Matters) Act 2022*
EM Act	*Emergency Management Act 2013*
EPA	Environment Protection Authority
EV	Engage Victoria
FOGO	Food organics garden organics
HDPE	High density polyethylene
MCA	Multi-criteria analysis
MRF	Material Recovery Facility
PP	Polypropylene
RERCC Plan	Responsible Entity Risk, Consequence and Contingency Plan
RCC	Risk, consequence and contingency
RIS	Regulatory Impact Assessment
RV	Recycling Victoria
SKM	SKM Services Pty Ltd
SV	Sustainability Victoria
VAGO	Victorian Auditor-General's Office
VPS	Victorian Public Service
WRRR	Waste, Recycling and Resource Recovery

1 Background

1.1 Overview of the Victorian Waste, Recycling and Resource Recovery Sector

The Victorian waste, recycling and resource recovery (WRRR) sector comprises a mix of public and private industry participants, including[7]:

Organisation	Role/s
Department of Climate Change, Energy, the Environment and Water (Commonwealth)	• Publishing the annual National Waste Database and action plans and reports
Department of Energy, Environment and Climate Action (DEECA)	• Policy, laws and regulations • Governance oversight and coordination of policy implementation
Recycling Victoria (commenced on 1 July 2022)	• Leadership, stewardship and oversight of waste, recycling and resource recovery services and supports the development of a circular economy • Oversight and regulation of the WRRR sector to improve its reliability and transparency • Data collection, analysis and reporting • Planning to manage risks of disruption of services
Sustainability Victoria	• Investment, research and innovation to scale up the circular economy transition • Community education and behaviour change for waste and recycling
Environment Protection Authority	• Enforcing the General Environmental Duty and specific waste duties in the *Environment Protection Act 2017* • Environmental approvals, permissions and licenses for waste and resource facilities and transport
Victorian local governments and Alpine Resorts Victoria	• Regulation and compliance • Provision of waste and recycling services to their local communities • Procurement of waste and recycling services to operators • Direct and/or indirect operation of a range of waste management facilities including resource recovery centres, transfer stations and landfills

Private waste management operators	• Private companies providing services for waste, recycling or resource recovery including
	  ○ services that collect, transport, store, treat, process, sort or recycle waste or recycling materials;
	  ○ services that collect, transport, store, treat, process or sort materials for resource recovery;
	  ○ services that dispose of waste;

[7] Infrastructure Victoria (2020), *Recycling and resource recovery infrastructure in Victoria: International and Australian comparisons* (infrastructurevictoria.com.au), p.38 taken from Stakeholder engagement; 2018 Victorian Statewide Waste and Resource Recovery Infrastructure Plan; Victorian Auditor General Report 2019 and amended to bring up to date with 2023 data

Population growth drives greater demand for resources and generates increasing amounts of waste. In September 2022, the population of Victoria was 6.656 million[8], and is projected to reach about 10 million by 2046[9]. Waste generation projections estimate that by 2046, Victorians will create over 40 per cent more waste than in 2017-18[10]. The waste generation that entered the WRRR system in Victoria in 2022-23 exceeded 15 million tonnes[11], with metropolitan Melbourne accounting for an estimated 80 per cent of this.[12]

Around 69 per cent of all waste generated in Victoria is currently recovered for recycling[13]. Industry estimates that around $1.21 billion worth of resources were recovered in Victoria in 2018-19.[14] Recyclable materials can include organics, plastics, paper and cardboard, metal, bricks, electronic waste (e-waste), soil and construction materials.

Waste streams

There are three main waste streams that describe the source of waste:

- municipal solid waste (MSW),
- commercial and industrial (C&I) waste, and
- construction and demolition (C&D) waste[15].

Each of these three streams can contain a multitude of waste categories, e.g.: organic waste, hazardous waste and plastic waste. Table 1 shows the volume of the three main waste streams across Australia.

Table 2: Waste stream volume in Australia 2020-2021 (in mega tonnes)

Waste streams	Annual waste generation in mega tonnes
MSW	14.0 MT
C&I	32.8 MT
C&D	29.0 MT

Challenges with waste data, waste types and categories

Generally, the data available on waste, both in Australia and internationally, is unreliable, incomplete and inconsistent, which presents many challenges. These challenges exist because the entities and organisations that record waste data do so for different purposes, using different measurement and documentation methods. For example, the quality and methodology of waste data recorded throughout Victoria vary by service provider, operating facility, local government and waste services client.

Waste data is generally measured by waste category/sector (i.e. MSW, C&I, C&D waste) and waste material type/stream (e.g. aggregates, organics, glass, plastics etc.). See Table 2 below for estimated volumes of key waste categories.

[8] Land use and population research, Victorian population statistics, population dashboard, from https://public.tableau.com/app/profile/planning.victoria/viz/PopulationDashboard_16680490256660/PopulationDashboard

[9] Victoria State Government (2019), *Victoria in Future 2019, Population Projections 2016 to 2056*, From https://www.planning.vic.gov.au/__data/assets/pdf_file/0032/332996/Victoria_in_Future_2019.pdf (p 7).

[10] Recycling Victoria. Victoria's waste projection model dashboard, from https://www.vic.gov.au/victorias-waste-projection-model-dashboard

[11] Ibid.

[12] SV data from 1016-17, from VAGO report 'Audit Overview'

[13] Infrastructure Victoria (2020), *Advice on recycling and resource recovery infrastructure in Victoria*, https://statics.teams.cdn.office.net/evergreen-assets/safelinks/1/atp-safelinks.html, p.7

[14] Infrastructure Victoria (2019), *Recycling and resource recovery infrastructure – Evidence base report October 2019,* https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/10/Infrastructure-Victoria-Recycling-and-resource-recovery-infrastructure-Evidence-base-report-October-2019-FINAL-REPORT.pdf, Executive Summary

[15] SV data from 1016-17, from VAGO report 'Audit Overview'VAGO report 'Audit Overview'

Municipal solid waste

Municipal solid waste (MSW) is the term used to describe solid waste streams collected from municipalities, including local councils and Alpine Resorts Victoria (ARV). In Victoria, the 79 local councils and several ARV manage the collection, processing and disposal of MSW either through direct service delivery or through service delivery by contractor/s[16]. The waste services offered across councils and ARV are not uniform, an exception to this being that all offer the collection and disposal of general household waste to landfill. ARV and councils' waste management service offerings can include the following:

- residential and commercial kerbside collections which include general waste, recyclables and organic matter, including food and/or gardening waste,
- litter maintenance, including street sweeping and public place litter collections, and
- hard waste collections.

In addition to the above services, councils and ARV can operate landfills, resource recovery centres and transfer stations.[17] These waste infrastructure facilities are critical to the efficient movement and aggregation of waste and allow some waste streams to be sorted for recycling.

Commercial and Industrial waste

Commercial and industrial (C&I) waste is the term used to describe waste produced by industries and businesses, including offices, schools, restaurants, retail and wholesale businesses, manufacturing, healthcare, mining and minerals processing. C&I waste can comprise many different waste categories including clinical waste, hazardous waste, cardboard, landfill, organics and plastics.

Construction and Demolition waste

Construction and demolition (C&D) waste is the term used to describe waste produced by demolition and building activities, including road and rail construction, maintenance and excavation of land associated with construction activities. As with C&I waste, C&D waste can comprise many waste categories including metals, plastics, hazardous waste, landfill and cardboard.

Key waste categories

There are many categories of waste. Table 2 outlines the volumes in mega tonnes of some key categories of waste in Australia and is not an exhaustive list of all waste categories. It is useful to categorise waste because the properties of each waste category can differ significantly. Different waste categories require distinct handling, transport and storage safety considerations and have various options for recycling, treatment or disposal. Each waste category can be present in MSW, C&I and C&D waste streams.

Table 3: Key categories in Australia 2020-2021 (in mega tonnes)

Waste category	Annual waste generation in mega tonnes
Organics	14.4 MT
Hazardous	7.4 MT
Paper & cardboard	5.8 MT
Metals	5.7 MT
Plastics	2.6 MT

Organics

Organic waste refers to any matter that is organic and can be either putrescible or non-putrescible[18]. Organic waste includes food, garden clippings, food by products, and organic agricultural waste. Importantly, biodegradable plastics are not considered to be part of organic waste as these plastics cannot easily

[16] VAGO (2021), Council Waste Management Services, https://www.audit.vic.gov.au/report/council-waste-management-services?section, p.1

[17] Victorian Auditor-General's office (2021), Council Waste Management Services, https://www.audit.vic.gov.au/report/council-waste-management-services?section, p.2

[18] Putrescible waste is waste able to be decomposed by bacterial action.

decompose in the same way that other organic wastes do. Human waste is also not considered part of this waste stream as it goes to the sewer and is part of the wastewater sector.

Hazardous waste

Hazardous waste is defined are waste products that are explosive, corrosive, flammable, poisonous, toxic, ecotoxic or infectious. An example of hazardous waste is asbestos waste and clinical waste. It needs to be managed so that it does not cause harm to humans or the environment and requires specific storage, transport, handling, treatment and disposal processes[19].

Paper and Cardboard

Paper and cardboard waste includes all paper and cardboard that can be recycled including cardboard boxes, baled cardboard, newspapers, magazines and printer paper.

Metals

The metals waste category includes all ferrous and non-ferrous metals. These metals can come from a range of sources such as scrap cars, steel beams removed from buildings, metal drums, wires, cables and appliances.

Plastics

Plastics is a diverse category of waste as there are so many kinds of plastic. Plastics commonly used in consumer products may feature resin codes 1 through to 7, the code indicting the kind of plastic, e.g., resin code 2 indicates high density polyethylene (HDPE), resin code 5 indicates polypropylene (PP). Additionally, the category includes many other plastics commonly used in durable consumer items like plastic toys, car parts, computer hardware and tools.

1.2 Major disruptions to the sector

The Victorian WRRR sector has experienced significant volatility and service disruptions and incidents in recent years, significantly impacting the environment, human health and society. The disruptions also caused a severe financial impact on industry and required substantial government intervention with a high economic impact on the state.

Examples of these major disruptions to the WRRR sector are explained in Box 1 below. More information on the drivers for these disruptions and the harms they caused is provided in Chapter 2.

Box 1. Examples of disruptions and failures that have occurred.

China National Sword policy (2018)

The 2018 introduction of China's National Sword Policy exposed the fragility of Australia's and Victoria's reliance on international markets to accept recyclable material. In 2016-17 nearly all of Victoria's plastic exports and 75 per cent of paper and cardboard was exported to China. [20] China's new policy effectively removed this market for Australia and disrupted the international commodity process for recyclable waste streams, including plastics and paper and cardboard. The commodity prices plummeted, disrupting industries that were profiting from trading these recyclable materials.

Prior to 2018, many Australian Material Recovery Facilities (MRFs) were selling to China the recyclable material collected from councils and paying Victorian councils for these recyclables, which subsidised the cost of collecting the MSW. After the National Sword Policy came into effect, the MRF operators could no longer sell the recyclables internationally and could no longer pay Victorian councils for the collected recyclables. MRF operators varied contract arrangements so that councils had to pay the MRF operators for

[20] Infrastructure Victoria (2019), *Recycling and resource recovery infrastructure – Evidence base report October 2019,* https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/10/Infrastructure-Victoria-Recycling-and-resource-recovery-infrastructure-Evidence-base-report-October-2019-FINAL-REPORT.pdf, p.43

collecting the recyclables. This financial change significantly impacted the council's budgets, affecting service delivery and cost to ratepayers.

As the MRF operators tried to locate new markets for the recyclable materials, several stockpiles of materials grew to unsafe sizes, which posed a significant threat of fire. Many recyclable materials were sent to landfill to avoid unsafe stockpiling, undermining public trust in the recycling sector.

The impact of Australia's shift in global commodity prices for recyclable materials and the cessation of China as a market was exacerbated by the lack of a domestic market for these recyclables. Australia had to either send the recyclable materials to landfill or increase recycling capacity to process the materials here.

Closure of SKM Recycling (2019)
The closure of SKM Services Pty Ltd (SKM) was enormously impactful to Victorian councils, the community, the wider WRRR sector and the state government. SKM provided recycling services to a large portion of Victoria's local councils. In 2019, SKM was issued EPA notices to cease accepting recyclable waste at its Laverton North and Coolaroo plants, in response to a significant toxic fire resulting from large stockpiles of combustible recyclable waste materials at these sites. SKM also temporarily closed two other facilities around this time. As a result, 35 of the 79 Victorian councils started sending recyclable material to landfill at an additional cost, with recycling services to the community disrupted for periods of between two and nine weeks. SKM was subsequently declared insolvent.[21]

Clinical waste volume increases during COVID-19 pandemic (2020-2022)
The COVID-19 pandemic saw a significant increase in clinical waste volumes from vaccination clinics, testing sites, aged care and other facilities. Clinical waste requires specialised management due to the disease hazard it presents.[22] Substantial pressure was placed on the small number of Victorian clinical waste service providers, requiring government intervention to ensure this essential service did not fail.

Temporary closure of waste services during the COVID-19 pandemic (2020-2022)
In response to the declaration of COVID-19 lockdowns for non-essential services, multiple landfills and MRFs closed because the waste sector was not declared an essential service. The Victorian Government, through the EPA, issued a public notice to clarify that councils and the WRRR industry should continue to provide critical waste services to the community.[23] The WRRR services declared critical included waste collection, transport, treatment, disposal and transfer stations.

REDcycle soft plastics insolvency (2022)
REDcycle provided soft plastic recycling services to major Victorian supermarkets across the state. In late 2022, the company suspended its services. EPA commenced investigations after becoming aware of approximately 3,000 tonnes of soft plastics stockpiled in warehouses across Melbourne, including plastics that had come from outside of Victoria.

The range of failures experienced by Victoria's WRRR sector has exposed the fragility and interconnectedness of the WRRR sector across local, state, national and international levels. It has also signalled a significant lack of preparedness and risk planning at the whole-sector level, a residual problem that exacerbates the harms caused by a significant disruption.

1.3 Interventions and reforms to improve risk management in the sector

Following the major disruptive events Victoria has experienced in the past decade, independent agencies have conducted several reviews of the sector. The reviews include:

[21]Parliamentary Budget Office 'Advice on Council Recycling Costs' (22 Aug 2019) <https://pbo.vic.gov.au/response/527>

[22] EPA (2022), Waste and recycling during coronavirus,

[23] EPA (2022), Waste and recycling during coronavirus, https://www.epa.vic.gov.au/about-epa/news-media-and-updates/coronavirus/handling-waste-during-coronavirus

- The 2006 Commonwealth Productivity Commission's *Waste Generation and Resource Efficiency* report, which highlighted that "waste management policy should primarily be focused on reducing social and environmental risks from waste collection and disposal to acceptable levels".[24]
- The 2019 Victorian Essential Services Commission *Waste and Recycling Services Review* which investigated the key issues facing Victoria's waste and recycling sector.[25] The report advised to the government that a regulatory regime could address market competition, service quality and sector transparency issues.
- The Victorian Auditor-General's Office (VAGO) 2019 report to Parliament *Recovering and Reprocessing Resources from Waste*[26] which examined a range of issues facing the Victorian WRRR sector and provided recommendations to the Victorian Government, including the development of a statewide WRRR policy.
- Infrastructure Victoria's 2020 *Advice on Recycling and resource recovery infrastructure.*[27]

In response to the findings of these reviews, the Victorian Government has delivered new funding support, policies and plans and legislative reform. A detailed analysis of waste sector incidents, disruptions and market failures is outlined in the problem analysis in Section 2.

Funding support

Since 2015, the Victorian Government has invested in supporting the recycling and resource recovery sector in Victoria, including:

- $37 million to develop the *Recycling Industry Strategic Plan* to stabilise and improve the productivity of the recycling sector, increase the quality of recycled materials, and develop new markets for materials
- $35 million for more reliable household recycling services, co-investment with industry in infrastructure to better process plastics and other recycling, and development of more robust end markets for recycled resources
- $6.6 million to councils directly affected by the closure of SKM Recycling. See section 2.1 for detail
- $12.8 million to combat illegal stockpiling and mismanagement of hazardous waste, and to address illegal dumping of industrial waste in Victoria.[28]

Policies and plans

In 2020 the Victorian Government also responded by developing *Recycling Victoria: A new economy*, the Government's circular economy policy and plan for a cleaner, greener state with less waste and pollution, more jobs and a sustainable and thriving circular economy.

The Victorian Government has invested $380 million to deliver the circular economy policy to:

- increase the quality and volume of recycling and reuse of our precious resources,
- reduce waste, landfill and litter,
- reduce emissions and contribute to Victoria's net-zero emissions by 2050,
- create new jobs, and
- build a sustainable and thriving circular economy for a cleaner, greener Victoria.

Risk in the WRRR sector is a key focus of Victoria's circular economy policy. It highlights how the state will better manage high-risk and hazardous waste, secure the right infrastructure to support increased recycling, respond to new bans on waste export and safely manage hazardous waste (page 5). It also sets out *Action 10.1: to support safe and effective high-risk and hazardous waste management through stronger regulation, policy and planning*.

Legislative reform

[24] Australian Government Productivity Commission. Waste Generation and Resource Efficiency. https://www.pc.gov.au/inquiries/completed/waste

[25] Essential Services Commission. Waste and Recycling Services Review 2019. https://www.esc.vic.gov.au/other-work/waste-and-recycling-services-review-2019#tabs-container1

[26] VAGO, Recovering and Reprocessing Resources from Waste. https://www.audit.vic.gov.au/sites/default/files/2019-06/060619-Waste-Resources.pdf?

[27] Infrastructure Victoria (2020), *Advice on recycling and resource recovery infrastructure in Victoria,* https://statics.teams.cdn.office.net/evergreen-assets/safelinks/1/atp-safelinks.html , Executive Summary

[28] CE Policy, p10

To implement *Recycling Victoria: A new economy*, the Victorian government introduced in 2021 legislative reforms, through the *Circular Economy (Waste Reduction and Recycling) Act 2021* (the Circular Economy Act) and subsequent *Environment Legislation Amendment (Circular Economy and Other Matters) Act 2022* (ELA Act), which amended the Circular Economy Act.

The Circular Economy Act (as amended), among other things:

- introduces a new risk, consequence and contingency planning framework (the RCC framework) to manage significant risks to the sector, and
- establishes a new regulator, Recycling Victoria, which, as part of its broader responsibilities, is responsible for overseeing risk, consequence and contingency planning for the circular economy market and monitoring, supporting and enforcing compliance with the Circular Economy Act and regulations.

The Victorian government's intention for the RCC framework is to: [29]

- support the important role of Recycling Victoria in identifying, monitoring, managing and mitigating risks and consequences impacting the delivery of waste, recycling or resource recovery services, and developing contingency plans to minimise impacts from serious failures, disruptions or hinderance in the sector,
- address significant risks in the waste sector and wider circular economy, including national and international policy changes, natural emergencies, human health emergencies, and failures of key operators and facilities,
- recognise the significant benefit of preparedness, and
- closely align with emergency management approaches and requirements for several other sectors, including critical infrastructure sectors.

In summary, the RCC framework will ensure that risks and associated consequences are identified and managed, and that contingency plans are implemented to minimise the impact of any serious failures, disruptions and hinderances on waste recycling or resource recovery service delivery.

1.4 Interaction between the WRRR sector and other essential sectors

Critical infrastructure is a term used to describe the most important sectors that Victoria relies on, being transport, gas and fuel, light, water, power and sewerage. Because these sectors are so important, they are regulated by legislation to help ensure uninterrupted services through adequate risk management planning.

In Victoria, a Critical Infrastructure Resilience (CIR) model was introduced through legislation in 2013 to augment existing emergency risk management practices and strengthen the emergency resilience of critical infrastructure sectors. The CIR model is legislated in Victoria through the *Emergency Management Act 2013* (the EM Act) and, at the federal level, through the *Security of Critical Infrastructure Act 2018* (Cth). The 2013 CIR model was introduced in Victoria in response to the following:[30]

- a review of emergency management after catastrophic bushfire events of 2009 and floods of 2010-2012, which called for a broader 'all-hazards' consideration of all risks, such as fire, flood and storm, instead of its previous focus on terrorism,
- increasing interdependence between critical infrastructure,
- increasing demand for essential services, and
- climate variability affecting the frequency and severity of emergencies.

As recently published in *Victoria's Critical Infrastructure All Sectors Resilience Report 2022*[31], the health sector, as part of risk management planning and mitigation, identified waste management services such as clinical waste, waste removal and sewage as a key dependency in the industry.

[29] Second reading speech to introduce the Environment Legislation Amendment Act

[31] Emergency Management Victoria (2022) *Victoria's Critical Infrastructure All Sectors Resilience Report 2022* https://www.emv.vic.gov.au/publications/victorias-critical-infrastructure-all-sectors-resilience-report-2022

Waste services are not prescribed as critical infrastructure under the EM Act. This is appropriate because essential service sectors such as water, energy and transport are declared as essential services for the whole industry. However, for the waste sector, a more nuanced approach is needed to apply to only the most critical services within the sector. The CIR approach is based on the impact of emergencies on essential service provision and not systemic and market risks, which are the main issues in the waste sector. The CIR approach is also focused on major fixed infrastructure such as roads, water networks and the power grid, rather than looking at supply chains and networks, which is a crucial focus for the WRRR sector.

Because the WRRR sector is not regarded as an essential service under the EM Act, a different regulatory framework is required to help ensure the WRRR sector can provide uninterrupted services and have adequate risk management planning. Any new regulation for the WRRR sector will need to be designed to closely align with wider emergency management approaches and current requirements for other critical infrastructure sectors, by drawing on important principles from the CIR model.

1.5 Legislative context for the RCC Framework

The Circular Economy Act confers functions and powers on the Head, Recycling Victoria and places high-level obligations or requirements on various waste and recycling service providers and other entities to manage risks.

Key overarching elements of the RCC framework provided for by the Circular Economy Act include:

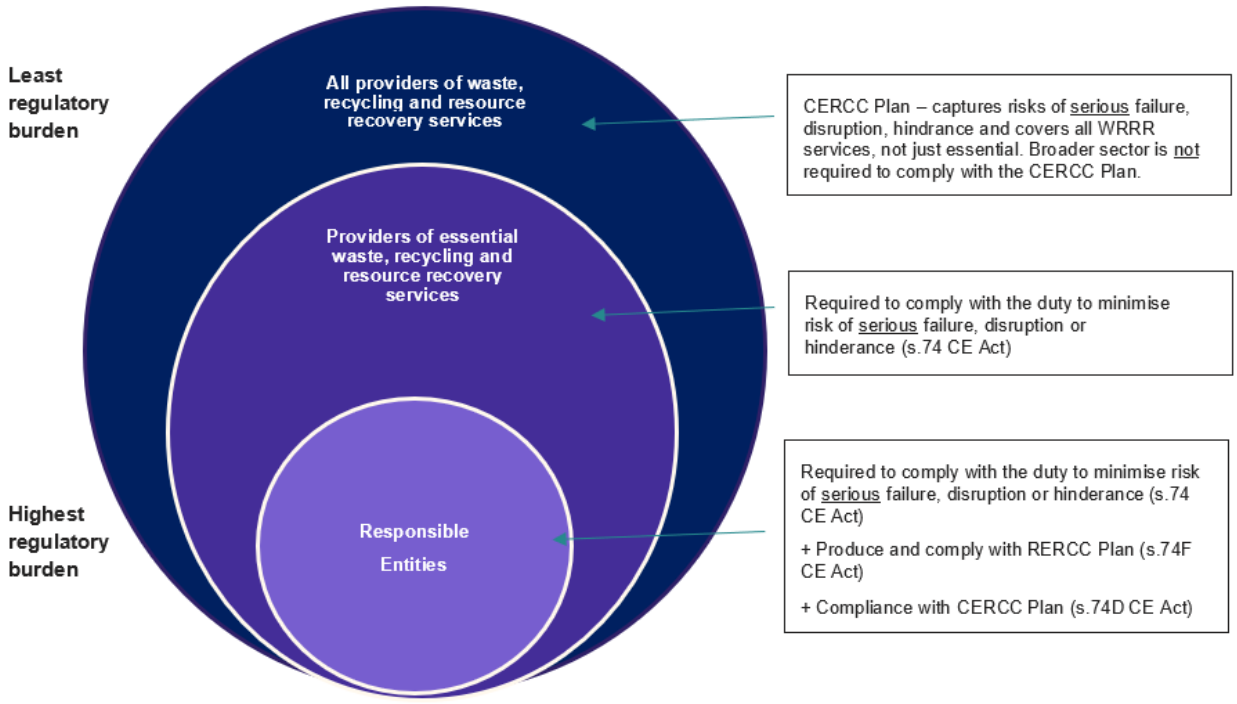
- a duty on providers of essential waste, recycling or resource recovery services to minimise serious risk of failure, disruption or hinderance of service (section 74 duty),
- annual preparation of a Circular Economy Risk, Consequence and Contingency Plan (the CERCC Plan) by Recycling Victoria, and a requirement that designated responsible entities must comply with this plan,
- annual preparation of Responsible Entity Risk, Consequence and Contingency Plans (RERCC Plans) by designated responsible entities, and a requirement that responsible entities must comply with their RERCC Plan,
- statements of assurance by responsible entities that their plan has been prepared in accordance with the Circular Economy Act and regulations and that it has regard to, and complies with, the CERCC Plan in force, and
- guidelines that the Head, Recycling Victoria may issue (under section 74K) with respect to risk, consequence and contingency planning by responsible entities.

The CERCC Plan provisions in the Circular Economy Act have been modelled on the concept of Sector Resilience Plans in the CIR model, which envisages these plans as high-level risk management plans for a whole sector, focusing on key external threats and prepared by Recycling Victoria.

RERCC Plans are individual risk-management plans prepared by responsible entities in accordance with the CERCC Plan that identifies risks of serious failure, disruption or hinderance specific to the service provided by the entity, and mitigations to address these risks.

The RCC framework is designed to proportionately apply the regulatory burden in the parts of the waste, recycling and resource recovery sector that present the greatest risks if disrupted. For this reason, the legislative obligations are placed on providers of essential services and responsible entities, rather than the sector as a whole. This is demonstrated in Figure 1 below.

Figure 1: The varying levels of regulatory burden across the WRRR sector imposed by the proposed regulations



Under section 183 of the Circular Economy Act, regulations may be developed to further specify the details of the RCC framework and are in fact needed to give effect to the RCC framework.

1.6 About this Regulatory Impact Statement

The Circular Economy (Waste Reduction and Recycling) (Risk, Consequence and Contingency Plans) Regulations 2023 (the proposed regulations) have been drafted to support the implementation of the RCC framework to mitigate risks of severe failure, disruption and hinderance in the WRRR sector. The proposed regulations prescribe the following:

- a definition of essential waste, recycling or resource recovery services,
- a definition of responsible entities,
- matters relating to the obligations on responsible entities with respect to the content of, and compliance with RERCC Plans,
- matters relating to the preparation and content of CERCC Plans,
- related offences, and
- exemptions from requirements under the regulations.

The preparation and making of regulations are subject to requirements specified in the *Subordinate Legislation Act 1994,* including preparing a Regulatory Impact Statement (RIS).

A RIS presents an analysis based on evidence that enables the government to consider all relevant information before making a policy or regulatory change. This RIS has been prepared in accordance with Better Regulation Victoria's *Victorian Guide to Regulation*[32]*,* which provides a best practice approach to analysing any proposed regulatory intervention.

This RIS outlines the range of regulatory options considered when drafting the proposed regulations and assesses the impacts of each. An analysis is provided in quantitative terms, where practicable, to enable a comparison of the costs and benefits of each option. The quantitative and qualitative analysis in the RIS

[32] Better Regulation Victoria (2016), *Victorian Guide to Regulation* https://www.vic.gov.au/sites/default/files/2019-10/Victorian-Guide-to-Regulation.pdf

explains why the Victorian Government's proposed regulations for the RCC framework is the preferred option.

This RIS identifies a preferred option by assessing the three options considered against three key objectives:

1. to minimise risk of serious failures, disruptions and hindrances to waste, recycling or resource recovery service delivery which result in harms to:
    - human health,
    - social,
    - security
    - the environment, or
    - the Victorian economy,
2. improve regulatory oversight to enable a more stable and efficient waste and recycling industry, and
3. minimise costs to industry and Government, without compromising risk reduction.

The RIS supports effective consultation by enabling stakeholders to comment on the analysis, evidence and judgements considered by the Victorian Government in the preparation of the proposed regulations. Consultation with key industry and local government stakeholders informed the preparation of the RIS. A detailed description of the stakeholder consultation process is provided in Chapter 7.

This RIS and the proposed regulations will be released for a 28-day period to provide industry and local government stakeholders and the public the opportunity to provide feedback. Public consultation will close at 11.59pm, Tuesday 12 September 2023.

The RIS and proposed regulations will be made available on Engage Victoria, the Victorian Government's online consultation platform, at https://engage.vic.gov.au/project/risk-consequence-and-contingency-regulations. Those interested in providing feedback are requested to do so by completing the online survey on Engage Victoria.

DEECA will consider all submissions received during the period of public review and will prepare a formal Response to Public Comment summarising the submissions received. The Response to Public Comment document will be made available on Engage Victoria.

2 Problem statement

2.1 Need for a reliable WRRR sector

Victoria needs a reliable WRRR sector that can operate without major disruptions to service provision. This is because the WRRR sector services many industries and the community, meaning any disruptions to service provision have the potential to cause widespread flow-on effects and significant harm. Secondary and tertiary impacts may be felt by individuals and groups who are not direct customers of the service.

A reliable WRRR sector:

- is able to provide continuous services,
- avoids harms (including social, economic, environmental and human health),
- meets community expectations (service levels and service quality), and
- respects the state's transition to a circular economy waste hierarchy (aims to retain the value of materials and minimise waste to landfill).

Because the WRRR sector is connected to many other industries, its reliability can be disrupted by various risks outlined in Section 2.3.

2.2 Recent changes impacting the WRRR sector

Victoria's WRRR sector has experienced several significant changes in recent years. These changes have originated internationally and domestically within the WRRR sector and other industries.

External market changes

External market changes cannot be controlled and have a significant and widespread impact on Victoria's WRRR sector. These changes include fluctuations in commodity prices for recycled materials and the availability of end markets to purchase recycled materials from Victoria. For example, in 2019, China announced it would no longer accept waste streams from Australia, significantly disrupting the WRRR sector and commodity prices for recyclable materials.

Domestic regulatory changes

Domestic regulatory changes shape how the WRRR sector can operate and cause systemic changes to the sector. New Commonwealth rules came into effect in 2021 to restrict the waste streams that could be exported from Australia, including glass, plastic, tyres, paper and cardboard.[33] This represented a massive change in Victoria's WRRR sector as there was not currently sufficient capacity in the state to process all the recyclable waste materials that are produced. However, this change in export rules also creates new market opportunities.

Domestic policy changes

Policy changes from Victorian councils, the Victorian State government and the Commonwealth Government have created new policies and waste reduction targets to transition towards a circular economy. The new waste reduction targets have wide-reaching impacts, including:

- identifying and supporting new local end markets for recyclable material
- redesigning products and services to reduce waste,
- introducing product stewardship schemes, and
- introducing grants programs to support the WRRR sector adapt to the policy changes.

These policy changes have taken place relatively quickly (i.e. in the past seven years), causing the Victorian WRRR sector to become increasingly volatile as the sector struggles to respond to change. Specific risk features of the Victorian WRRR sector (detailed in Section 2.3) have further compounded the impact of the aforementioned changes, causing the sector to become less able to deliver reliable services.

2.3 Risks facing the sector

Several specific risk factors of the Victorian WRRR sector have made the industry unable to quickly respond to changes detailed in Section 2.2, ultimately causing the sector to be unable to deliver reliable services and, in some instances, causing social harm, economic harm, and harm to environmental and human health.

These risk factors include:

- lack of market depth, including single operator dependencies,
- end market limitations and disruptions,
- variable commodity prices and demand for recyclables,
- limited capacity within Victoria and Australia to process waste,
- lack of viable alternatives when a specific WRRR service is unavailable,
- lack of agility in the system to respond to demand,
- dangers of stockpiling waste materials, and
- natural disasters.

[33] Australian Government Department of Climate Change, Energy, Environment and Water. Waste Exports. https://www.dcceew.gov.au/environment/protection/waste/exports

Any of these risk factors can disrupt the delivery of WRRR services in the state. Many of these risks are connected, meaning one risk occurring can cause another risk to occur, thereby amplifying the overall impact on the WRRR sector.

Lack of market depth, including single operator dependencies

Lack of market depth is when there are very few operators of a specific service in the WRRR market, such lack of competition presents a risk to the continuity of service delivery. It becomes an issue when an operator decides to cease offering a specific waste service or is unable, for any reason, to continue to provide this service, as there may not be another operator willing and capable of stepping in to fill the gap in the market.

Examples of lack of market depth include single-operator dependencies (monopolies), dual-operator dependencies (duopolies) or situations where one player hold significant market share.

This can cause significant harm, as occurred in 2019 with the collapse of SKM, detailed in Section 1.2.

A single-operator dependency is a situation where there is only one operator of a particular WRRR service, including at any point in the waste supply chain ie: waste collection, transport, aggregation, processing and/or disposal). Single operator dependencies present a significant risk if that operator is unable to carry out their service as usual, as there is no other operator in the market to step in to fill the gap in demand quickly. Single operator failure can lead to stockpiling and resultant risks of fires, which can impact human and environmental health and be significant and complex to resolve.

Examples of where a lack of market depth or single-operator dependencies may occur include waste collection, waste transportation, aggregation points, treatment facilities, recycling facilities, sorting facilities and landfill facilities.

Illustrating this point, Victoria only has five clinical waste processing facilities, and if any of these cannot operate for an extended period of time, the impact to the state and the other facilities would be acute. Likewise there is only one facility in Victoria permitted to accept an extensive range of hazardous waste types for landfill disposal.

This type of impact may be most acutely felt at certain points within the service supply chain, especially where there are many providers including providers with easily transferrable service offerings (such as waste collectors) funnelled to key infrastructure such as a single processing facility.

Due to the small overall size of the waste sector and the diverse and highly specialist nature of many services offered by the sector, lack of market depth and single operator dependencies should be considered more likely than in a range of other sectors.

End market limitations and disruptions

End-market disruption in the WRRR sector occurs when a market for materials collected for reuse, reprocessing or recycling ceases to function in its regular manner. This can be due to various factors, including a fire at an end-market facility disrupting operations, a company ceasing to require recycled material in its manufacturing process, or failure of supply chains to transport the recycled material to the end market.

In these scenarios, the end markets are either completely disrupted and can no longer purchase more recyclable materials or are not entirely disrupted but become comparatively limited and can only purchase reduced quantities. End market disruptions and limitation impact the collectors of recycled materials by forcing them to either urgently find new markets to purchase their materials, stockpile the material until a market can be found, or to find alternative options for processing and disposal of the material (e.g. in a landfill, if legally permitted).

Stockpiles of recyclable material causes harms (see 2.4 below).

Limitations and disruptions to end markets can cause a drop in the commodity price of the recyclable material, which can undercut the financial viability of industry collecting and trading the recyclable material, making it less appealing to offer the recycling services and decreasing public trust in the recycling sector.

A prime example of an end market disruption is the commencement in 2018 of China's National Sword Policy, detailed in Box 1 above.

Variable commodity prices and demand for recyclables

Recyclable materials are commodities with fluctuating price points. The commodity price is influenced by a range of factors, including demand for the commodity and cost to recover the materials. Businesses in the WRRR sector will closely monitor commodity prices for recyclable materials and adapt their business operations around the pricing. High demand for recyclable materials and a high commodity price support WRRR businesses to try to collect and sell for recycling as much of that material as they can. Conversely, low demand and low commodity prices can influence WRRR businesses to stop collecting those recyclable materials, stockpiling the materials they have collected until the price increases, and potentially sending the materials to landfill if stockpiles become unsafe or unviable. Additionally, the costs associated with the labour, transport, energy and other overheads required to collect and process or recycle some materials can drive up the production price for the commodity and make it harder for producers to cover costs.

A well-known example of a commodity price for a recyclable material is the international price of gold, a recyclable metal extracted from e-waste, including mobile phones. Higher gold prices encourage WRRR businesses to collect e-waste containing small amounts of gold, and either extract the gold themselves or sell the e-waste to a processor who will remove the gold. The commodity price of gold can cover the costs of recovering and processing, making it a viable recycling industry at present.

Recyclable plastics can experience high supply and low demand as there currently are few options for utilising plastics as feedstock to manufacture new products. This may encourage plastics recyclers to stockpile plastics until a suitable market becomes available or send plastics to landfill.

Limited capacity to process waste

The Victorian WRRR sector has a limited capacity to process waste and recyclable materials domestically. This is due partly to the reliance on exporting waste materials prior to the 2018 China National Sword Policy detailed in Section 1.2. The domestic processing capacity of the Victorian WRRR sector is increasing unevenly, with some waste streams lagging behind waste generation rates. The limited processing capacity means that some potentially recyclable waste streams are being sent to landfill or stockpiled until capacity becomes available.

Lack of agility in the system to respond to demand

The WRRR system includes waste collection, transportation, aggregation, storage, separation and processing. Each of these steps relies on infrastructure availability. This infrastructure can take years to plan, construct, secure required investments and satisfy regulatory requirements. This means that the sector cannot quickly scale and contract to match the demand for services.

Individual WRRR businesses may struggle to respond to a sudden spike in demand for their services when, for example, a competitor ceases operating. The waste and recyclable material that the competitor would otherwise process would ideally be distributed to several other comparable operators, so the spike in processing demand is shared across multiple operators and, thereby becomes easier to manage. However, if there is only a single other operator, the waste or recyclable material may need to be sent to landfill (if legally permitted) or stockpiled until that operator can process it.

Lack of viable alternatives when a specific WRRR service is unavailable

Some waste materials, such as hazardous waste, require specific transport, handling, processing, storage and treatment services as well as licencing and approval to operate requirements. This means that if any specific service becomes unavailable, quickly locating an appropriate alternative service may be challenging. The lack of viable alternatives is a function of the specific service requirements of some waste streams, the number of service providers and the capacity of those service providers. It may also be challenging for new providers to quickly alter their operations or scale up capacity to become able to manage new waste streams or accept more capacity of existing waste streams if demand for the service spikes.

2.4 Impacts of risks facing the sector

Stockpiling

A common outcome of any of the listed risk factors for the Victorian WRRR sector is that waste is stockpiled in the hope that it can soon be moved on for processing, recycling or treatment. Stockpiles may also be accumulated because alternatives (e.g. processing or sending waste to landfill) is deemed too expensive by operators. Stockpiles pose significant risks as large volumes of waste streams can ignite and cause serious harm from fires, stockpiles can also cause pollution, wind-blown litter, create amenity issues and attract vermin.

Stockpiles are also at risk of abandonment. If the service provider becomes insolvent, the state can be held responsible for the abandoned materials, including the responsibility to manage the risks posed by the materials and the costs of disposing of them to reduce the risks. Stockpiles can also be very costly to remove, potentially creating a financial burden on taxpayers. See 2.5 for more detail on the harms of stockpiled waste.

Illegal dumping

In addition to stockpiles, waste materials that cannot be moved on to an appropriate destination (ie: correctly processed or recycled) can sometimes be dumped illegally, leading to several harms.

Disruptions to waste collection

Waste will accumulate at points of collection along the whole supply chain if there is any disruption to the supply chain. For example, a shortage of appropriate waste transport vehicles could result in waste piling up at a business or households where waste is generated. A shortage of clinical waste processing capacity could result in clinical waste accumulating at a medical facility, as was observed in Victoria in the COVID-19 pandemic. A shortage of recycling processing capacity could result in waste accumulating at transfer stations.

Landfills as destination of last resort

Landfills are often used as a destination of last resort for waste materials that cannot be reprocessed, recycled or reused due to disruptions to the WRRR sector. Illegally dumped waste can be taken to landfills as part of clean-up activities. Stockpiled waste that cannot be taken to a processing facility can also end up in landfill as a last resort. Disruptions to the WRRR sector can place pressure on limited landfill capacity and can cause a range of harms. Placing recyclable materials in landfill represents a loss of value from those materials and can decrease public trust in the WRRR sector.

Trust in the circular economy

System disruptions, failure to deliver services, stockpiling and the diversion of valuable resources to landfills undermine the confidence of the wider public in the circular economy. Lack of confidence in the circular economy may change public willingness to engage with the system and impact adoption of positive recycling and resource recovery behaviours.

Impacts of natural disasters and emergencies

Natural disasters and emergencies can lead to waste being stockpiled, illegally dumped, accumulated or sent to landfill as a destination of last resort. Natural disasters and emergencies such as bushfires, floods, severe storms and pandemics require an urgent response and have wide-reaching impacts on the WRRR sector and these kinds of disasters are occurring more frequently as a result of climate change. The impact of natural disasters and emergencies includes:

- Natural disasters and emergencies can disrupt waste processing facilities and transportation of waste, which can lead to waste being stockpiled until access is restored, processing facilities reopen or new processing facilities are identified.
- Natural disasters and emergencies can block access routes for waste to be transported from points of generation and points of collection, which leads to waste accumulating.
- Illegal dumping of waste that is not properly cleaned up after a disaster. This can include households and businesses illegally dumping waste that is too expensive to take to landfill or clean up through appropriate processes.
- The generation of a lot of waste that needs to be sent to landfill as a destination of last resort, as it is too contaminated to be separated and recycled. For example, the October 2022 Victorian floods generated a huge volume of waste that had to be taken to landfill, similarly the COVID-19 emergency generated a huge increase in clinical waste that exceeded processing capacity, leading to clinical waste accumulating at points of generation.

Natural disasters can cause a range of issues for waste that has been stockpiled, illegally dumped or accumulated as this waste is more vulnerable to the impact of natural disasters and emergencies than correctly stored waste. For example:

- stockpiles and illegally dumped waste can ignite, be washed away or blow away in high winds. Any of these events can cause significant harm to the environment, human health, society and cause significant economic harm to industry, the community and to government.

Natural disasters and emergencies can also cause significant impacts to service delivery in the WRRR sector. These impacts include:

- Service delivery disruptions through direct impacts, which can result in periods where the service cannot be offered, for example bushfires in the vicinity of a facility preventing its continued operation.
- Impacts to transport, such as road closures, meaning waste cannot be transported as usual, or blocking access to key infrastructure such as landfills. When access is cut off, alternative destinations need to be identified.
- WRRR labour disruptions can cause significant disruptions to service delivery continuity, caused by people being displaced by disasters and unable to work or people impacted by disasters and needing time off work to recover. In the COVID-19 emergency, WRRR labour shortages were a result of lockdown rules, and other rules restricting people attending work if they tested positive to the disease or had been in contact with someone who had tested positive.
- The threat of severe storms, heat events, floods and bushfires impacting waste infrastructure is also cause for concern, as burning waste is extremely hazardous to human and environmental health.
- Other emergencies can also cause additional volumes of waste. For example, the COVID-19 pandemic caused a significant increase in the quantity of clinical waste that had to be managed safely, and similarly, bushfires and floods caused more waste to be generated.

2.5 Harms caused

The risks inherent in the WRRR sector described in Section 2.3 mean that any significant disruption or change to the sector can result in significant harms to the environment and human health, as well as social, economic and security harms. A single major disruption can cause several kinds of harm as the flow on effects of the disruption ripple through the WRRR system. Examples of substantial disruptions are detailed in Section 1.2.

The key harms that can be caused by major disruptions to the Victorian WRRR sector are:

Environmental harm

Harms to the natural and human environment can occur, including temporary or permanent adverse effects of any magnitude, frequency or duration. As described in Section 2.3, many different risk factors can lead to waste being stockpiled, illegally dumped or sent to landfill if there is a disruption to services.

Stockpiles of waste can ignite, causing significant air pollution, firewater runoff, and land contamination. Burning stockpiles release greenhouse gasses which contribute to climate change, and the risk of stockpiles igniting is likely to increase as a result of climate change causing more heat events across the state. Under the *Climate Change Act 2017* the Victorian Government has set a target to reduce greenhouse gas emissions and is therefore accountable to take steps to reduce the incidence of stockpiled waste burning. Waste stockpiles can also blow around in the wind, turning waste into litter and causing waste materials to enter waterways and compromise ecosystems. Wind-blown litter from stockpiles can also pollute human environments, reducing amenity of our cities and towns.

Illegally dumped waste can pollute waterways, causing poisoning of aquatic life and preventing people from using the waterway for recreation or sourcing food. Dumping hazardous waste can directly impact ecosystems and contaminate ground water, contributing to species die-offs. Dumped waste can also attract vermin such as snakes, rats and mice, mosquitoes and birds. These animals can spread disease, causing harm to wildlife, humans and livestock. Dumped tyres collect rainwater which provides a breeding ground for mosquitoes, which can spread disease to wildlife, humans and livestock. Dumping organic waste can introduce pathogens and invasive species into the natural environment, disrupting ecosystems and threatening vulnerable species.

If organic waste is unable to be recycled it could be sent to landfill as a destination of last resort. In landfill, the organic waste will generate potent greenhouse gas emissions such as methane as it decomposes, which contributes to climate change, thereby causing environmental harm.

Human health harm

Human health harms can also occur. Fires in stockpiles of waste cause significant respiratory illness. Threats of potential fires or disease cause anxiety in communities close to the source of the threat, which also impacts the quality of life. The stockpile of tyres at Stawell was a significant cause of anxiety for the local community, who lived alongside the highly flammable stockpile for 10 years and were worried it would ignite and spread toxic smoke over the town. The removal of these tyres for processing caused other communities close to the tyre processing facility to also feel very anxious about the tyres and worried about the potential fire risk.[34] The psychological harms to communities living near stockpiles is significant as stockpile fires have occurred in the state and have resulted in health issues in residents living nearby.[35]

Other harms to human health can be caused by disruptions to the WRRR sector, including the risk of disease due to illegally dumped waste. Illegally dumped waste can attract vermin which can spread disease to the community. Any waste that is illegally dumped in areas where people frequent can cause injury, and if the dumped waste is hazardous (e.g.: clinical or toxic), the impact of the injury can be severe. Illegally dumped waste can cause anxiety for communities, concerned about the risk of illegally dumped waste to causing disease outbreaks and injuries.

Social harm

Social harm describes harms that can be caused to the regular operation of society, including day-to-day life. For example, residents can feel impacts if regular municipal waste collections cease for an extended period, forcing residents to either store their waste at home or transport it to a transfer station. There can also be a loss of confidence in the recycling sector, which may lead to a decrease in appropriate recycling behaviour and increased contamination in household recycling.

Economic harm

Harms can occur to the state's economy, industries, markets or governments. Examples of this include the cost to the Victorian state government after a single major operator (i.e. a single operator dependency) ceases to operate, requiring a financial bail-out so that the service can continue to be provided, increased risk of illegal dumping and stockpiling and the costs associated with the clean up, or the cost of the lost value of recyclable materials that are sent to landfill instead of being sold as a material to a manufacturer.

By sending materials to landfill, the ability to derive any utility or value from these materials is lost, and the removal of materials from circulation places pressure on the extraction or production of new materials from virgin resources, with associated environment costs. This represents an economic impact as the value of the materials is lost and no further value can be extracted from the materials and there may be negative environmental externalities from extraction or production of new materials from virgin resources.

Security harm

Security harms are the harms that can be caused to state and national security, to individuals and private entities. There are many ways that disruptions in waste service continuity can cause security harms with potentially serious consequences and flow on to create additional social, environmental health, human health and economic harms. Security can be compromised by loss of sensitive information, loss of intellectual property (including products as well as information), loss of hazardous substances and loss of social order. For example, state security may be compromised if protected documents or data were lost through disruptions to secure destruction waste collection services. Similarly, private entities could lose sensitive information or intellectual property (including products) through disruptions to waste services. Disruptions to critical waste infrastructure could cause social unrest if waste were to pile up in the street. Hazardous waste substances including biological, chemical and radioactive substances could be used in criminal and/or terrorist activities.

[34] Herald Sun, Somerton's Tyrecycle begins receiving truckloads of tyres from the Stawell stockpile. https://www.heraldsun.com.au/leader/north-west/somertons-tyrecycle-begins-receiving-truckloads-of-tyres-from-the-stawell-stockpile/news-story/523455b374f95642dd26a236aa0d10cf

[35] ABC news, SKM Recycling ordered to pay $1.2m over 2017 fire at Coolaroo plant. https://www.abc.net.au/news/2019-08-01/skm-recycling-ordered-to-pay-million-dollar-settlement/11373754

Table 4: Examples of costs of Victorian waste sector incidents

Cost of Victorian waste sector incidents			
Incidents, disruption or failure	**Example**	**Estimated cost at time of event**	**Detail**
Failure to manage risks	Stawell tyre stockpile, 2017	$6 million cost to Victorian Government for clean up of the stockpile	Stockpile had sat for 10 years, holding 9,500 tonnes of tyres. Owner did not clean up and ignored orders from EPA. This generated community anxiety relating to threat of fire. The EPA took the operator to court, imposing fines.[36]
Closure of waste management companies	Insolvency of SKM Recycling, 2019	$13 million cost to Victorian Government	In February 2018, the government provided temporary relief funding of $12 million to assist councils with increased waste collection costs and $1 million to support industry.37
External market changes	China National Sword implementation, 2018	$37 million cost to the Victorian Government including $10 million in immediate support to councils and $1.5 million in immediate support to industry	Following the implementation of the China National Sword policy in early 2018, the accessible market for recycled materials collected through the kerbside recycling system rapidly shifted. This resulted in sector wide renegotiation of collection and processing contracts, increased costs for service provision and rolling service disruptions.
Waste facility fires	Major fire at Coolaroo Material Recovery Facility (SKM) in July 2017, which burned for 11 days and resulted in community evacuations and extended significant disruptions to kerbside recycling services.	$26 million cost to Victorian government including $20 million in emergency response, $6 million in management and clean-up costs	Frequent fires in the sector have been the focus of the Resource Recovery Facilities Audit Taskforce (2017-2020) and the Fire Prevention Program (2021-) which has sought to ensure that adequate system and controls are in place to prevent fires and minimise the impact when fires do occur.

[36] EPA. Used Tyre Recycling Corporation Pty Ltd. https://www.epa.vic.gov.au/about-epa/public-registers/court-proceedings/used-tyre-recycling-corporation-pty-ltd

[37] Parliamentary Budget Office. Advice: Councils recycling costs. https://pbo.vic.gov.au/response/527

Box 2. Problems caused by stockpiles and waste fires

Stockpiled waste materials can be highly flammable and can lead to waste facility fires which negatively impact Victorian communities. Also, increased climate variability may further exacerbate the risks related to waste facility fires due to stockpiled waste. Besides potential loss of life, communities are exposed to:

- extensive human health effects from toxic smoke and other hazardous residues,
- environmental impacts on habitats and waterways, and
- costly government intervention and emergency response.

Under-capacity in processing, volatility and persistent pressures on end-market demand for waste material, and single point dependencies (i.e. limited number of waste service providers in certain service streams) have resulted in Victoria's WRR sector having several major stockpiling incidents.

In addition, the increasing presence of lithium-ion batteries (which may act as an aggressive ignition source if damaged) contributes to many fires in waste collection, transportation, disposal, and recycling domestically and internationally.[38]

Base case

An assessment of the costs and benefits of a regulatory intervention should generally be conducted relative to a base case, which is what would happen in the absence of action. In the case of the risk, consequence and contingency planning framework, the Circular Economy Act would continue to operate, however the only legislated component of the framework that would be functional in the absence of regulations is the annual preparation of the CERCC Plan by Recycling Victoria.

This is because, without supporting regulations, essential service providers and responsible entities would not be defined and therefore duties relating to essential service providers and responsible entities would not be activated. RV would still be required to prepare the CERCC Plan, however without responsible entities identified, the plan would be of lesser quality as it would not be informed by the information that can be gathered from RERCC Plans. Furthermore, without responsible entities to comply with the CERCC Plan and their own RERCC Plans, the intended reduction of the risks facing the sector would not occur. This is because there would be no RERCC Plans to inform CERCC Plans over time, and no monitoring or enforcement mechanism to ensure that waste providers are controlling risks of disruption.

2.6 Case for government intervention

In the base case without the proposed regulations, there are various risks that would not be sufficiently controlled, leading to the case for government intervention.

Government oversight and visibility of the sector and its risk control measures are currently limited to discrete parts of the sector via the EPA duty holder requirements under the *Environment Protection Act 2017*. However, these powers are limited in scope and focussed on risks to human health and the environment specific to the operation of waste facilities and the movement of specified waste through the supply chain; they don't provide for adequate and timely visibility of other risks to the waste supply chain and service provision or market overall. The EPA applies a general environmental duty and specific waste duties to the WRRR sector to ensure the safe operation of these services. This oversight of waste facilities and the movement of specified wastes through the supply chain is critically important, yet the scope of the EPA's oversight does not extend to the management of the whole of sector risks outlined in Section 2.3, which need to be managed in a coordinated way. There is a clear need for organised sector-wide risk, consequence and contingency planning to take place to mitigate the harms caused by sector disruptions,

[38] DEECA (2022) "Fires at waste and resource recovery facilities: Causal factors and Victoria's legislative framework", p.9

and for Recycling Victoria to have this information available to them to ensure appropriate oversight of the sector.

The Circular Economy Act's section 74 duty on providers of essential waste, recycling or resource recovery services to minimise risks of serious failure, hinderance or disruptions to services, together with the Environment Protection Act's general environmental duty and specific waste duties, are important in that they require industry to demonstrate how it is managing risks and minimising harms from waste related activities. However, on their own, they are insufficient in that they don't address the following deficiencies:

- there is a known risk of individual operators in the sector failing to appropriately adopt sufficient risk, consequence and contingency planning to mitigate risks to service provision causing harm,
- the current lack of information available to Recycling Victoria regarding risk control measures across the sector to manage serious risks, and
- the lack of access or visibility for industry on key sector level risks.

Strong private incentives already exist for businesses in the sector to avoid failure of their business (e.g. loss of revenue from not being able to deliver their service or ultimately becoming insolvent). However, these private and market incentives are not sufficient to mitigate the problems identified above, as evidenced by the case studies described above. This is because:

- If a business in the waste sector is not able to operate, there can be additional flow-on consequences to others in the downstream and upstream supply chain that can have significant consequences across the state. That is, there are significant impacts to other businesses and Victorians beyond those to the owners and managers of the waste provider, i.e there are negative externalities of a failure to provide waste services.
- Individual operators also lack information about risks to the broader sector that may impact their business or which their business may impact. This lack of information may lead to decisions by individual operators that have unintended negative consequences for the sector or the business itself, i.e. the lack of information can lead to a poorly functioning market.
- Furthermore, due to the essential nature of the service and extensive Government involvement, there may be an expectation that industry will be bailed out in cases of crisis, which could lead operators to take too much risk in their operations, i.e. the sector may be subject to moral hazard.

While individual companies within the sector have their own private incentives to mitigate risks to their business, recent experience has demonstrated a low level of maturity regarding sector-level risk, consequence and contingency planning within the sector overall. Whilst various players in the industry will have well-developed risk cultures and processes in place, the capacity level is likely to vary significantly across the sector. Current risk management practices also emphasise individual service providers remaining viable. However, it is not sufficient to minimise the harms of service disruptions as internally-oriented risk management neglects broader sector impacts of service disruptions.

Evident through recent disruptions detailed in Section 1.2, the Victorian WRRR sector has demonstrated its low capacity to manage sector-level risks, and this has resulted in significant harm being caused. The interconnected nature of Victoria's WRRR sector also means that disruptions to one business can have cascading effects on other businesses, which makes risk mitigation at an individual business level alone insufficient to deal with serious disruptions and failures in the sector and address the significant harms that can result.

The Victorian Government has already provided significant intervention in response to recent failures and disruptions occurring in the WRRR sector, including:

- Immediate financial support to assist council and industry following the China National Sword implementation and the collapse of SKM Recycling.
- Co-ordination, support and engagement during significant emergency events such as the COVID-19 pandemic and the 2022 floods.
- Significant reform funding through the implementation of the Recycling Industry Strategic Plan ($37 million) and the Recycling Victoria Policy (over $300 million).
- Regulatory oversight, interventions and emergency approvals.

However, further intervention to address risk management was identified by VAGO and Infrastructure Victoria report

The Victorian government needs to intervene to improve sector-level risk management oversight in the WRRR sector and help the industry respond to significant disruptions, thereby reducing the harms caused.

The RCC framework in the Circular Economy Act was established to ensure that risks and associated consequences specific to the WRRR sector and the wider circular economy are identified and managed, and that contingency plans are implemented to minimise the impact of any serious failures, disruptions and hinderances on waste recycling or resource recovery service delivery. The RCC framework established in the Circular Economy Act does not function as intended without regulations to define essential services providers, responsible entities and set requirements for RERCC Plans. Therefore, without the proposed regulations, the RCC framework is incomplete and the Circular Economy Act alone cannot operate effectively because there would be no essential services or responsible entities identified.

The proposed regulations aim to address the issues of:

- lack of industry strategic coordination,
- lack of sector-wide risk planning,
- lack of government visibility over sector-wide risks, operations and data, and
- lack of service-level risk, consequence and contingency management practices by service providers.

2.7 Objectives for action

The objectives of the RCC framework are to:

- minimise risk of serious failures, disruptions and hindrances to waste, recycling or resource recovery service delivery which result in harms to:
    - human health,
    - social wellbeing,
    - security,
    - the environment, or
    - the Victorian economy; and
- improve regulatory oversight to enable a more stable and efficient waste and recycling industry
- minimising costs to industry and Government (without compromising risk reduction).

3 Options

3.1 Option design

This section examines different options (regulatory and otherwise) that could achieve the Victorian Government's objectives to reduce the risks and consequences of serious failures, hinderances and disruptions to the WRRR sector. As the RCC framework is established in the Circular Economy Act, the policy development during the drafting of the Bill considered non-regulatory options (e.g. voluntary industry codes). These were not considered a feasible approach as it is unlikely to sufficiently reduce the risk profile of the industry, compared to direct regulation.

The RCC framework addresses the deficiencies identified in Chapter 2 and aims to achieve the objectives identified in Chapter 3. The framework established in the Circular Economy Act requires regulations to be in place in order to be enacted.

In developing the proposed regulations, various options were considered during the policy development phase. These were designed with the aid of the following:

- research and investigation into approaches in similar legislation in Victoria and across other states and territories,
- analysis of risk mitigation regimes in place in other industries that provide essential services (refer to Appendix 9.1),

- consulting with industry participants and local councils during the development of the Circular Economy Act as well as in early-mid 2023 on the proposed regulations (refer to chapter 7 for more information), and
- guidance from a project steering committee with representatives from the Waste and Recycling Division of DEECA and Recycling Victoria.

3.2 Options not further analysed

Essential waste, recycling and resource recovery services

While section 74 of the Circular Economy Act imposes a duty on providers of essential waste, recycling and resource recovery services to minimise serious risk of failure, disruption or hinderance of the service they provide, without regulations to define the services that are essential, the duty has no effect.

The proposed regulations define essential services via a list in Schedule 1 of the regulations. To determine which of the waste, recycling and resource recovery services are on this list of essential services, DEECA and Recycling Victoria undertook a detailed risk assessment, in consultation with industry, to identify those services that, if disrupted, could have significant adverse environmental, social, human health, economic and security consequences.

Given that the definition of essential WRRR services is needed to give effect to the duty in the Circular Economy Act, no other regulatory options were considered.

The risk assessment followed the process bellow:

- A series of workshops were held with representatives from DEECA, Recycling Victoria, EPA and SV to identify the potential consequences for each service type if they were disrupted for a period of 8 or more weeks. The consequences were categorised as either:
    - social,
    - economic,
    - environmental and human health, or
    - security harms.
- These categories were further broken down into 17 sub-categories (refer to Appendix 9.2).
- The severity of the harms resulting from these consequences was identified for each service type using a detailed risk matrix (refer to Appendix 9.2), which assigned a score from very high to very low for each of the 17 sub-categories. The points were then added to produce a total score for each waste service type.
- The waste service types were ranked from highest to the lowest risk score, and those with a risk score above a specified threshold were deemed to be essential services.
- This list of essential services was also reviewed by a project steering committee with representatives from the Waste and Recycling Division of DEECA and Recycling Victoria to ensure that the service types proposed to be defined as essential services are those that, if disrupted, would have serious consequences and warrant additional, risk, consequence and contingency planning measures.

Refer to Appendix 9.3 for a list of all waste services that were assessed and ranked according to risk during the essential services assessment process.

For the purposes of the assessment, each hazardous waste service, e-waste service and landfill service were assessed individually in case some were essential and some were not. The results of the assessment showed that all hazardous wastes, e-waste and landfill services were essential.

Schedule 1 in the proposed regulations has a description of essential services and relevant exclusions for:

- Landfill services
- Hazardous waste services
- Residual waste services
- Thermal waste to energy services
- E-waste services

- Long term waste containment services
- Construction and demolition waste services
- Metal recycling services
- Municipal resource recovery centres and transfer station services
- Recycling services (co-mingled)
- Organics services
- Public waste services
- Secure waste destruction services
- Recycling services (glass)
- Container deposit Scheme services

Refer to Appendix 9.4 for the list of identified essential waste services and the rationale for including each.

3.3 Other matters that were considered

There are other matters that the proposed regulations prescribe for which no other regulatory options were considered or options were considered in the early policy development phase and not progressed. These include:

- **Requirements relating to the contents of the CERCC Plan.** Section 74B(2)(a) – (i) of the Circular Economy Act sets out a list of matters that the CERCC Plan must address and includes the option to prescribe additional matters. The proposed regulations prescribe a requirement that Recycling Victoria include information on the total volume of waste managed in the Victorian market each year in the CERCC Plan, for each essential waste, recycling and resource recovery service, component of the service and type of waste relating to the service, if that information is available to Recycling Victoria. This is necessary so that entities can assess the market share of the services they provide, to determine if they are a responsible entity (refer to regulation 11 of the proposed regulations). The analysis found that the list in the Circular Economy Act was comprehensive and afforded the regulator the flexibility to decide if additional content is necessary for each year's CERCC Plan based on its expertise. Therefore, no further matters were identified for prescription in regulations.
- **A requirement that Recycling Victoria consult with responsible entities, relevant public sector bodies and any other appropriate person during the preparation of the annual CERCC Plan.** Section 74B(4) of the Circular Economy Act requires that the Minister, before approving a CERCC Plan, must consult with any *prescribed person or entity*. Consideration was given as to whether the proposed regulations should prescribe a person or entity that the Minister must consult with, with the decision being not to. It was deemed more appropriate that the onus for consultation with relevant persons or entities would sit better with Recycling Victoria during the drafting of the annual CERCC Plan. This is because Recycling Victoria need to ensure that what is proposed to be in the CERCC Plan is accurate, reasonable and appropriate and it would avoid unnecessary administrative process to address feedback from relevant persons or entities during the drafting stage, rather than after it has been submitted to the Minister. (Refer to regulation 10 of the proposed regulations).
- **Requirements relating to the contents of a responsible entity's RERCC Plan.** Section 74F(2)(a) – (e) sets out a list of matters that responsible entities must address in their RERCC Plan and includes the power to prescribe additional matters. Policy analysis found that there are additional matters that should be included in RERCC Plans in order to ensure they are comprehensive and meet the policy objectives of aiding responsible entities to identify and mitigate risks of serious failure, disruption or hinderance to their service and providing Recycling Victoria with appropriate oversight of risks across the sector. These additional matters are prescribed in regulation 12 of the proposed regulations, and relate to details about the responsible entity, their provision of essential services (including within the broader supply chain) and their risk identification and implementation of mitigation measures.
- **Requirement for notification of when an entity becomes a responsible entity and ceases to be a responsible entity.** The Head, Recycling Victoria needs sufficient oversight of responsible entities in order to meet its statutory functions under the Circular Economy Act (e.g. to inform the preparation of the CERCC Plan and Annual Report, and in order to carry out compliance

monitoring and take enforcement action in response to non-compliance). To do this, Recycling Victoria needs timely and accurate data about responsible entities at all times throughout the year, which is proposed to be achieved through a requirement on entities to notify the Head, Recycling Victoria when they become a responsible entity and when they cease to be a responsible entity.

These new offences are set out regulations 8 and 9 in the proposed regulations and carry an associated maximum penalty for non-compliance. The penalties have been set at a level to be comparable with offences in similar regulations, such as the Environment Protection Regulations 2021 (e.g. regulation 64 and 161) and Equipment (Public Safety) Regulations 2017 (e.g. regulation 44 and 45). The proposed offences and penalties are set out in Table 4 below.

- **Regulations relating to exemptions, information required in applications and associated fees.** Exemption provisions have been included in the proposed regulations to enable the Head, Recycling Victoria to consider and approve exemption applications (or applications for amendments to an exemption) made by persons or entities from requirements under the regulations (refer to regulations 14, 15 and 16 in the proposed regulations). The Head, Recycling Victoria will also have the power to waive or reduce fees if appropriate (regulation 17).

  The decision was made to set fees for exemption applications (and amendments to exemptions) in order to recover the expected costs of Recycling Victoria in assessing applications and issuing exemptions. The fees for exemption applications have been set in consultation with the Victorian Department of Treasury and Finance (DTF) and having consideration of the DTF *Pricing for Value Guide*[39]. The fees have been set based on an estimate of full cost recovery according to an efficient cost base (i.e. the charges are set at a level that recover the 'efficient' costs of providing the service at the required quality or undertaking the necessary regulatory activity). The proposed fees are set out in Table 5 below.

Table 4. Proposed offences and penalties

Offence	Proposed penalty
Regulation 8(1) An entity that is a responsible entity at the commencement of the regulations must notify the Head, Recycling Victoria that it is a responsible entity by no later than 1 February 2024.	In the case of a natural person, 60 penalty units[40] ($11,538.60) In the case of a body corporate, 300 penalty units ($57,693)
Regulation 8(2) An entity that becomes a responsible entity after the commencement of the regulations must notify the Head, Recycling Victoria that it is a responsible entity within 60 days after— (a) the publication of a CERCC Plan, the contents of which allow the entity to determine its status as a responsible entity under regulations 6(1)(a) and 7; or (b) any change relating to the entity's service provision that results in the entity becoming a responsible entity.	In the case of a natural person, 60 penalty units ($11,538.60) In the case of a body corporate, 300 penalty units ($57,693)
Regulation 9	In the case of a natural person, 10 penalty units ($1,923.10)

[39] Department of Treasury and Finance, *Pricing for Value*. https://www.dtf.vic.gov.au/sites/default/files/document/Pricing%20for%20Value%20Guide%20-%20Pricing%20Principles.pdf

[40] The value of a penalty unit is set by the Department of Treasury and Finance and indexes each year. For the period of 1 July 2023 to 30 June 2024, the value of a penalty unit is $192.31

An entity must notify the Head, Recycling Victoria that it has ceased to be a responsible entity within 60 days after ceasing to be a responsible entity.	In the case of a body corporate, 50 penalty units ($9,615.50)

Table 5: Proposed fees for exemption applications

Application type	Proposed fee
Application for exemption	47 fee units[41] ($747.30)
Application to amend an exemption (in the case of an amendment to correct an error, change the name, address or contact details or to extend the period the exemption remains in force)	12 fee units ($190.80)
Application to amend an exemption (in any other case)	22 fee units ($349.80)

During the policy development phase, other matters were considered but ruled out for inclusion in the proposed regulations for various reasons. These included:

- Requiring consideration of relevant Australian and International Standards when preparing CERCC and RERCC Plans. This was instead thought to sit better in guidance materials produced for the sector, given that reference to these standards in regulation makes them an incorporated document and limits the ability to amend and revise the list of relevant standards easily.
- Placing constraints on the types of risk mitigations that a CERCC Plan can impose on responsible entities to ensure they are reasonably practicable and do not place an undue burden on the sector. This was considered unnecessary, as the provisions in the Circular Economy Act already limit the CERCC Plan to measures and actions to mitigate risks of serious failure, disruption or hindrance to service and risks of a financial nature (section 74B(2)(a) - (e)). The regulations also propose requiring that responsible entities are consulted in preparing CERCC Plans, which would identify if any proposed requirements in a CERCC Plan were unreasonable.

3.4 Options analysed

Responsible entities

The regulations prescribe a definition of responsible entities. Responsible entities are intended to be a subset of essential service providers who are the most critical to the ongoing operation of the waste, recycling and resource recovery industry and for whom the consequences of any significant disruption would have the greatest impact on the State. Service providers who meet the definition of responsible entities will be required to comply with the requirements relating to RERCC and CERCC Plans under the RCC framework as well as the duty under section 74 of the Circular Economy Act.

To define responsible entities in the proposed regulations, three options were considered during the policy development in addition to the base case.

The reference case for analysis

The reference case in this analysis is different from the base case, to allow for a more meaningful comparison of options. The reference case is that a minimum amount of regulation is made to operationalise the essential services provisions for the purposes of enabling the section 74 duty, but responsible entities are not defined, and therefore duties relating to responsible entities are not activated. The reference case includes costs incurred by essential service providers to comply with the section 74 duty, as well as the costs to Government of preparing the CERCC Plan and enforcing the section 74 duty. This allows options for defining responsible entities and their duties to be examined clearly, as this is the most impactful element of

[41] The value of a fee unit is set by the Department of Treasury and Finance and indexes each year. For the period of 1 July 2023 to 30 June 2024, the value of a fee unit is $15.90.

the proposed regulations. Comparing the three options against this reference case also helps to illustrate the differences in impacts on CERCC Plan preparation and consultation by Recycling Victoria based on the definition and duties of the responsible entity cohort.

For example, in the reference case, CERCC Plans would not include insights gained from the RERCC Plans or responsible entity specific industry consultations and, as such, would be relatively limited in their effectiveness. Recycling Victoria would also incur costs in education, monitoring and enforcement actions relating to industry compliance with the duty in the reference case.

The following three options have been assessed against the reference case.

Option 1: Responsible Entities are a subset of providers of essential services

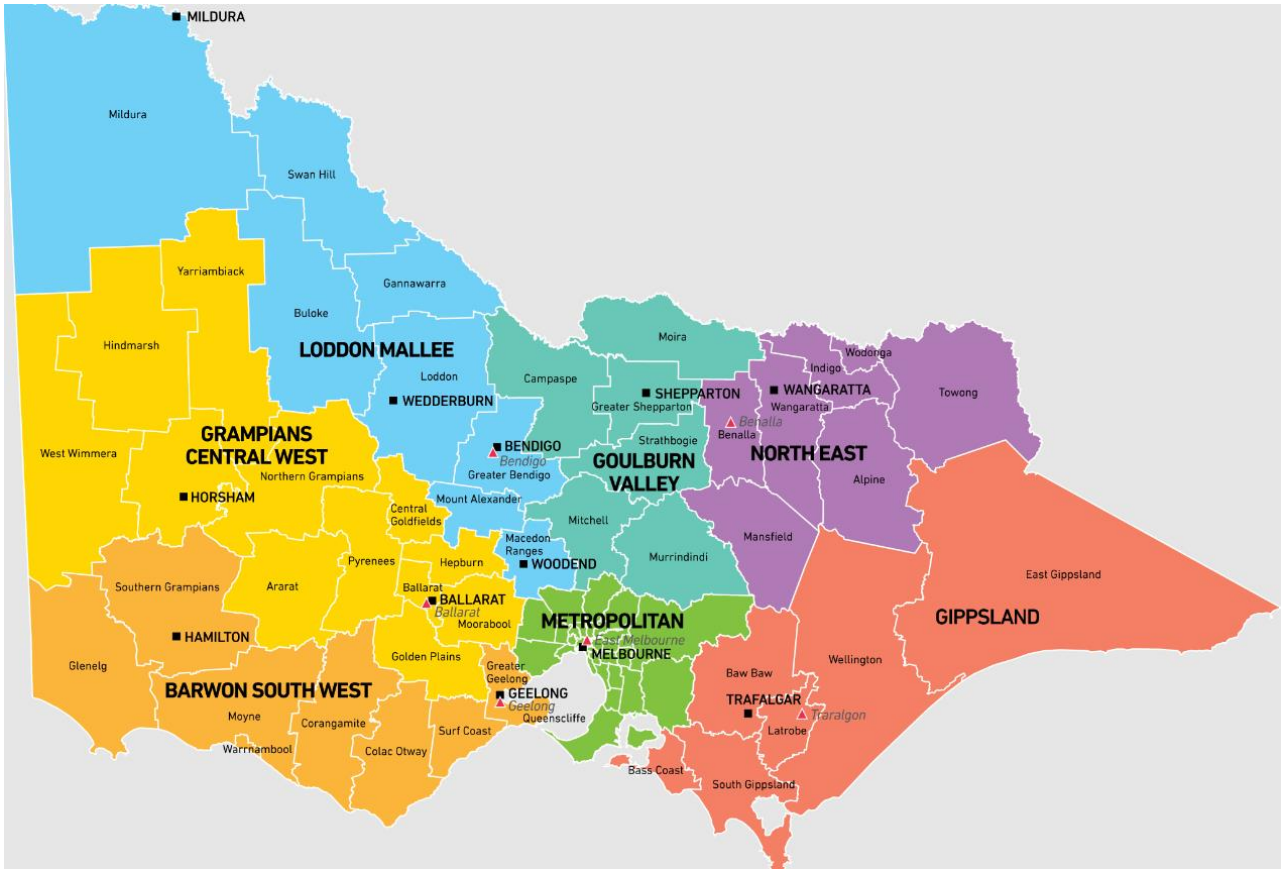
Under this option, criteria will be prescribed in the regulations against which providers of essential services would be able to determine if they meet the threshold for inclusion as a responsible entity. Responsible entities under this option are designated to be the subset of service providers where the impact of a serious failure or disruption to their operations would be significant to the essential service statewide.

The proposed criteria for this option are outlined in Table 6.

Table 6: Criteria for responsible entities

CRITERIA **An entity that provides an essential WRRR service is a responsible entity if:**	EXPLANATION
That entity's market share is 20 per cent or more for the period specified in the CERCC Plan of total market share for: (i) that service; or (vi) a component of that service; or (vii) that service for a type of waste.	The Victorian market share held by an entity providing an essential WRRR service is the total volume of waste managed by the entity expressed as a percentage of the total volume of waste managed in Victoria. The total volume of waste managed in Victoria by all providers of a service, a component of a service or a service for a type of waste for a period is the volume specified in the CERCC Plan relating to a specified period.
That entity holds government contracts related to that service worth over $50 million (for the life of the contract including the value of any options to extend the contract)	Contracts: is a contract with any federal, state or local government Over $50 million: covers the total value of contract for the whole duration of contract, including extension options and variations
The entity provides ongoing or regular services in three or more declared regions of Victoria	Declared regions: As defined by the Circular Economy Act. At the time of publishing this RIS, the declared regions are: • Barwon South West • Gippsland • Goulburn Valley • Grampians Central West • Loddon Mallee • Metropolitan • North East See Figure 2 for detail

Figure 22. Current declared regions. Source: Sustainability Victoria[42]



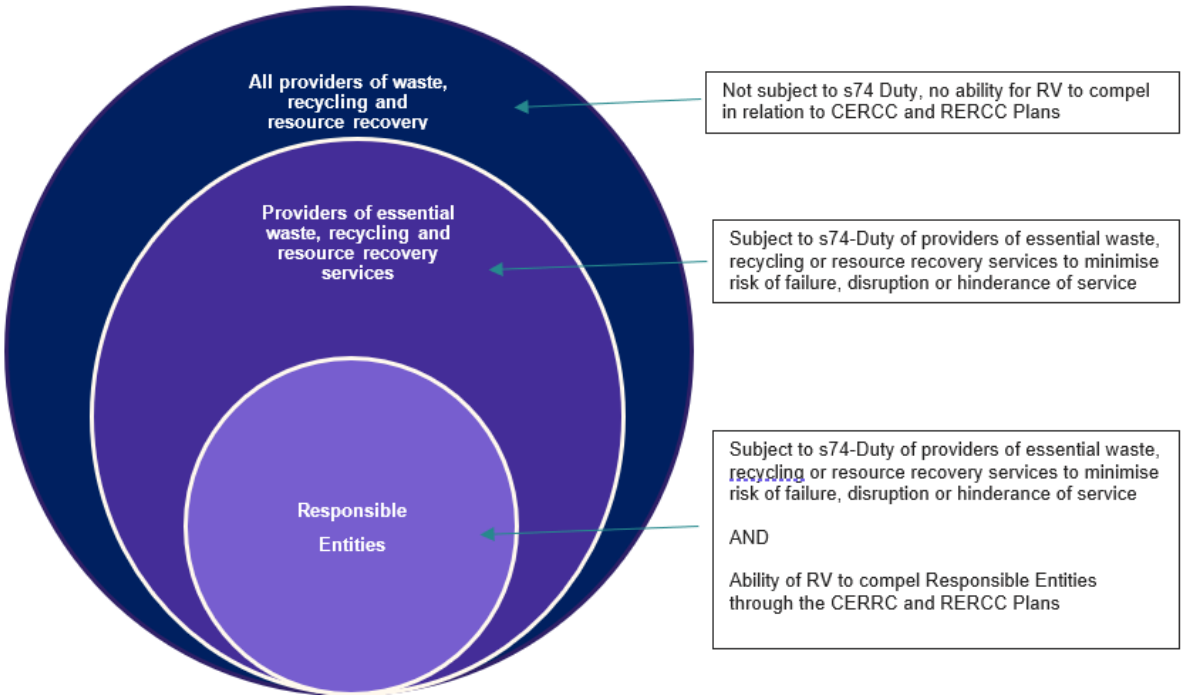
This option recognises that within the cohort of essential waste service providers, some individual service providers present a higher risk to the continuity of essential waste services (e.g. due to being a major infrastructure asset, having a significant market share or due to lack of redundancy in a waste service stream). It reflects the significant consequences associated with failure, disruption and/or hinderance of these services and the associated need for higher levels of regulatory oversight by Recycling Victoria for this part of the sector. It also aligns with existing Victorian and national risk management methodologies for essential services sectors, under which the level of regulation is proportionate with the severity of the consequence of failure.

Under this option, the regulatory burden on industry for risk, consequence and contingency planning would be targeted to a smaller cohort of entities with the highest impacts from the risk of failure (i.e. state-level impact, estimated in the analysis to be approximately 45 entities).

A case study has been prepared to illustrate how the responsible entity criteria would apply under this option. It can be found in section 5.5.

[42] Sustainability Victoria, Map of Victorian Regions. RWRRIP-Map-of-Victorian-regions.png (2048×1461) (sustainability.vic.gov.au)

Figure 3.3 Illustration of relationship between the broader sector, essential services and responsible entities as per Option 1



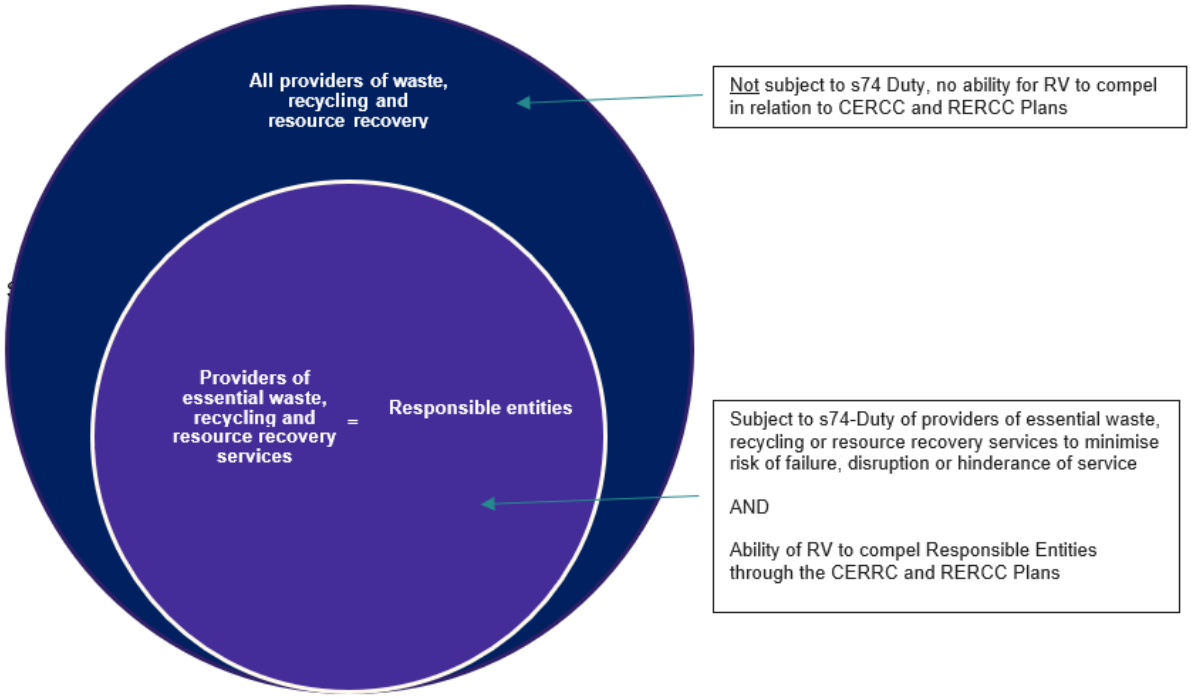
Option 2: Responsible entities include all providers of essential services

Under this option, essential waste, recycling or resource recovery services and responsible entities would be the same cohort. This option would result in a significantly larger cohort of responsible entities (estimated in the analysis to grow from approximately 870 to 1,130 entities over the 10-year life of the regulations) compared to Option 1.

There is some logic to aligning the section 74 duty with the requirements for responsible entities (which this option enables), as both relate to mitigating risks of serious failure, disruption, or hindrance to the provision of essential waste, recycling, or resource recovery services.

The legislated requirements embedded in the RCC framework would provide a pathway to support compliance with the section 74 duty for providers of essential services (who are also responsible entities under this option). The burden on industry, however, is less targeted to the risk and impact of failure (it would apply to all essential services regardless of whether the failure would have local, regional, or state significant impacts).

Figure 4. Illustration of relationship between broader sector, essential services, and responsible entities as per Option 2



Option 3 Responsible entities include all providers of essential services and are further separated into different classes with varying requirements

As with Option 2, all providers of essential services would also be prescribed as responsible entities under this option. The number of responsible entities would be same as in Option 2 however these would be split into three tiers of approximately 45, 90 and 734 entities in the first year, with the number of entities growing by about zero, one and a half and three per cent per year respectively, over the life of the regulations. The requirements for responsible entities would be tailored proportionately to the harm or risk of harm presented by designating responsible entities into one of three classes. The classes are proposed based on criteria that consider the scale of impact to the community (state as per Option 1, but also for regional and local) that might result from a failure, disruption or hinderance of the essential service provided by the responsible entity.

The proposed criteria for this option are:

A State-significant responsible entity is an essential waste, recycling and resource recovery service provider that —

a. holds 20 per cent or more of the total market share for:
   (i) that service; or
   (ii) a component of that service; or
   (iii) that service for a type of waste, or
b. holds government contracts worth over $50 million for the life of the contract, including the value of any options to extend the contract; or
c. provides ongoing or regular services in three or more declared regions of Victoria.

A regionally-significant responsible entity is an essential waste, recycling and resource recovery service provider that —

a. holds more than 10 but less than 20 per cent of the total market share for:
   (i) that service; or
   (ii) a component of that service; or
   (iii) that service for a type of waste, or
b. holds government contracts worth between $20 and $50 million in total for the life of the contract, including the value of any options to extend the contract; or

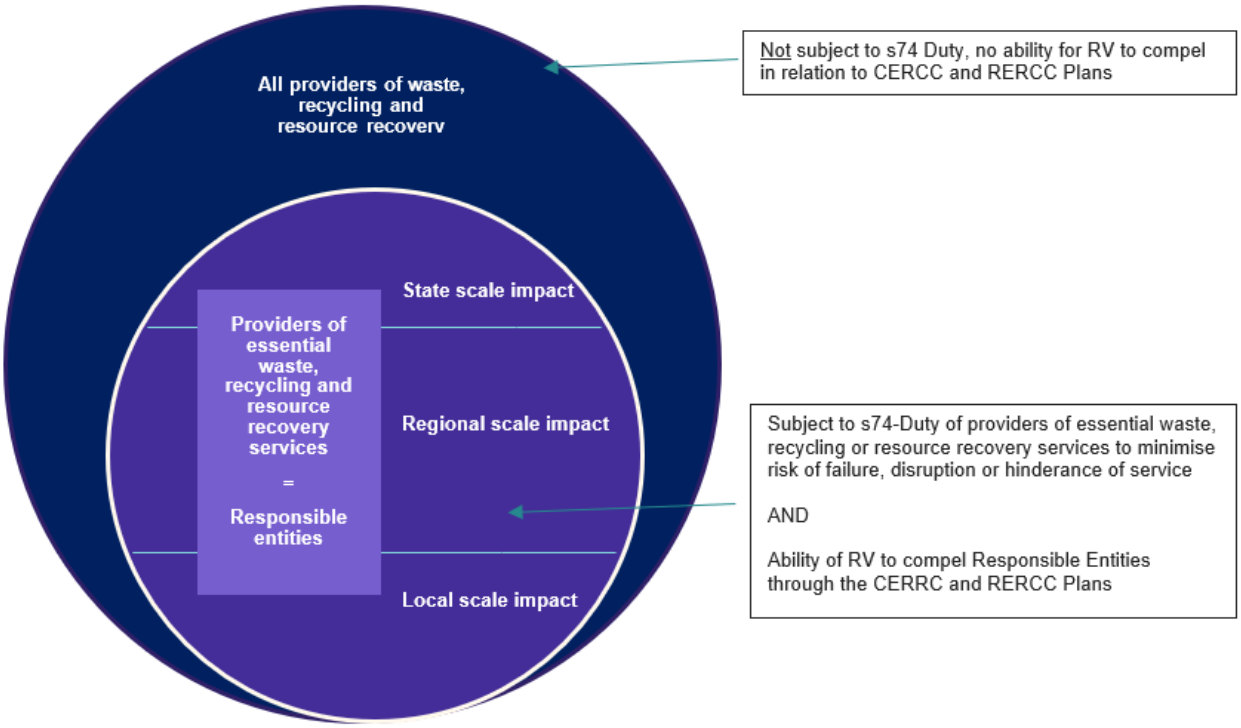
c. provides ongoing or regular services in two declared regions of Victoria.

A locally-significant responsible entity is an essential waste, recycling and resource recovery service provider that does not meet the requirements of a state or regionally significant responsible entity.

This model also aligns with existing Victorian and national risk management methodologies for essential services sectors, under which the level of regulation increases with the severity of the consequence of failure. Responsible entities will be able to determine their 'class status' based on criteria prescribed in regulations. Regulations may also prescribe specific requirements that the classes of responsible entities must meet when preparing their RERCC Plans (scalable based on the class, e.g. those that fall into the State class will need to meet a more extensive set of requirements than those in the local class).

The model proposed in Option 3 would vary the administrative burden based on the risks posed while giving Recycling Victoria more oversight of the sector than in Option 1.

Figure 45. Illustration of relationship between broader sector, essential services and responsible entities as per Option 3.



Comparison of options

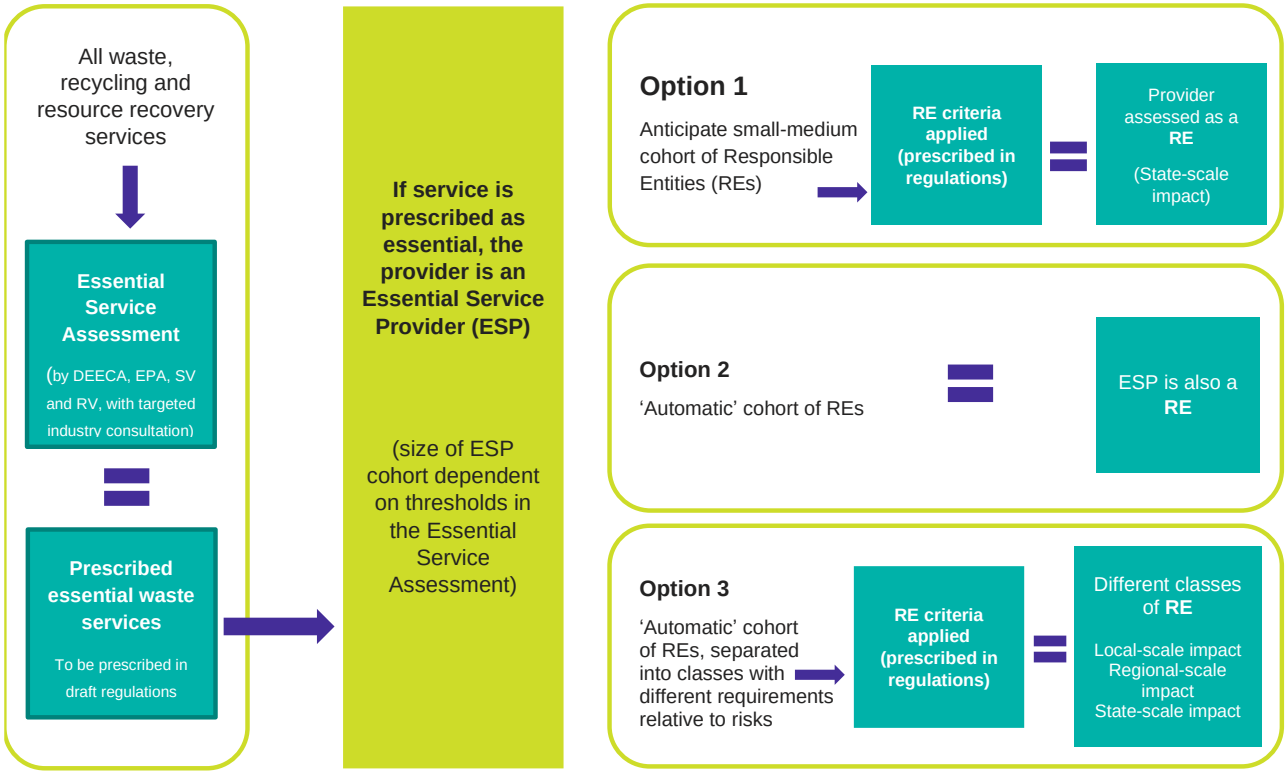
The three proposed options for determining which essential services providers should be deemed to be responsible entities each have different levels of expected risk reduction and regulatory burden.

Option 1 only includes the most significant industry players in the responsible entity framework. This option places the burden of the regulations on the entities that would be the most impactful on their sectors of the waste and recycling industry if they faced disruptions to their services.

Option 2 regulates all providers of essential services equally as responsible entities, maximising risk coverage but with the highest regulatory burden compared to the other evaluated options.

Option 3, like Option 2, regulates all providers of essential services but varies the regulatory requirements and burden on participants according to their risk and consequence profile.

Figure 6. Illustrates the proposed options for defining responsible entities following the essential service assessment



To determine the preferred option for defining responsible entities, the three options have been analysed with regard to:

- the size of the responsible entity cohort, noting that the larger the cohort, the higher the cost to industry and the more complex and costly for Recycling Victoria to implement and oversee;
- the estimated cost to industry to be fully compliant with the regulations;
- the ability of each option to minimise the risk of harm; and, consequently,
- the ability of each option to ensure the regulatory burden is proportionate to risk.

4 Impact analysis

4.1 Approach to impact analysis

The RIS process requires an analysis of the proposed regulations costs against the benefits over the range of options under consideration. In the case of this assessment, the options have been assessed using multi-criteria analysis (MCA).

MCA has been chosen as the appropriate tool for assessing the options, as it is difficult to quantify the costs and benefits of this new regulatory framework due to a lack of available data on the waste and recycling industry. MCA is a decision tool that is used when it is not possible to accurately quantify and value the costs and benefits of an option.

MCA involves:

- specifying assessment criteria;
- assigning a 'weighting' to each criterion;
- assigning scores for each option in relation to each criterion; and
- calculating a weighted score for each option.

MCA allows a decision to be made based on the weighted scores. The option assigned the highest weighted score is the 'preferred option'.

Although a degree of subjectivity is inherent in the MCA approach, when applied appropriately, MCA can provide a structured, systematic and transparent framework for comparing options with un-quantified costs and/or benefits. By clearly identifying the basis on which options have been compared, it allows stakeholders and decision makers to see (and comment on) which factors were taken into account, the weight given to different aspects of a decision, and the reason for the decision.

Each option for this MCA is scored using a scale from -10 to +10 relative to the reference case. A score of zero represents no change in impacts against a criterion for that option compared to the reference case. A positive score represents benefit relative to the reference case and a negative score, a cost relative to the reference case. Within each criterion, cost and benefit scores are scaled as accurately as possible to represent relative differences between options (i.e. a score of 8 should be twice the impact of a score of 4 and 4 times the impact of a score of 2). The relative weights of the criteria are set to reflect the relative importance and magnitude of the impacts of each criterion. The combinations of weights and scores provides a weighted score; which when summed for each option, provides a basis for ranking options and choosing a preferred option.

Weighting

The weighting of costs and benefits for the MCA have been evenly balanced at 50 per cent each. This aligns with best practice as recommended in the Victorian Guide to Regulation.

Cost criterion 1, cost to industry, receives the highest weighting of the two cost criteria as the regulations are aimed at changing the risk management practices of essential waste and recycling service providers. This means that the responsible entities identified will bear the bulk of the costs to comply with the regulations in both administrative costs to produce RERCC Plans and Statements of Assurance and also in compliance costs incurred to change business practices to reduce the risks of their business facing disruptions, referred to in the RIS as 'contingency and mitigation costs'.

Cost criterion 2, cost to Government, has a lower weight as costs to the regulator are likely to be lower than industry costs and do not vary as much as industry costs, as Recycling Victoria is assumed to have similar resourcing levels regardless of the preferred option in this RIS. Costs to industry are several times larger than costs to Government, so this is reflected by both weighting industry costs four times higher than Government costs and calibrating the scoring to the expected costs to ensure that differences in weighted cost scores reflect modelled costs as closely as possible.

Benefit criterion 1, reduction in industry risk of service disruption, receives the highest benefit weighting as the management, mitigation and reduction of risks of industry disruption and resulting consequences is the primary objective of these regulations. Balancing the benefits and costs to industry by weighting each to 40% of the total score helps to ensure the options achieve a balance between risk reduction and regulatory burden for essential waste providers.

Benefit criterion 2, improved regulatory oversight and planning, has a lower weight than the first criteria. Although, it is an important goal for Recycling Victoria to develop the knowledge and oversight over the industry it needs to regulate, it is less important than the direct effects on the risk profile of the waste and recycling industry. It is expected that in the medium to long term, improved regulatory oversight and planning will have positive effects on industry risk.

Table 7. Cost and benefit criteria to industry and government

Criteria	Description	Weighting
Cost Criteria		
1. Cost to industry	There are three main costs to industry due to the regulations. Responsible entities will incur administrative costs to create RERCC Plans and statements of assurances. Secondly,	40%

	responsible entities will incur compliance costs that will vary across service types in order to reduce risks and mitigate disruptions to the essential service that they provide. The third cost that is common across all essential service providers is the cost to comply with the s74 duty. This cost also exists in the reference case, so this cost has a minor effect on the scoring of this criterion.	
2. Cost to Government	Costs to Government include costs to consult year-round on the annual CERCC Plan, create RERCC Plan guidance and templates, costs to review RERCC Plans to inform future CERCC Plans and costs associated with monitoring, compliance and enforcement activities related to CERCC and RERCC Plan requirements.	10%
Benefit Criteria		
1. Reduction in industry risk of service disruption	Benefits from CERCC Plan insights leading to RERCC Plan requirements to mitigate risks. Better overall risk behaviour of industry, bringing all players up to a good practice level of risk management.	40%
2. Improved regulatory oversight and planning	Recycling Victoria having better oversight for planning and better government regulatory activity. This leads to less reactive action in response to service disruptions, hinderance and/or failures. Recycling Victoria can concentrate resources and funding towards more proactive regulation to support a growing circular economy. The CERCC Plan will not only guide the actions required for RERCC Plans, it will also provide best practice guidance for all essential service providers	10%

4.2 Estimating costs

Data and assumptions

Visibility over the industry is currently limited for both Government and the industry itself. For this analysis, a number of assumptions have had to be made about the number, size and composition of businesses operating in the waste and recycling industry.

As RV visibility over the industry is currently incomplete, to estimate the approximate economic impacts of these reforms, this analysis relies on:

- stakeholder input,
- existing limited data from Sustainability Victoria and Recycling Victoria data sets, which has been extrapolated to cover the sector, and
- publicly available information such as ABS datasets.

Number of essential service providers and industry growth

For the purposes of this analysis, an industry growth rate of 3% per year is assumed for the number of essential service providers. This estimate is based on ABS data on the average growth in employment from 2011-12 to 2021-22 for Australian Waste collection, treatment and disposal services.[43] Based on this assumption, the total number of essential service providers is expected to increase from 840 to 1130 by 2033 when the regulations sunset. The number of essential service providers is estimated by multiplying the

[43] Australian Bureau of Statistics (2021-22), Australian Industry, ABS Website, accessed 25 July 2023.

estimated number of waste and recycling businesses in the State[44] (1400) by the proportion of waste services that have been deemed to be essential (15/25). The number of regionally significant businesses is projected to grow by 1.5% reflecting projected population growth. Revenue growth for State significant responsible entities is assumed at 1.5%, using this same projected population growth. [45]

Number of responsible entities

Due a lack of currently available data and a wide range of different essential services, that have different market structures, broad assumptions about the number of responsible entities captured by the thresholds outlined in options 1 and 3 have been made. For Option 1 an average of 3 responsible entities has been applied for each essential service totalling 45 responsible entities. For Option 3, 45 tier 1 responsible entities are estimated to be captured by the regulations from year 3 of the regulations once RV has a well-established industry database. Similarly, 90 tier 2 entities are estimated under the Option 3 thresholds once RV market share information is established, with a 1 per cent growth factor applied annually. The remaining essential service providers are designated to be tier 3 responsible entities. For Option 2 all of the essential service providers are deemed to be a responsible entity (i.e. 869 in the first year).

Cost of time – Government

The cost of Recycling Victoria's time in administering, monitoring, and enforcing the new regulatory framework is estimated using the Victorian Public Service Enterprise Agreement. Costs for Recycling Victoria employees are calculated from the mid-point of the VPS officer grade ranges from a modelled 4 full time equivalent, comprised of 1 VPS 4, 2 VPS 5 and 1 VPS 6. In 2023 the weighted average of the mid-points of the VPS grades described above is $109,018 p.a. (or $72.78 per hour). Applying a 75% loading assumption to account for on-costs and overheads as recommended in the DTF *Regulatory change measurement manual*[46] results in an hourly cost of $127.36 per hour.

Cost of time – industry

The cost of time for businesses to undertake administrative costs associated with the regulations is estimated as an average cost of time of $93.43 per hour. This rate is calculated from the Average weekly full-time earnings for 2023[47] for all Victorian workers, accounting for 8 weeks leave on average per year (including all types of leave), totalling $2,135 per week. The hourly figure is estimated based on a 40-hour work week with a 75% loading assumption for on-costs and overheads as recommended in the *Regulatory change measurement manual.*

Costs to Industry

Businesses that meet the thresholds for being responsible entities face costs including initial costs in creating a RERCC Plan, and annual costs to update RERCC Plans and prepare Statements of Assurance. Annual costs will also be incurred in complying with data retention and record keeping requirements related to demonstrating compliance with the CERCC Plan and individual RECC Plans. Responsible entities will also incur costs to varying degrees to meet their obligations to reduce and mitigate risks to the disruption of the essential service that they are providing, include costs associated with implementing mitigation actions identified in RERCC plans.

It is expected that most responsible entities will have some form of existing risk management plans in place. The time taken to make an entirely new plan is estimated to be 500 hours of work on average for Option 1 and tier 1 Option 3 responsible entities. However, due to existing industry risk management practices, only 80 per cent of these costs are assumed to be additional to the reference case. Costs are calculated as averages over each cohort of responsible entities multiplied by the number of entities. RERCC plan costs are

[44] Australian Bureau of Statistics (2018-19), Waste Account, Australia, Experimental Estimates, ABS Website, accessed 25 July 2023.

[45] Department of Environment, Land, Water and Planning (2019) *Victoria in Future*

https://www.planning.vic.gov.au/guides-and-resources/data-and-insights/victoria-in-future

[46] Department of Treasury and Finance, *Regulatory change measurement manual* – Toolkit 1.1. – March 2010, p. 3.

[47] *ABS (2023), Average Weekly Earnings, Australia, May 2022, cat. no. 6302.0*

halved in the years following the initial plan, reflecting the lower costs of updating new plans rather than starting from scratch.

Because substantive compliance costs incurred to change business practices to reduce risk, described throughout the RIS as 'contingency and mitigation costs', are difficult to estimate due to a lack of data and the diversity of the industry these costs are estimated based on a proxy measure. The proxy measure is the estimated cost of business interruption insurance. Business revenues are estimated by using ABS data on number of waste businesses by revenue category to estimate the average revenue for each cohort and multiplying this by the estimated cost of disruption insurance. Based on DEECA desktop analysis, insurance costs are assumed at 3% of revenue and the additional cost of interruption insurance is assumed at 20% of the total cost of insurance. This is expected to be a conservative estimate of actual contingency and mitigation costs because these insurance policies cost disruptions more broadly than the risks of this risk framework and include a profit margin for the insurers.

For the responsible entity cohort in Option 1 and tier 1 of Option 3, the median revenue of the likely cohort is used. This is due to a small number of very large and vertically integrated waste and recycling businesses that have significantly higher revenues than the rest of the cohort. These very large, primarily public companies typically have well established risk management procedures in place and dedicated risk management staff and are therefore less likely to face the same scale of mitigation costs as smaller companies with less mature risk management procedures. To control for these large outlier companies, the estimated mitigation and contingency costs are effectively capped at about $120,000 for firms with revenue above about $20 million per year, rather than scaling linearly with income. For Option 2 and Option 3 tier 2 entities, mean revenue of cohorts is used to estimate mitigation and compliance costs. For smaller entities, that would not meet the thresholds for State or regional significance, an average compliance cost of $5000 is applied, reflecting that these entities would not be required to undertake significant mitigations due to their relatively low disruption impact on their essential service.

Costs are then assumed to reduce annually by ten percent for five years and then remain at half of the first year's cost for the remainder of the modelling period. This is to reflect that costs to manage risks reduce over time as the benefits of insights from the year-round CERCC planning come into effect. As each responsible entity improves their risk practices, there is a positive spill-over to the rest of the supply chain. At the same time, it is assumed that there is a ten per cent annual reduction in insurance costs for responsible entities reflecting improved risk profiles of the waste and recycling industry. As part of requirements to manage risks and comply with CERCC and RERCC plans, it is assumed that all responsible entities will be insured. This means that the substantive compliance costs to each business reduces over the first five years and then plateaus at one quarter of the first year's costs after five years.

A summary of costs to industry is outlined in Table 8 below.

Table 8. Summary of costs to industry, $ million present value terms

Industry cost	Option 1	Option 2	Option 3
Annual RERCC Plans	$6.6	$90.1	$23.3
Record keeping	$0.6	$13.3	$2.8
Contingency costs	$15.9	$32	$32
Total costs	**$23.1**	**$135.3**	**$58.1**

Summary costs to industry

The key drivers in the differing costs of each option are the level of administrative burden on responsible entities and the costs of contingency and mitigation investment. Across all options it is assumed that requirements to invest in contingency and mitigation measures will directly relate to an entity's relative size within the essential service it provides.

Option 1 (a small cohort of responsible entities from the most significant essential service providers) receives a score of -2 for criterion 1. This score reflects the scaled difference in industry costs of this lowest cost option to the highest cost second option. This option has administrative costs related to making plans that are approximately half the costs of contingency and mitigation actions for entities.

Option 2 (all essential service providers are responsible entities) receives a score of -10, reflecting that this option has much higher industry costs than the reference case. These costs reflect the administrative costs to create and maintain annual RERCC Plans and Statements of Assurance. While costs to produce a RERCC Plan would be lower for smaller businesses reflecting their lower levels of activity and complexity, these businesses would be unlikely to have the capacity, experience, and skillsets to produce plans in-house and would likely have to fully outsource this function. Contingency and mitigation costs under this option would be relatively lower because a business disruption for the vast majority of included entities would have minimal flow-on consequences in impact on the service they provide resulting in a disruption to their business and would therefore not incur significant mitigation costs over and above their s. 74 duties in the reference case.

Option 3 (all essential service providers are responsible entities in three tiers) receives a score of -4, reflecting that this option is more than twice as costly as Option 1 and costs less than half as costly as Option 2. Option 3 better balances the administrative burden on industry compared to Option 2 by requiring a lower administrative burden on responsible entities by creating three tiers of reporting requirements that scales down efforts required to comply more proportionally with relative risk. Contingency and mitigation costs are the same for Option 2 and 3 to reflect that requirements to mitigate risks scale to an entities impact on the service it supplies. This means that smaller businesses for whom disruptions would have no material effect on the rest of the supply chain would not incur costs over and above their s74 duty to minimise risks.

Table 9. Option costs to industry scores

MCA criteria	Option 1	Option 2	Option 3
Industry costs	- 2	- 10	- 4

Costs to Government

There will be initial costs to Government across the options to create the initial range of supporting guidelines, templates, and other documents to support industry to comply with the new regulated requirements. There will need to be guidance on how to comply with the CERCC and RERCC Plans and how to create a RERCC Plan and Statement of Assurance. These costs would be additional to the reference case, as the reference case does not include requirements to prepare or comply with RERCC Plans and SoAs. In 2024, the second and subsequent years CERCC Plan process will become a year-round process with costs to government to gather intelligence, consult with responsible entities and draft the CERCC plan.

The varied number of responsible entities in each option leads to differing demands on the regulator to consult and educate on the CERCC across the responsible entity cohort. Option 1 has a smaller cohort of the larger industry players to consult with, meaning that more time can be spent gathering industry information from this group. Option 2 by contrast considers all essential service providers to be responsible entities which greatly limits the time Recycling Victoria can spend gaining insights from each entity as its time is spread over a cohort of about a thousand businesses.

There will also be costs associated with monitoring RERCC Plans and Statements of Assurance for compliance issues and any related enforcement activities for breaches of CERCC and RERCC Plan compliance. The options are modelled with relatively fixed resourcing for the regulator, based on 4 full time equivalent staff members for Option 1, based on estimated staffing requirements provided by RV. Options 2 and 3, which have larger pools of responsible entities, will have a smaller percentage of entities monitored for compliance and enforcement actions due to the resourcing constraints of the regulator. Nonetheless, RERCC and CERCC related activities will require additional resourcing in Option 2 and 3, equivalent to about one or two more full-time staff per year. These resources would need to be diverted from other work streams, incurring an opportunity cost for RV's other regulatory activities.

A summary of costs to Government is outlined in Table 10 below.

Table 10. Summary of costs to Government relative to reference case, $ million present value terms

Government cost	Option 1	Option 2	Option 3
CERCC plan activities	$1.4	$2.8	$1.9

RERCC plan activities	$0.6	$1.4	$1.8
Monitoring, compliance and enforcement	$2.1	$2.4	$2.4
Total costs	**$3.3**	**$6.6**	**$6.1**

Summary costs to Government

As described above, costs to government are constrained by funding levels that Government has committed or intends to commit to resourcing the regulation of the waste and recycling industry. For this reason, costs are not likely to be significantly different across options regardless of the size of regulated industry cohort. The cost differences above reflect an assumption that for some high-volume processing activities such as receiving and recording Statements of Assurance, Recycling Victoria would need extra staff to undertake their statutory function. As noted above, these staff would likely be sourced from other parts of the regulator and would incur opportunity costs for their time.

Option 1 (a small cohort of responsible entities from the most significant essential service providers) receives a score of -1 as this option is closest to the reference case cost with a small cohort of responsible entities that RV is required to consult on the preparation of the CERCC plan and educate responsible entities about their obligations. Further, there would be fewer RERCC Plans and Statements of Assurance to process. The regulator can best use its time to understand and effectively regulate its most impactful industry participants without having to draw on resources from other parts of its business.

Option 2 (all essential service providers are responsible entities) receives a score of -2 as this option has a very large pool of responsible entities to regulate. As such, it is likely that additional resourcing would be required to process the very large volume of RERCC Plans submitted and to gain any information for CERCC planning and for monitoring and compliance activities.

Option 3 (all essential service providers are responsible entities in three tiers) also receives a score of -2 for this criterion. Like option 2, this option would require surge capacity to service the very large cohort of responsible entities over three tiers of entities.

Table 11. Option costs to government scores

MCA criteria	Option 1	Option 2	Option 3
Government costs	- 1	- 2	- 2

Analysis of costs

Cost estimates show that Option 1 is the lowest cost intervention for both Government and industry as it targets only the highest risk entities for regulation. Under this option, approximately 45 essential service providers are regulated as responsible entities.

Under Option 2, the full regulatory burden falls on all providers of essential services, comprehensively covering the market in the full risk planning and mitigation framework. Under this option all essential service providers are also considered to be responsible entities. This means very high costs to regulate and high industry costs that are not proportional to the risk profiles of service providers. The bulk of the costs under Option 2 come from the requirement for all essential service providers to create and maintain RERCC Plans.

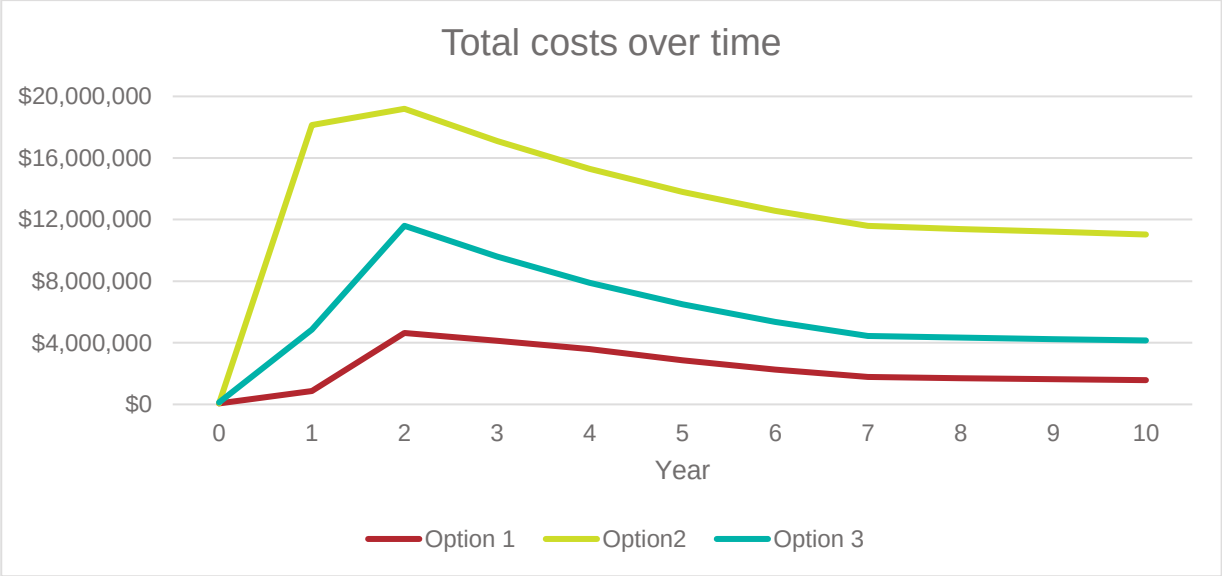
Option 3, similarly to Option 2, covers all essential service providers to some degree as responsible entities, while keeping costs much lower than option two by having three levels of regulatory burden applying to different classes of entities. This option is much less costly than Option 2 because of more risk-proportional requirements, but still has approximately double the costs of Option 1.

Table 12. Total regulation costs relative to reference case, $ million present value terms

	Option 1	Option 2	Option 3
Government costs	$4.1	$6.6	$6.1
Industry costs	$23.1	$135.3	$58.1
Total Costs 10 year NPV	**$27.1**	**$141.9**	**$64.2**

The results show a more similar level of proportionality in Option 1 and Option 3 in costs to Government and industry, with industry costs between six and eleven times higher than government costs. Option 2 however has a ratio of Government to industry costs of almost 23.

Figure 5. Total costs over the time relative to reference case, present value terms



The present value of the total costs of each of the options ramp up to a peak in the second or third year after the regulations commence and then slowly reduce over time under all options. This is primarily driven by higher industry costs in meeting compliance and mitigation requirements and higher administrative costs in producing RERCC plans in the early years. Costs increase substantially in year two of the model as firms are required to prepare and comply with a RERCC plan for the first time. Costs increase over the first two to three years as RV gains information on the industry and identifies in CERCC Plans total market volumes for all essential services, which leads to more providers meeting that threshold of responsible entities. Contingency and mitigation costs decrease quite rapidly between years two and seven of the model, as, maintaining and updating RERCC plans and complying with CERCC plans is expected to become easier due to corporate learning, and less burdensome as industry risk management practices mature. Furthermore, contingency and mitigation costs decrease quite rapidly between years two and seven of the model, as individual providers benefit from the positive spill-over of risk management practices implemented by other providers, resulting in lower overall costs to industry from decreased insurance premiums reflecting fewer disruptions to waste and recycling supply chains.

4.3 Estimating Benefits

Reduction in industry risk of service disruption through improved risk management practices

Relative to the reference case, the options considered reduce the risk of industry disruption by requiring responsible entities to identify and mitigate risks of disruption to their businesses and subsequent flow-on impacts to the essential service supply chain that they participate in. The RERCC planning process

empowers responsible entities to identify risks to their essential service and to plan for ways to mitigate and reduce risks to their ongoing operation. Businesses that identify significant risks of disruption that require mitigation will incur costs to reduce these risks.

Benefits in reduction in industry risk of service disruption are scored qualitatively by estimating the level of risk planning and compliance activities to meet the requirements undertaken by different cohorts of essential service providers, with actions taken by larger services providers being more impactful on reducing risks than smaller service providers. The level of regulatory oversight that can be effectively undertaken under each option is also taken into account, with coverage of more responsible entities leading to RV resources being spread more thinly across the cohort of responsible entities.

Option 1 (a small cohort of responsible entities from the most significant essential service providers) receives a score of +3 as it is likely to result in a moderate improvement in terms of risk reduction compared to the reference case. Option 1 is estimated to capture three quarters of the total market share (by revenue) of essential service providers by targeting the largest waste and recycling entities. Additionally, the small cohort size will help Recycling Victoria to best target their efforts for consultation, education, compliance, and any necessary enforcement actions.

Option 2 (all essential service providers are responsible entities) receives a score of +4 as it captures the remaining quarter of the essential service market as responsible entities that Option 1 does not capture. While this option is comprehensive in its coverage, it only captures approximately an additional 33% of waste by revenue (which is expected to correlate to volumes) compared to Option 1. Furthermore, there is an increased risk of creating barriers to entry and causing businesses to leave the industry. This increases the chances of a 'thinner' and more concentrated industry that would reduce the resilience of essential services, potentially leading to some increase in industry risk in the medium to long term.

Option 3 (all essential service providers are responsible entities in three tiers) receives a score of +4, reflecting that like Option 2, it captures all the essential service as responsible entities but with lesser requirements of RERCC planning and contingency and mitigation costs for smaller entities, reflecting their lower risk profile. Since smaller entities are expected to pose lower risks, the reduced requirements to not result in materially different risk reduction benefits when compared to Option 2. Further, Option 3 has a reduced likelihood of perverse effects of increasing barriers to entry than Option 2. Overall, the benefit in terms of risk reduction of Option 3 is expected to be similar to Option 2.

Table 13. Risk reduction scores for each option to Industry

MCA criteria	Reference case	Option 1	Option 2	Option 3
Industry risk reduction	0	3	4	4

Improved regulatory oversight and planning

Across the three options, the year-round CERCC planning process is informed by consultation with responsible entities throughout the planning cycle. The CERCC Plan is further strengthened through information gathered through the RERCC Plans that entities submit to Recycling Victoria. From these plans, Recycling Victoria can identify systematic risks to the industry to inform the following year's CERCC Plan. The RERCC Plans also give the regulator information on where to further their compliance efforts.

Option 1 (a small cohort of responsible entities from the most significant essential service providers) receives a score of +4 as the small cohort of large entities allows the regulator to target its resources to information gathering and consultation efforts on a responsible entity cohort that provides approximately three quarters of services by approximate revenue (which is expected to correlate to volume).

Option 2 (all essential service providers are responsible entities) receives a score of +4 as it gives Recycling Victoria access to a lot of information about all essential service providers, but the regulator is required to consult on the CERCC Plan with all essential service providers as responsible entities. As such it is likely to have diminishing returns on regulatory effort due to the workload required in administrative actions related to coordinating consultation for CERCC plans and attempting genuine efforts to synthesize information from RERCC Plans from every essential service provider in time to inform the following CERCC Plan cycle.

Option 3 (all essential service providers are responsible entities in three tiers) receives a score of +5 for this criterion. This option also has a very large cohort of responsible entities to regulate, however, the lower requirements on the second and third tiers of responsible entities allows the regulator to better balance efforts to consult, inform and learn from RERCC Plans.

Table 5. Risk reduction scores for each option to Government

MCA criteria	Option 1	Option 2	Option 3
Regulatory oversight and performance	4	4	5

Identifying the preferred option

The results of the MCA over the four criteria with weighting applied, show that Option 1 is the preferred option. This regulatory option best balances burden on industry with a likely reduction in industry risks of disruption through changes to business practices and improved regulatory oversight.

Table 15. Summary of scores for each criterion

MCA criteria	MCA weight	Option 1	Option 2	Option 3
Cost to industry	40%	- 2	- 10	- 4
Cost to Government	10%	- 1	- 2	- 2
Risk reduction	40%	3	4	4
Regulatory oversight	10%	4	4	5
Weighted MCA score		0.7	- 2.2	0.3

5 Preferred option

The MCA results support Option 1 as the preferred option of the three identified. It best balances the need for greater regulatory oversight of the most essential waste and recycling services in the State without overly burdening smaller businesses. Option 1 is significantly less costly than the three-tiered responsible entity model in Option 3 with only slightly less risk reduction performance. Option 2 includes oversight of all essential service providers but does not do so with proportionality of risk to regulatory burden. It is also not feasible for RV to thoroughly evaluate the risk management practices of such a large cohort of responsible entities, making it unlikely that this regulatory regime would result in significant risk reduction, and it would likely lead to barriers to entry into the waste and recycling industry and may cause operators to exit the market altogether.

Option 1 has costs to both waste and recycling businesses and to government that are significantly lower than Option 3 and much lower than Option 2. Options 1 and 3 both score well in improving the objective of improving regulatory oversight of the waste and recycling industry, while Option 1 scores somewhat lower in risk reduction than the other options analysed due to having a smaller cohort of responsible entities.

Relative to the costs of the regulations, Option 1 represents much better targeted regulation than the other options analysed, as it is significantly less costly than the three-tiered responsible entity model in Option 3 with only slightly less risk reduction performance. Additionally, the large cohort size of Option 3 would be a significant challenge for Recycling Victoria to administer. It is considered unlikely that there would a significant enough benefit in the additional regulatory burden on the lowest tier of responsible entities in Option 3 over and above the s74 duty that already applies to these businesses.

Option 1 allows the regulator to spend its time targeting improvements for the most significant players in the market who have the highest impact on services if they experience disruptions to services. This option has

benefits approximately double of its costs, which DEECA expects is reasonable on the basis that the reforms could avoid approximately 2 incidents over 10 years (see next chapter). Option 3 is also expected to break even with slightly higher benefits than cost, Option 2 however, has costs that far exceed benefits, primarily due it its high administrative burden and would not break even.

Total costs of the regulations

Costs of options in this analysis have been measured against a reference case of minimal regulations as is outlined in chapter 3.1. The total costs of the preferred option for making the regulations, including the reference case costs (i.e. costs to industry to comply with the section 74 duty and costs for RV to enforce the duty) are included in the table below. The break-even and sensitivity analysis that follows are measured against these total costs.

Table 16. Total regulation costs, $ million present value terms

	Preferred option
CERCC plan activities	$1.4
RERCC plan activities	$0.6
Monitoring, compliance and enforcement	$2.1
Total Government costs	**$4.1**
Annual RERCC Plans	$6.6
Record keeping	$0.6
Contingency costs	$21.9
Total Industry costs	**$29.1**
Total Costs 10-year NPV	**$33.2**

5.1 Break-even analysis of the preferred option

The overall cost-effectiveness of the preferred option depends on the degree to which it reduces the risk of significant disruption to the supply chain of essential services relative to the costs imposed on Government and industry. This has been assessed through a break-even analysis.

For this analysis, the extent of benefits to society are estimated based on the avoided damage costs of:

- stockpiling events
- clean-up of polluted sites caused by stockpiling,
- landfilling of otherwise valuable recyclables, and
- fires related to stockpiling.

The costs used in this break-even analysis are the most readily measurable costs, rather than the full costs of the avoided incidents, such as disruptions to businesses and residents affected by disruptions and other down-stream affects. This means that the total avoided costs used to estimate the breakeven point in this analysis are likely to underestimate the real economic costs of disruptions.

Health costs from pollution of contaminated land, water and smoke from fires that have not been costed and particularly in the case of fires, could indicate true costs of more than twice the costs used in this analysis. Likewise, costs to the wider economy including upstream and downstream costs associated with disruptions, as well as the impacts to the value of the circular economy, have not been costed but are expected to be significantly higher than the direct costs associated with stockpiling, fires and landfilling of commodities

For this analysis, major disruption events over the five-year period of 2018 to 2022 have been used, as this period most closely reflects the current waste and recycling industry settings post-export restrictions on recyclables. In this time there has been ten major stockpile events with costs to Government estimated at $274.7 million in 2023 dollars (see Table 17 below for a list of included incidents). On average this equals

$27.5 million per incident and $54.9 million per year and a rate of twenty incidents over a ten-year period. Of these ten major incidents, three involved fires igniting at stockpiles. Fires in West Footscray in 2018 and Campbellfield in 2019 involved chemical stockpiles, the 2019 fire at the SKM facility at Coolaroo involved mixed recyclables.

Table 17. List of major incidents

Incident	Incident type	Year
SKM Coolaroo fire	Fire	2017
Kaniva site	Stockpiling	2018
Tottenham industrial fire	Fire	2018
Internet Marketing Solutions Corp (IMSC)	Stockpiling	2018
Numurkah Tyre Site	Stockpiling	2018
Broderick Road site	Stockpiling	2019
Swainston Rd site	Stockpiling	2019
Thornycroft site	Fire	2019
SKM (multiple sites)	Stockpiling	2019
Dandenong South site	Stockpiling	2022

Table 18 below shows break-even results for major incidents with best available direct cost estimates and additional estimates including low and high health cost estimates for events that featured fires. These estimates are based on the ratio of health costs to clean-up and other costs identified in the SKM fire at Coolaroo as analysed in the Management and storage of combustible recyclable material Policy Impact Assessment (PIA). The PIA estimated that the damage to human health associated with air pollution from the Coolaroo fire had a cost between $8 million and $85 million. This equates to $9.3 and $99.3 million in 2023 dollars. The direct costs of the fire were $26.2 million in 2017 or $30.1 million in 2023 dollars. Using these cost ranges as percentages of the direct costs of the fire (31% and 330%), these are added to direct costs Coolaroo and the other two fires used in the break-even. These fire event costs are added to the costs of the seven non-fire events to calculate break-evens that account for the high and low estimate health costs of fires. These are shown in the table below along with a break-even of using just the direct costs of incidents.

Table 18. Break-even results for major incidents

Scenario	Average cost $m	Avoided incidents to break-even
5-year average damage cost per incident	27.5	1.2
Average damage cost plus health cost estimate - low	29.6	1.1
Average damage cost plus health cost estimate – high	53.9	0.6

As the preferred option has estimated costs of $33.2 million in real terms over the ten-year regulated period, if this new risk framework prevents more than one incident or, just one incident twenty per cent more costly than the average cost of the projected twenty incidents over the ten-year period it would break even and provide a net benefit to society. Under the high health costs scenario, the regulations would only need to avoid an incident once in sixteen years to break even.

5.2 Sensitivity analysis

A sensitivity analysis was undertaken to understand the impacts of varying two key cost drivers for the preferred option to test the impacts of these changes in assumptions on the break-even analysis. The first key driver of costs is the total amount of responsible entities that are captured by the thresholds in the regulations. The table below shows results for the central scenario of 45 responsible entities under the preferred option and sensitivity tests at a lower level of 30 and a high level of 75 responsible entities. The second factor tested involved doubling the average compliance costs faced by responsible entities for the preferred option in the high compliance cost scenario and halving the compliance costs for the low-cost scenario. The sensitivity analysis does not result in a change in which option is the preferred option under any of these scenarios.

Table 19. Sensitivity analysis of the preferred option

Break-even	Central scenario	Responsible entity low	Responsible entity high	Compliance costs low	Compliance costs high
Average cost incidents avoided to break-even	1.2	0.9	1.8	0.8	2
Average cost incidents avoided plus health cost low estimate	1.1	0.8	1.7	0.7	1.8
Average damage cost plus health cost high estimate	0.6	0.4	0.9	0.4	1

Table20. Sensitivity analysis of the preferred option $million

Break-even	Central scenario	Responsible entity low	Responsible entity high	Compliance costs low	Compliance costs high
Preferred option costs	$33.2	$23.9	$49.6	$22.2	$55.1

The sensitivity analysis of the two significant cost drivers shows that under all scenarios, the proposed regulations would break even if they prevented two of the projected 20 significant incidents over the 10-year regulation period. DEECA considers it reasonable that the regulations could reduce the number of incidents by two or more over 10 years as industry risk management improves.

5.3 Small business impacts

This RIS considers the effects of the proposed regulations on both small business and on business competition overall. Competition can be hindered when businesses are limited or prevented from competing within markets due to the regulatory impacts. Small businesses can be disproportionately affected by regulations due to relatively limited resourcing to interpret and comply with new regulatory requirements in comparison to larger businesses.

A significant feature of the preferred option identified in this analysis was that targets regulatory controls on the largest and most impactful essential service providers, which have the greatest associated risks. This means that small businesses will not be unduly burdened by the regulations and should not be significantly affected by them. Essential service providers of all sizes will be required to meet the general s74 duty to

minimise risks, however the proposed regulations exclude smaller businesses from the administrative burden of producing RERCC plans and statements of assurance. Small businesses will gain the benefit of operating in a more resilient industry where larger participants cannot price themselves under other participants by avoiding prudent levels of risk management expenditure which impose negative externalities and implicitly rely on expectations of government bail outs in a crisis.

While these regulations impose some additional regulatory burden on small business, this is expected to be relatively minimal and that small businesses will experience a net benefit due to increased industry resilience.

5.4 Competition impacts

Competition can be hindered when businesses are limited or prevented from competing within markets due to the regulatory impacts of Government's regulatory interventions. Regulations in Victoria are required to include an assessment of the impacts on competition under the Competition Principles Agreement. Under the agreement, any new primary or subordinate legislation should not restrict competition except where:

- restriction of competition is required to meet the objectives of the legislation; and
- the benefits of the restriction outweigh the costs

Restrictions on competition occur when there will be likely changes to the way a market functions due to the implementation of the proposed primary or subordinate legislation. Specifically, restrictions can occur where:

- the number or range of suppliers is limited
- the ability of suppliers to compete is limited
- the incentive for suppliers to compete vigorously is reduced.

The answers to the following questions indicate in the affirmative or negative whether the proposed regulations are considered to restrict competition.

Table 6. Competition analysis

Competition test	Answer	Explanation
Is the proposed measure likely to limit the number of producers or suppliers to: • only one producer? • only one buyer? • less than four producers?	No.	The vast majority of business supplying essential waste and recycling services will not be significantly affected by the regulations and the larger firms that do face the full regulated impact are not expected to cease trading based on the costs to comply with the regulations. Therefore, market depth is not expected to materially change.
Would the proposed measure discourage entry into the industry by new firms/individuals or encourage existing providers to exit the market?	No.	The regulations primarily target the largest, most significant players in the industry and as such they are unlikely to discourage new businesses to enter the market, as these firms will be unlikely to enter the market with a share of their essential service market large enough to trigger responsible entity thresholds. The proportion of costs to overall turnover are unlikely to significantly influence decision to exit the market for providers.
Would the proposed measure impose higher costs on a particular class of business or type of service? (e.g. small business)	Yes (minimal).	The regulations have been designed to target the most significant essential service providers for the highest level of regulation as responsible entities in recognition that these entities pose the most risk of disruption to the supply chain of the service that they provide if they were to be disrupted. As such, large businesses will bear a higher overall cost burden than smaller businesses. However, these costs are necessary to achieve the objectives of the legislation and the benefits of the restriction are expected to

		outweigh the costs. Furthermore, these costs are expected to scale with the business sizes and therefore be proportionate to both business size and risk.
Would the proposed measure affect the ability of businesses to innovate, adopt new technology or respond to the changing demands of consumers?	No.	The preferred option requires essential service providers to manage risks of disruptions but does not otherwise affect the ways that these businesses operate or prescribe how these firms operate or innovate within their business.

The Competition Agreement states that if there is a restriction on competition it is necessary to explain the objective that is achieved through restricting competition and to assess other reasonable methods of achieving the objectives without restricting competition. As described in the table above, the proposed regulations pose some minimal restrictions to competition within the waste, recycling and resource recovery industry. These restrictions are necessary to achieve the objectives of the legislation and the benefits of the restriction are expected to outweigh the costs. Furthermore, the larger regulatory burden on the largest entities within essential service streams is expected to be proportional to their scale and risk and therefore not materially affect competition between these firms. Therefore, DEECA considers it unlikely that businesses would significantly alter or restrict their services to avoid being designated as a responsible entity.

5.5 Case study of responsible entities

The following case study illustrates how many responsible entities may exist for some select essential waste services based on the preferred option. This assessment is based on a hypothetical scenario to illustrate how responsible entities may be defined.

In this hypothetical scenario:

- Essential waste service X includes collection, transport, sorting and reprocessing services.
- Company A is vertically integrated, offering each of these services for essential waste service X.
- The criteria for responsible entities are met by companies A, B, C, D, E and F, meaning each company needs to notify Recycling Victoria that they are a responsible entity and must prepare a RERCC Plan. Companies that qualify as responsible entities for more than one essential service need to address the requirements for each essential service they deliver in their RERCC Plan.

Table 22. Hypothetical scenario on how responsible entities may be defined

Essential waste service X (collection)			Responsible entity criteria		
	Total contractors / total essential service providers	**Number of responsible entities**	**>20% market share**	**3+ regions**	**$50m+ contract**
Generic Essential Service	20	**3**	Company A ~28% Company B ~23%	Company A (5 regions) Company C (3 regions)	Company A
Essential waste service X (transport)			**Responsible entity criteria**		
	Total contractors / total essential service providers	**Number of responsible entities**	**>20% market share**	**3+ regions**	**$50m+ contract**
Generic Essential Service	15	**3**	Company A ~30% Company D ~25%	Company A (3 regions)	Company A Company B
Essential waste service X (sorting)			**Responsible entity criteria**		
	Total contractors / total essential service providers	**Number of responsible entities**	**>20% market share**	**3+ regions**	**$50m+ contract**
Generic Essential Service	6	**2**	Company A ~50% Company E ~30%	Company A (6 regions) Company E (4 regions)	0
Essential waste service X (processing)			**Responsible entity criteria**		
	Total contractors / total essential service providers	**Number of responsible entities**	**>20% market share**	**3+ regions**	**$50m+ contract**
Generic Essential Service	11	**2**	Company A ~30% Company F ~40%	Company A (6 regions) Company F (5 regions)	0

For other essential services, there will likely be a wide range of small operators and in some services, there would likely be no responsible entities.

6 Implementation and evaluation strategy

This chapter outlines the actions that the Victorian Government will undertake to implement and assess the efficiency, effectiveness and compliance of the proposed regulations.

6.1 Implementation plan

According to the *Victorian Guide to Regulation*[48], the implementation plan should set out a clear, practical strategy for implementing the preferred option by outlining:

- what needs to be done
- who will be doing it
- when it will be done
- who will monitor implementation (including identification and management of implementation risks).

Implementation tasks

Table 23 outlines the key activities to support the implementation of the proposed regulations:

Table 23. Implementation tasks

Stage	Responsibility	Timeframe
1. Consultation on the draft of the first CERCC Plan	Recycling Victoria	September - November 2023
2. Regulations come into effect	DEECA	November - December 2023
3. Publishing the first CERCC Plan	Minister for Environment Recycling Victoria	Approximately February/March 2024
4. Support provided to regulated parties to comply with the regulations	Recycling Victoria	February – September 2024
5. Assessment of compliance with the requirements in the regulations and Circular Economy Act	Recycling Victoria	October 2024 – onwards

Stage 1 - Consultation on the draft of the first CERCC Plan

Recycling Victoria will seek to engage and consult with key stakeholders from the WRRR sector and any relevant government agencies on the draft of the first CERCC Plan. This will occur in approximately September - October 2023 for the purpose of a sector risk assessment process, and be followed and complemented by a formal consultation period on the draft CERCC in November 2023.

[48] Better Regulation Victoria (2016), *Victorian Guide to Regulation* https://www.vic.gov.au/sites/default/files/2019-10/Victorian-Guide-to-Regulation.pdf

Recycling Victoria is required to consider any comments and submissions received during the consultation period and revise the draft CERCC Plan as appropriate before submitting it to the Minister for approval by 31 December 2023.

Stage 2 - Regulations come into effect

Following public consultation on the proposed regulations and this RIS, all feedback received will be considered by DEECA and amendments made to the proposed regulations if required. The regulations will be settled with the Office of the Chief Parliamentary Counsel and submitted to the Governor in Council, on the recommendation of the Minister for Environment, to be made. It is intended the regulations will come into effect on the 1 December 2023.

Promotion and communication of the regulations coming to effect will occur in November to December 2023 via various methods, including correspondence to key stakeholders in the sector, an article in the Recycling Victoria newsletter and social media. A Response to Public Comment, summarising the key matters raised in the public consultation, will be published on the Engage Victoria website.

Along with the dissemination of communication materials, in accordance with requirements of the *Subordinate Legislation Act 1994*, a notice of the making of the regulations will be published in the Victorian Government Gazette and on the Victorian Public Notices website (publicnotices.vic.gov.au). The regulations will also be available to download from the Victorian Legislation website (www.legislation.vic.gov.au).

Stage 3 - Publishing the first CERCC

As required under the Circular Economy Act, the first CERRC Plan is due to be submitted by the Head, Recycling Victoria to the Minister for Environment by 31 December 2023. This is less than a month after the regulations are proposed to come into effect. As it is a new regulatory system that places requirements on a new regulator, Recycling Victoria is not expected to have mature or robust information available to it at this time to inform the preparation of the CERCC Plan.

For example, future CERCC Plans will be informed by information provided in RERCC Plans submitted to Recycling Victoria by responsible entities on an annual basis (by 30 September each year) and the first RERCC Plans won't be submitted to Recycling Victoria under September 2024.

New regulations relating to mandatory data collection and reporting in the WRRR sector are also planned to be developed in the coming years, which will improve Recycling Victoria's data on the nature, volume and movement of waste, recyclables and recovered resources in Victoria and on entities operating in the sector. This will in turn enable Recycling Victoria to fulfill its core functions under the Circular Economy Act, including the identification of emerging risks in the sector and markets and to ensure effective risk, consequence and contingency planning.

As such, it is expected that the first CERCC Plan will be prepared based on the limited data available at the time, and therefore is likely to be an abridged plan. CERCC Plans produced in subsequent years will continue to grow and evolve as the information available to Recycling Victoria improves over time.

Once approved by the Minister for Environment, the CERCC Plan will be published on the Recycling Victoria website. Recycling Victoria will advise the sector and key stakeholders that the CERCC Plan is available via various communication methods, including via emailed correspondence, social media posts and through presentations to peak bodies.

Stage 4 - Support provided to regulated parties to comply with the new regulations

Recycling Victoria will ensure that stakeholders in the WRRR sector are aware of the new obligations set out in the regulations and what they need to do to comply. Recycling Victoria will provide guidance to the WRRR sector on how to meet the requirements under the new regulations, for example of what is expected of essential service providers in meeting the section 74 duty to minimise risks to service and how responsible entities would need to prepare their RERCC Plans. To support industry to comply with the new regulations, Recycling Victoria will also be actively engaging with the WRRR sector via LG CEO meetings, RRRWIG meetings, and one-to-one meetings with key stakeholders when required.

Stage 5 - Assessment of compliance with the requirements in the regulations and Circular Economy Act

Over time, Recycling Victoria will move from a support-focussed approach to a compliance-focussed approach, and then to an enforcement-focussed approach. Where necessitated, regulatory action would be graduated and proportionate.

Who will be responsible?

Recycling Victoria will have oversight of the implementation of the RCC framework and the proposed regulations to ensure the desired policy objectives are achieved.

Recycling Victoria are also responsible for the preparation of the CERCC Plan, with the first CERCC Plan due to be provided to the Minister by 31 December 2023. As the regulations will address the preparation and content of the CERCC Plan, they must be delivered ahead of this deadline. By necessity, the first CERCC Plan will be developed concurrently with the regulations.

In preparing the CERCC Plan, the proposed regulations prescribe that the CERCC Plan must include, in addition to the matters required under the Circular Economy Act, when available to Recycling Victoria, the total volume of waste managed in the Victorian market in a specified period for each essential waste, recycling and resource recovery service (and component of the service or type of waste relating to the service). This information will be important to support entities in their assessment against the criteria set out in regulation 6 in determining responsible entity status.

Who will monitor implementation?

Guidance and support will be provided by Recycling Victoria to providers of essential waste, recycling or resource recovery services and responsible entities prescribed under the regulations to assist in meeting their legislated requirements. It should be noted that entities will have experience with similar legislated requirements and duties as this sector is actively regulated under the *Environment Protection Act 2017* and the *Occupational Health and Safety Act 2004*, which contain similar risk-based requirements and duties.

Recycling Victoria will be responsible for monitoring the implementation in the sector of the requirements under the Circular Economy Act and proposed regulations for the RCC framework and will do this through their reporting and oversight functions (via the CERCC Plan, annual report and market strategies) and their compliance and enforcement duties.

6.2 Evaluation strategy

The evaluation strategy is designed to assess the effectiveness of the reform following its implementation and operation for a period of time. The *Victorian Guide to Regulation*[49] notes that the evaluation strategy should include:

- what will be evaluated
- how it will be done
- who will do it
- when it will be done.

What will be evaluated

Under the *Subordinate Legislation Act*, all regulations sunset and must be remade after ten years and may be amended or remade earlier.

The evaluation will assess whether the objectives of the regulations have been met and whether any changes to the regulations may be required in future. The evaluation will need to consider the following:

- implementation of, and compliance with, the regulations,
- effectiveness of the regulations, through investigation into service disruptions or failures to determine the cause and if it could have been prevented with amendments to the regulations,
- the actual impact of the regulations against the expected impact captured in this RIS in terms of costs and benefits incurred by regulated parties and the regulator, and
- lessons learnt, including any unintended consequences, and options to improve the regulations.

Review and evaluation of the regulations and each annual CERCC Plan may identify where additional detail is required to be prescribed in future regulations.

[49] Better Regulation Victoria (2016), *Victorian Guide to Regulation* https://www.vic.gov.au/sites/default/files/2019-10/Victorian-Guide-to-Regulation.pdf

How it will be done

Evaluation of the proposed regulations will take two forms – ongoing monitoring and assessment and a formal review of the regulations in 2028.

Ongoing monitoring and assessment

Under section 22 of the Circular Economy Act, the Head, Recycling Victoria must submit an annual report on the operation of this Act to the Minister on or before 30 September each year (s22 of the Circular Economy Act). In preparing this report, Recycling Victoria will monitor and assess how the RCC framework is operating.

The matters relating to the RCC framework that must be included in the annual report include:

- a description or summary of the key risks, consequences and measures identified in the CERCC Plan;
- the total number of responsible entities that are required to prepare a RERCC Plan under section 74F; and
- the total number of statements of assurance submitted to the Head, Recycling Victoria under section 74G.

The proposed regulations require Recycling Victoria to consult with responsible entities during the preparation of the annual CERCC Plan and the review the CERCC Plan in force when preparing the new CERCC Plan. Through this avenue, Recycling Victoria will gather regular feedback and monitor the WRRR sector on the RCC framework implementation to identify and address potential issues or unintended outcomes.

Recycling Victoria will also be continually monitoring compliance in the sector with the requirements under the Circular Economy Act and regulations, in accordance with their Regulatory Strategy and in discharging their compliance and enforcement duties.

Review of the regulations

A review of the regulations will be undertaken to consider its effectiveness in achieving its objectives. This will be undertaken through a mix of policy analysis and information gathering, review of data on responsible entities and RERCC Plans and engagement with the WRRR sector.

The review will also consider the outcomes of any review of the operation of the Circular Economy Act. Section 182 of the Circular Economy Act provides for a review of the operation of this Act to be concluded in the first five years of operation. This includes providing the Minister with a written report, which is required to be tabled in Parliament. The first review must be completed by 1 June 2027.

Who will do it?

Recycling Victoria and the Waste and Recycling Division of DEECA will be responsible for undertaking the review of the regulations.

When will it be done?

The regulations will be evaluated after the regulatory framework has been operational for five years. This will allow time for the WRRR sector to continue developing maturity with regards to risk management and contingency planning, and for Recycling Victoria to evolve in its regulatory capability and capacity.

7 Consultation

Extensive stakeholder consultation was undertaken to inform the drafting of the proposed regulations and RIS. This occurred with the objective of ensuring the proposed regulations achieve the intended outcomes from the RCC framework and result in an effective and proportionate regulatory regime.

Targeted stakeholder consultation

Previous external engagement on the RCC framework took the form of high-level briefings to the Recycling Victoria Industry Reference Group (RVIRG) for the ELA Act (in 2022).

It is a statutory requirement under the *Subordinate Legislation Act 1994 Guidelines* (2020) that initial consultation occurs with any sector of the public on which a significant economic or social burden may be imposed by the proposed regulations and with other portfolio Ministers (i.e. their departments) which may be affected by the proposed regulations.

To meet this requirement, targeted consultation was held during May – June 2023 on the proposed regulations with the WRRR industry through individual meetings as well as through existing forums, including the RRRWIG. During this time, consultation also occurred with peak bodies and councils and ARV through regular forums.

Portfolio partners, such as the Environment Protection Authority (EPA) and Sustainability Victoria (SV), and other government agencies, such as the Office of the Chief Parliamentary Counsel, Better Regulation Victoria, Department of Justice and Community Safety and Department of Treasury and Finance, were also consulted during this period.

These engagements were vital to:

- gather information on current risk management practices within the sector and test policy options to inform the drafting of the proposed regulations and RIS,
- gain an understanding of the key barriers and opportunities anticipated by industry, and potential solutions that minimise regulatory burden,
- ensure industry are aware of any policy or reform that may impact their business,
- enable continued engagement with peak body organisations and key stakeholders, ensuring opportunities to advise on project progress, and
- provide a feedback loop to key stakeholders.

During the month of May 2023, the portfolio partners, Recycling Victoria, EPA and SV came together at a series of four workshops to draw on technical expertise to inform the assessment of which waste services should be considered ‘essential’ for the purposes of the regulations.

A targeted engagement survey was also conducted with the wider WRRR sector to inform the policy development for the proposed regulations. Through this, feedback was sought to help understand better the current risk management practices of the industry relating to the service they provide and to inform the impact assessment of the three options described earlier in this RIS.

From this survey, DEECA received responses from 9 entities from the WRRR sector and 26 councils. The survey highlights that:

- Among all respondents, only two councils do not currently undertake risk management practices,
- industry estimates that the annual costs associated with risk management related to the services provided is between approximately $20,000 to 250,0000; and
- the industry predicts that they will incur new costs on their businesses to cover the new responsibilities associated with the duty under section 74 of the Circular Economy Act.

Public comment

The proposed regulations and this RIS will be released via Engage Victoria (EV) for a 28-day public comment period to provide the WRRR sector, councils, Recycling Victoria and other interested stakeholders and members of the public with the opportunity to consider and provide feedback on the proposed regulations and RIS. Feedback is sought via two surveys on the EV website, one survey for the WRRR sector, councils and ARV, and another for community members.

DEECA will consider all submissions received during the period of public review. DEECA will prepare a formal Response to Public Comment summarising the submissions received during the consultation. The Response to Public Comment document will be made available on the EV website.

8 Assumptions

Data/Assumption	Value	Source
Analysis period	10 years	Timeframe of new regulations to sunsetting
Discount rate	4%	Better Regulation Victoria (BRV)
Number of waste and recycling service providers in 2023	1406	1325 total businesses in Victoria in 2019 with assumed 3% annual growth (no growth 2019-2021 due to COVID)
Number of essential service providers in 2023 (year 0)	844	Proportion of waste services deemed to be essential - 15/25 x 1406 providers = 844
Number of responsible entities (RE) Option 1 and Option 3 Tier 1 at framework maturity (year 4)	45	Calculated from the number of essential services multiplied by an estimate of companies that will meet the responsible entity threshold each year. = 15 x 3
Real revenue growth of Option 1 responsible entities + growth in number of Option 3, tier 2 entities	1.5%	Based on projected Victorian population growth. *Department of Environment, Land, Water and Planning (2019) Victoria in Future*
Growth in number of essential service providers	3%	Based on ABS industry data from 2011-12 to 2021-22*: Australian Bureau of Statistics (2021-22), Australian Industry*
Number of Option 3 Tier 2 RE at framework maturity (year 4)	90	Calculated from the number of essential services multiplied by an estimate of the companies that will meet the lower Regionally significant responsible entity threshold each year = 15 x 6
Number of Option 3 Tier 3 RE at maturity (year 4)	814	Calculated from the total number of essential service providers minus the Tier 1 and Tier two responsible entities = 949 – 45 - 90
Cost of preparing an initial RERCC plan and SoA for a large business (Option 1, Option 2, Option 3 Tier 1)	Staff time – 400 hours	500 hours average time to create an initial RERCC plan based on DEECA analysis of similar risk management planning costs. Average costs is then multiplied by 0.8 reflecting that some risk management planning will already be occurring so the full cost is not attributed to the regulations.
Cost of preparing an initial RERCC plan and SoA for a medium sized business (Option 2)	Staff time – 300 hours	Calculated as 75% of the costs of producing an initial RERCC plan for a large business
Cost of preparing an initial RERCC plan and SoA for a small business (Option 2)	Staff time – 200 hours	Calculated as 50% of the costs of producing an initial RERCC plan for a large business
Cost of preparing an initial RERCC plan and SoA (Option 3 Tier 2)	Staff time – 200 hours	Calculated as 50% of the costs of producing an initial RERCC plan for a large business
Cost of preparing an initial RERCC plan and SoA (Option 3 Tier 3)	Staff time – 20 hours	Calculated as 5% of the costs of producing an initial RERCC plan for a large business

Cost of annual RERCC plans after initial plan	Initial costs x 0.5	Costs to maintain RERCC plans after making the initial plan are estimated at half of the initial costs
Annual data retention/record keeping	Staff time – 20 hours	Costs to responsible entities to keep records related to RERCC and CERCC plan compliance
Contingency and mitigation costs		
Estimated median revenue of REs (Option 1)	$20 million	Estimated from likely RE cohort inferred from ABS data. Median value used as the likely cohort features a small number of outlier entities with turnover many times larger than average REs.
Estimated average revenue of REs (Option 2 + 3)	$4.1 million	Estimated from likely RE cohort inferred from ABS data
Contingency costs Option 3, tier 3 entities	$5,000	DEECA assumption to reflect that this tier of entities will have smaller contingency costs, reflecting lower potential impacts on essential services if their business is disrupted
Business interruption insurance cost estimate as percentage of revenue	0.6%	Cost as a percentage of total revenue. Modelled at the average cost of insurance for a high-risk business (approximately 3% or revenue) multiplied by the costs of interruption insurance (20% of insurance costs) 3% x 20% = 0.6%
Annual declining mitigation costs	10%	Modelled decline in the above costs per year for the first 5 years that REs undertake mitigation measures. Plateaus at half of first year costs
Annual declining total insurance premiums	0.06%	Modelled decline in overall insurance costs to REs per year for the first 5 years after the initial mitigation investment
Hourly cost estimate – Industry		
Average weekly earnings (full time, Victoria)	$1,807	ABS (2023), Average Weekly Earnings, Australia, May 2022
Earnings per week worked adjusted for leave	$2,135	Calculated as weekly earnings multiplied by 52 weeks then divided by 44 weeks reflecting annual, sick and other leave.
Hours worked per week	40	Estimated average hours worked
Oncost and overhead multiplier	1.75	DTF *Regulatory change measurement manual*
Average hourly wage (including oncosts and overheads)	**$93.43**	Calculated from the above inputs
Hourly cost estimate – Government		
Average VPS 4 annual salary	$98,547	Mid-point of 2023 VPS band 4 salary
Average VPS 5 annual salary	$117,716	Mid-point of 2023 VPS band 5 salary
Average VPS 6 annual salary	$152,771	Mid-point of 2023 VPS band 6 salary
Hours worked per week	38	VPS full time weekly hours
Hourly wage adjusted for leave VPS 4	$58.94	Annual salary divided by 44 weeks x 38 hours

Hourly wage adjusted for leave VPS 5	$70.40	Annual salary divided by 44 weeks x 38 hours
Hourly wage adjusted for leave VPS 6	$91.37	Annual salary divided by 44 weeks x 38 hours
On cost and overhead multiplier	1.75	Victorian Guide to Regulation
Average weighted hourly wage (including oncosts and overheads)	**$127.36**	Calculated as the average hourly wage of 4 FTE consisting of one VPS 4, two VPS 5 and one VPS 6 employee representing the expected makeup of the RCC team at Recycling Victoria
Annual CERCC plan (reference case)	VPS staff time – 1600 hours	The estimated baseline annual costs to RV to acquit a CERCC planning process including limited consultation in the absence of defined responsible entities.
Monitoring and compliance costs	Staff time – 80 hours	Average estimated time per entity. Total costs estimated at 50% of responsible entities for Option 1 and 20 entities for options 2 and 3 reflecting a maximum feasible resourcing for the regulator
Enforcement activities	Staff time – 160 hours	Average estimated time per entity. Total costs estimated at 10% of responsible entities for Option 1 and 10 entities for options 2 and 3 reflecting a maximum feasible resourcing for the regulator

9 Appendix

9.1 Alignment of the RCC framework with the CIR model

There are many similarities between the CIR model and the proposed new RCC regulations for the WRRR sector, understanding that waste is not considered as an essential service under the EM Act. The table below summarises how the proposed regulations will align with the principles of the CIR model.

Victoria's Critical Infrastructure Resilience (CIR) model – Principles and approach	Use in the WRRR sector RCC framework
Core principle: to improve resilience of critical infrastructure • Resilience is defined as 'the capacity of individuals, communities, businesses, institutions and systems to survive, adapt and thrive no matter what chronic stresses and acute shocks they experience'.	The WRRR sector is not classified as essential under the EM Act. Therefore, the equivalent RCC framework core principle is to improve the risk, consequence and contingency planning of the WRRR sector.
Core principle: shared responsibility • While the primary responsibility for critical infrastructure resilience rests with infrastructure owners and operators, there is an expectation that government will take appropriate measures to ensure that owners and operators are managing their risks and that vital service delivery is not interrupted. • Requires that owners and operators of Victoria's infrastructure that is declared as 'vital' undertake legislated emergency risk management planning. This planning requires owners and/or operators to understand their emergency risks, develop mitigation plans and test preparedness [50]	The CIR model legislates a requirement for responsible entities to be responsible for submitting emergency risk management plans to their portfolio department. This is mirrored in the RCC framework, where: • Industry contingency plans are used as a mechanism for service providers to take primary responsibility for risk management for their service • Recycling Victoria is required to oversee the preparation of industry's contingency plans • Recycling Victoria must also prepare a sector-wide contingency plan to address system-wide risks
Core principle: industry and community participation • Strengthens partnerships between industry and government[51]	CIR legislation establishes use of Sector Resilience Networks to improve information-sharing between industry and government, on the principle that industry operators have the best, most current understanding of risks their sector is facing. The RCC framework uses this concept by: • Gathering industry insights through industry reference groups convened by RV • Requiring annual contingency plans to be prepared by responsible entities and the

[50] EMV landing page - CIR model - https://www.emv.vic.gov.au/our-work/critical-infrastructure-resilience

[51] EMV landing page - CIR model - https://www.emv.vic.gov.au/our-work/critical-infrastructure-resilience

	provision of information to the regulator on key service provider risks • Requiring Recycling Victoria to engage with industry in development of an overarching Victorian contingency plan.
Develops a standardised criticality assessment methodology. This assists in categorising critical infrastructure, according to its importance to the community: vital, major, significant and local[52]	The RCC framework will be informed by the standardised criticality assessment methodology issued by Emergency Management Victoria, for application by critical infrastructure sectors, and tailored to address the nuances of the WRRR sector.[53] In practice, this will support Emergency Management Victoria to coordinate with waste facilities in its broader emergency response (i.e. bushfires, floods).
Adopt an industry sector-based approach[54]	The CIR model requires that standardised assessment methodology be tailored to the needs of each sector. For example, the water sector will assess risks to major infrastructure (such as impact of floods on its reservoirs or pipelines) in a different way to the energy sector (such as impact of bushfires on power lines). The RCC framework relies on an assessment methodology tailored to the waste sector, including risks of market failure identified by independent government reviews.
Industry, led by the portfolio department, for each of the eight Sector Resilience Networks develop a Sector Resilience Plan. Sector Resilience Plans provide the government with the status of, and continuous improvement arrangements for, each critical infrastructure sector's overall resilience.[55]	The concept of Sector Resilience Plans in the CIR model has been mirrored in the requirement for an annual Victorian contingency plan. Recycling Victoria will consult with industry in the development of this plan.

[52] EMV landing page - CIR model - https://www.emv.vic.gov.au/our-work/critical-infrastructure-resilience

[53] EMV (2016), *Ministerial Guidelines for Critical Infrastructure Resilience*,

[54] EMV landing page - CIR model - https://www.emv.vic.gov.au/our-work/critical-infrastructure-resilience

[55] EMV landing page - CIR model - https://www.emv.vic.gov.au/our-work/critical-infrastructure-resilience

9.2 Risk matrix used in the assessment of essential services

Likelihood	
Almost Certain / Occurred	Is expected to occur almost all the time or has already occurred
Likely	Is expected to occur most of the time
Probable	Might occur
Unlikely	Might occur but not expected
	Only expected to occur under exceptional circumstances

Consequence	
Severe	Substantial offsite impacts to broader environment, long term environmental damage, extensive clean-up required, complete failure of environmental protection controls
Significant	Offsite impacts to a segment of the environment, medium-term environmental damage, offsite clean-up required, breach of environmental legislation
Moderate	Some offsite, temporary impacts, moderate onsite impacts
Minor	Minimal on-site impact immediately contained, no discernible offsite impacts, no external complaints received
Negligible	Negligible onsite impacts, no offsite impacts

	Likelihood						
Consequence	**1. Occurred**	**2. Almost Certain**	**3. Likely**	**4. Probable**	**5. Unlikely**	**6. Rare**	**Overall Risk**
1. Severe	Very High	Very High	Very High	Very High	High	Medium	Very High
2. Significant	Very High	Very High	High	High	Medium	Low	High
3. Moderate	High	High	Medium	Medium	Low	Low	Medium
4. Minor	Medium	Medium	Medium	Low	Low	Very Low	Low
5. Negligible	Low	Low	Low	Very Low	Very Low	Very Low	Very Low

	Risk	Likelihood	Consequence	Overall Risk Rating
Social harms				
1	May result in disruption to operation of society			
2	May result in disruption or reduction in day-to-day life and enjoyment, including community wellbeing and aesthetics			
3	May result in loss or destruction of culturally important objects and social activities			
4	May result in significant impacts to specific vulnerable communities			
Economic harms				
5	May result in an overall decline of economic activity for the State			
6	May result in a significant negative economic impact on other industries			
7	May result in a significant negative impact on the wider economy			
8	May result in significant disruptions to non-waste services and industries particularly the operation of essential and critical services			
9	May result in significant impacts to the capacity of Victoria to respond to major emergency events			
10	May result in disruption to the operation of the State or National Circular Economy			
11	May result in disruption to or significant financial costs or economic losses to: a local, State or federal government body or major infrastructure project/s			
Environmental and human health harms				
12	May result in significant numbers of deaths, injuries and illness			
13	May result in wide-spread human and environmental health impacts, which includes psychological health			
14	In the absence of the service type, alternative disposal options are either: not available (within the state or nationally), or not financially viable; or would result in a significantly increased human health and/or environmental risk			
Security harms				
15	May result in security impacts to state and national security			

16	May result in security impacts to Critical Infrastructure Sectors as defined by the Security of Critical Infrastructure Act 2018 (Cmth).			
17	May compromise the safe disposal of documents (both electronic and hard copy) containing commercial secrets, private information.			

9.3 Services assessed in the assessment of essential services

The table below shows all the waste services that were assessed and ranked according to risk during the essential services assessment process. For the purposes of assessment, each hazardous waste stream, e-waste stream and landfill service was assessed at a granular level in case there were some that were essential and some that were not. The results of the assessment showed that all hazardous wastes, e-waste and landfill services were essential.

List of assessed services (granular)

Waste Services	
Clean Fill Service	Landfill Services (Hazardous waste)
Commingled Recycling Services (Municipal and C&I)	Landfill Services (Putrescible)
Construction and Demolition Services (General)	Landfill services (Solid inert)
Container Deposit Scheme	Leather and Rubber recycling (other than tyres)
E-waste battery services	Liquid waste (not otherwise stated)
E-Waste services (General) E-Waste services (Battery recycling)	Litter and Public Open Space Waste Services (Including road management, sweepings, roadkill)
Glass Recycling Services (Municipal and C&I)	Long-term waste containment
Green Waste (Municipal, C&I, Parks & Gardens)	Mattress Recycling services (Municipal and C&I)
Hard Waste Services	Metal Recycling Services (Direct to public, municipal, C&I)
Hazardous Waste Services (Clinical and pharmaceutical)	Municipal transfer station/resource recovery centre service
Hazardous Waste Services (Cyanides, acids, alkalis)	Organics Services (Municipal FO/GO and C&I)
Hazardous Waste Services (explosive nature)	Paper and cardboard services (Municipal and C&I)
Hazardous Waste Services (Household chemicals)	Plastics Recycling Services (Direct to public, C&I, Municipal)
Hazardous Waste Services (Oils)	Residual Waste Services (Municipal and C&I)
Hazardous Waste Services (Organic, inorganic and reactive)	Secure Waste destruction services (Document destruction, product destruction, secure e-waste recycling, secure medical record disposal)
Hazardous Waste Services (Organics solvents)	Skip bin services (non-C&D)
Hazardous Waste Services (Paints, resins, inks and organic sludges)	Textiles Recycling (Direct to public, C&I)
Hazardous Waste Services (Pesticides)	Thermal waste to energy facility service (Licenced under CE Act)
Hazardous Waste Services (Photographic chemicals and processing)	
Hazardous Waste Services (Putrescible and organic waste)	
Hazardous Waste Services (Quarantine and biosecurity)	
Hazardous Waste Services (Radioactive)	
Hazardous Waste Services (Soil, sludges, slurries)	
Hazardous Waste Services (Tyres)	

9.4 Rationale of essential waste, recycling and resource recovery services identified

The table below shows the list of identified essential waste services and the rationale for including each. Note that security issues were only included where relevant.

	Essential service type	Included assessed services	Rationale for inclusion as an essential waste service (Likely consequences of a disruption for 8+ weeks)
1	**Landfill services**	• Landfill Services (Hazardous waste) • Landfill Services (Putrescible) • Landfill services (Solid inert)	**Social**: Wastes generated by society would have no ultimate disposal outlet. This would also have significant impacts on the operation of the recycling and resource recovery sectors as they would be unable to dispose of contamination. This would result in significant service disruptions to all users including communities and industry. Broad amenity issues associated with waste not being collected. Significant localised amenity and health impacts for communities adjacent to landfills if landfill gas, cover and leachate management is disrupted (due to odour, litter, dust and surface water contamination). **Economic**: Impacts to the operation of a broad range of business and industries including a range of major and critical infrastructure. Ability for industry to absorb inability to dispose of waste will vary significantly dependant of the nature of the waste, nature of operations and onsite capacity to store waste onsite. **Environmental/Human Health**: Increased sanitation risks including increased vermin, pathogen and disease risks. Increased pollution risks (surface water, land, air emissions, dust, odour)
2	**Hazardous Waste Services**	• Hazardous Waste Services (Quarantine and biosecurity) • Hazardous Waste Services (Clinical and pharmaceutical) • Hazardous Waste Services (Putrescible and organic waste) • Hazardous Waste Services (Radioactive) • Hazardous Waste Services (Oils)	**Social**: Community would be unable to access specific disposal programs (such as Paintback, Chem collect, Drum muster) and disposal options which may result in increased illegal disposal and increased local risks to communities. If stored for extended periods due to disruption of this service (either at treatment facilities, generator sites or third-party locations) this may result in significant community concern and potential psychosocial impacts. **Economic**: Impacts to a broad range of businesses and industries who rely on safe and timely disposal of hazardous waste as part of their operations. Time to operational impacts would vary due to onsite storage capacity however during an extended outage impacts to the operation of a broad range of industries would be expected. This would include impacts to a range of essential services (such as the health care sector) and critical infrastructure. This could have a significant impact to the Victorian economy. **Environmental/Human Health**: Due to nature of materials environmental and human health implications are likely to be significant. Inappropriate storage and/or handling of

		• Hazardous Waste Services (Paints, resins, inks and organic sludges) • Hazardous Waste Services (Organics solvents) • Hazardous Waste Services (Photographic chemicals and processing) • Hazardous Waste Services (explosive nature) • Hazardous Waste Services (Soil, sludges, slurries) • Hazardous Waste Services (Organic, inorganic and reactive) • Hazardous Waste Services (Cyanides, acids, alkalis) • Hazardous Waste Services (Pesticides) • Hazardous Waste Services (Tyres) • Hazardous Waste Services (Household chemicals)	these materials in the absence of hazardous waste services is likely to result in an increase in Hazmat incidents including fires. Incidents may result in significant pollution and the generation of further complex and hard to dispose waste; safety impacts to first responder, workers and the wider community; and significant response and recovery costs. An extended outage of this service type could also lead to an increase of illegal disposal and dumping including illegal disposal to trade waste (which may impact the ongoing operation of wastewater treatment facilities), to the environment (resulting in long term contamination of land, groundwater and surface waters all requiring significant long term and costly remediation) or via fly tipping, potentially exposing the community to hazardous materials. Inappropriate storage, handling and disposal of hazardous waste may result in acute and chronic health impacts. **Security**: The stockpiling of hazardous wastes where disposal options are not available may present an increased security risk. The service provides specialised disposal services for Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) materials which may be critical for national security. Hazardous waste services are also of critical importance for biosecurity and quarantine.
3	**Residual Waste Services**		**Social**: Significant community expectations regarding the delivery and continuity of the service, may result in high levels of community concern. An extended disruption to residual waste services would have significant social impacts as all Victorian's generate residual waste. There is an expectation regarding the availability of household waste services especially residual waste services. There may be increased impacts on specific vulnerable communities including those living in high density situations and individuals and groups who generate higher volumes of residual waste (such as individuals using nappies). This would also have implications for a broad range of community services, as well as public spaces who may be unable to safely operate without a residual waste service. Health and amenity implications of

			uncollected residual waste may result in significant community concern and psychosocial issues. **Economic**: Impacts to the operation of a broad range of business and industries including a range of major and critical infrastructure. If patronage to public spaces decreases due to waste accumulation this will have flow on economic impacts to hospitality and tourism industries. Likely to lead to increased illegal dumping requiring government clean up. **Environmental/Human Health**: Increased sanitation risks including increased vermin, pathogen and disease risks. Increased pollution risks (surface water, land, air emissions, dust, odour). **Security**: May lead to increased civil disorder.
4	**Thermal Waste to Energy Services**		**Social**: As this service takes greater volume of residual waste over time similar impacts to those outlined for residual waste services are expected. **Economic**: As this service takes greater volume of residual waste over time similar impacts to those outlined for residual waste services are expected. Removal of the power generation from waste to energy services may place stress on the wider energy grid. **Environmental/Human Health**: As this service takes greater volume of residual waste over time similar impacts to those outlined for residual waste services are expected. **Security**: As this service takes greater volume of residual waste over time similar impacts to those outlined for residual waste services are expected.
5	**E-Waste Services**	• E-Waste Services (General) • E-Waste Services (Batteries)	**Social**: As E-waste is banned from disposal to landfill, e-waste services are the only legal disposal outlet for a broad range of commonly used consumer products, lack of services may result in significant community and consumer concern. Whilst many consumer e-waste products may be stored safely for a period of time, this may result in an increase of illegal disposal of e-waste products including fly tipping in public spaces which may result in public safety and amenity issues. May result in the unsafe storage of compromised e-waste materials which may present a safety risk. **Economic**: Impacts to a broad range of businesses and industries who rely on safe and timely disposal of e-waste as part of their operations. Time to operational impacts would vary due to onsite storage capacity however during an extended outage impacts to the operation of a broad range of industries would be expected. This could include impacts to a range of essential services and critical infrastructure. Impacts to businesses and industries involved in waste stewardship schemes, and those providing facilities for public aggregation of e-waste for disposal.

			Environmental/Human Health: Inappropriate storage, handling and disposal of e-waste especially batteries may result in increased fires (including an increase in fires during the transportation of waste and at landfills and material recovery facilities) which may result in pollution, generation of additional complex wastes and responder and public safety impacts. Inappropriate handling of e-waste may result in acute or chronic health impacts associated with exposure to heavy metals and other hazardous materials and may result in contamination of land and groundwater. May result in increased illegal dumping. **Security**: E-waste containing secure information (personal and corporate) may not be appropriately disposed of, presenting an increased information security risk.
6	**Long term waste containment services**		**Social**: There may be increased community concern should an operational long term containment service experience an extended disruption, hinderance or failure especially with regards to potential risks regarding abandonment of wastes and/or maintenance of containment. **Economic**: There may be specific impacts on parts of the economy reliant on the long term containment service resulting in secondary impacts to other sectors. **Environmental/Human Health**: If there was extended disruption to long term waste containment services, this may result in decreased containment and maintenance standards resulting in increased human health and environmental risks. **Security**: If there was extended disruption to long term waste containment services, this may result in increased security risks dependant on the nature of the wastes contained. *Note: This type of service is not currently operational in Victoria.*
7	**Construction and Demolition Waste Services**		**Social**: Impacts may be broadly felt across society including direct impacts to those involved in the construction and demolition sector. May result in delays to a range of projects including the building and renovation of houses (which has a direct impact on individuals), as well as a range of other projects. **Economic**: May result in significant economic impacts to the construction and demolition sector, including major project delays. May impact the maintenance of key state and local infrastructure including transport networks. Downstream impacts to entities utilising resources recovered from C&D wastes. Significant short and long term impacts to the overall circular economy. Potential for significant government costs associated with consequential impacts to the construction sector, delays to government infrastructure projects and in managing illegal waste disposal.

			Environmental/Human Health: High likelihood of an increase in illegally disposed waste. **Security**: May result in an increase in civil disorder.
8	**Metal Recycling Services**		**Social**: May cause direct social impacts to highly vulnerable communities and individuals who rely on direct metal recycling as an income source. **Economic**: May result in direct impacts to industries that generate large volumes of scrap metals. May also impact a range of industries who rely on recycled metals as a key manufacturing input. **Environmental/Human Health**: Large stockpiles of scrap metals present a high fire risk. Scrap metal is often bulky and oversized so would also present significant challenges for safe storage or management in the absence of metal recycling services. A range of other contaminants often mixed with scrap metal (such as plastics, oils, batteries) also present an increased pollution and contamination risk. **Security**: Unprocessed scrap metals may be targeted by criminals for resale at a later date.
9	**Municipal Resource Recovery Centres and Transfer Station Services**		**Social**: Significant community expectations regarding the delivery and continuity of the service, may result in high levels of community concern. Key community facility providing direct access to a wide range of waste, resource recovery and recycling services. Inability to access likely to gave greater impacts on certain vulnerable communities including those in rural and remote areas. **Economic**: May impact a range of small to medium businesses (especially in rural areas) who utilise the facilities. Likely to result in financial impact to local government. Likely to result in increased clean up associated with fly tipping and illegal waste disposal. Infrastructure is key in the supply chain to aggregate, separate and dispatch waste streams. **Environmental/Human Health**: Likely to result in increased illegal waste disposal. May result in certain hard to dispose waste streams (such as chemicals, paints, batteries) being inappropriately stored in domestic and/or other environments potentially creating a potential safety hazard.
10	**Comingled Recycling Services**		**Social**: Significant community expectations regarding the delivery and continuity of the service, may result in high levels of community concern. May impact overall community confidence in the circular economy. **Economic**: May result in impacts to downstream users of recycled materials. May result in significant costs to government including local government. May result in significant impacts to the overall circular economy.

			Environmental/Human Health: May result in a significant increase in waste disposal to landfill, which may impact landfill capacity and air space. May result in direct environmental issues associated with collected but unprocessed materials (due to contamination) including increased fire risks and pollution risks including leachate, litter and odour. May result in an increase in illegal dumping.
11	**Organics Services**		**Social**: Significant community expectations regarding the delivery and continuity of the service, may result in high levels of community concern. May impact overall community confidence in the circular economy. **Economic**: May result in significant impacts to upstream producers of large volumes of organic waste including the food manufacturing and meat processing sectors. May result in significant impacts to downstream users of products derived from organic wastes. May harm to other industries that rely on organic material as a manufacturing input. May result in significant impacts to the compost and other organic waste derived product market. May result in significant costs to government including local government. May result in significant impacts to the overall circular economy. **Environmental/Human Health**: May result in a significant increase in waste disposal to landfill, which may impact landfill capacity and air space and also increase landfill gas production. May result in direct environmental issues associated with collected but unprocessed materials including increased fire risks and pollution risks including leachate, vermin and odour. May result in an increase in illegal dumping.
12	**Public Waste Services**		**Social**: Excessive waste in public open space severely impacts the amenity of areas and community perceptions around safety and civil order. It also impacts access and functioning of a range of critical services including those associated with emergency response and hospitals and may have significant impacts on vulnerable populations including those with disabilities. The absence of public waste services may impact on the operation of areas of cultural significance, such as parks and gardens. **Economic**: If patronage to public spaces decreases due to waste accumulation this will have flow on economic impacts to hospitality and tourism industries. Likely to lead to increased illegal dumping requiring government clean up. **Environment/human health**: Poor sanitation in public spaces may lead to increased vermin and a range of vectors for different pathogens and diseases. Increased litter loading to waterways. Relating to street sweeping and removal of road kill- increase vehicular accidents, potential increase in localised flooding due to blocked stormwater systems. **Security**: May lead to increased civil disorder.

13	**Secure Waste Destruction Services**		**Social**: May have direct security implications of vulnerable individuals if certain secure wastes (including personal and medical records) can not be safely and securely disposed of in a timely manner. **Economic**: May result in economic impacts to government and private sector. May result in significant economic cost to government. **Environmental/Human Health**: If certain products requiring secure destruction could not be safely and securely disposed of, they may present an environmental and human health risk if stockpiled awaiting destruction. **Security**: Wastes awaiting secure destruction (including documents and products) may present an increased security risk associated with increased potential for inappropriate access to personal information, commercial and trade secrets and or other confidential information.
14	**Glass Recycling Services**		**Social**: Increasing community expectations with regards to continuity of service delivery. This will continue to grow as kerbside glass recycling is rolled out across the state. **Economic**: Impacts to generators of large volumes of glass. Likely to result in downstream impacts to entities utilising recycled glass products. May result in significant costs to government including local government. May result in significant impacts to the overall circular economy. **Environmental/Human Health**: May result in a significant increase in waste disposal to landfill, which may impact landfill capacity and air space. May result in direct environmental issues associated with collected but unprocessed materials including increased fire risks and pollution risks including leachate, vermin and odour. May result in an increase in illegal dumping. May result in lower quality comingled recycling (if services are not concurrently impacted).
15	**Container Deposit Scheme Services**		**Social**: Significant community expectations regarding the delivery and continuity of the service, may result in high levels of community concern. May impact overall community confidence in the circular economy. May cause direct social impacts to highly vulnerable communities and individuals who rely on collecting containers as an income source. **Economic**: Impacts to generators of large volumes of glass. Likely to result in downstream impacts to entities utilising recycled glass products. May result in significant costs to government. May result in significant impacts to the overall circular economy. **Environmental/Human Health**: May result in a significant increase in waste disposal to landfill, which may impact landfill capacity and air space. May result in direct

			environmental issues associated with collected but unprocessed materials including increased fire risks and pollution risks including leachate, vermin and odour. May result in an increase in illegal dumping. May result in lower quality comingled recycling (if services are not concurrently impacted). *Note: The Victorian container deposit scheme is due to commence in Victoria in November 2023.*