



# PARLIAMENT OF VICTORIA

## LEGISLATIVE COUNCIL

### Environment and Planning Committee

# Inquiry into recycling and waste management

## final report

Parliament of Victoria  
Legislative Council Environment and Planning Committee

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# About the Committee

## Functions

The Environment and Planning Committee (Legislation and References) is established under the Legislative Council Standing Orders Chapter 23 – Council Committees and Sessional Orders.

The committee's functions are to inquire into and report on any proposal, matter or thing concerned with the arts, environment and planning the use, development and protection of land.

The Environment and Planning Committee (References) may inquire into, hold public hearings, consider and report on other matters that are relevant to its functions.

The Environment and Planning Committee (Legislation) may inquire into, hold public hearings, consider and report on any Bills or draft Bills referred by the Legislative Council, annual reports, estimates of expenditure or other documents laid before the Legislative Council in accordance with an Act, provided these are relevant to its functions.

Government Departments allocated for oversight:

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# Terms of reference

## Inquiry into recycling and waste management

That this House requires the Environment and Planning Committee to inquire into, consider and provide an urgent interim report, as the Committee deems necessary, on the current circumstances in municipal and industrial recycling and waste management, and provide a final report, by Tuesday, 13 August 2019, on the crisis in Victoria's recycling and waste management system, partly resulting from the China waste importation ban, including, but not limited to—

1. the responsibility of the Victorian Government to establish and maintain a coherent, efficient and environmentally responsible approach to solid waste management across the state, including assistance to local councils;
2. whether the China's National Sword Policy was anticipated and responded to properly;
3. identifying short and long-term solutions to the recycling and waste management system crisis, taking into account—
  - a. the need to avoid dangerous stockpiling and ensure recyclable waste is actually being recycled;
  - b. the cleaning and sorting capabilities and the processing capabilities in Victoria and the potential to expand the local recycling industry;
  - c. how to better enable the use of recycled materials in local manufacturing;
  - d. the existing business model and economic challenges facing the existing industry;
  - e. the quantifiable benefits, including job creation and greenhouse gas emissions reduction, of pursuing elements of a circular economy in Victoria;
  - f. the existing Sustainability Fund and how it can be used to fund solutions to the waste crisis;
4. strategies to reduce waste generation and better manage all waste such as soft plastics, compostable paper and pulp, and commercial waste, including, but not limited to—
  - a. product stewardship;
  - b. container deposit schemes;
  - c. banning single use plastics;
  - d. government procurement policies;

## Terms of reference

5. relevant reviews, inquiries and reports into the waste and recycling industry in other Australian jurisdictions and internationally;
6. any other related matters.

\* The reporting date for this inquiry was extended from 13 August 2019 to 29 November 2019. The interim report was due on 29 August 2019.

# Chair's foreword

This has been a very complex and important inquiry. As can be seen from the more than 700 submissions, the issue of recycling and waste management is one that matters to Victorians.

During the course of the inquiry, the Committee has held 14 days of public hearings and heard evidence from 135 witnesses in addition to the submissions and has had input from the recycling and waste management industry, state and local government agencies and authorities, environmental groups and industry bodies, as well as individual community members and community groups. The Committee has been extremely grateful to all of those individuals and groups who have made a contribution to the inquiry through their submissions and evidence.

The Committee addressed the terms of reference in two parts: the first being the issue of the devastating industrial fires that have taken place over the last few years as a result of the illegal or inappropriate stockpiling of dangerous chemicals. In order to address the urgent issue of the management of such stockpiles, the Committee prepared and tabled an interim report in August which identified some of the key issues that needed to be addressed. As the interim report was tabled prior to the conclusion of the inquiry and therefore there was significant evidence still to be taken, the Committee decided not to make recommendations at that point. This issue is addressed in Chapter 1 of this report but the detailed discussion of the issue of the fires is found in the interim report.

The focus of the rest of this inquiry is of recycling and waste management in Victoria, particularly in the wake of changes to the export markets and the impact these changes have had on participants in the Victorian industry and on the Victorian community.

The Committee has provided an overview of the Victorian recycling and waste management system, including some description of the cause and effect of what has become known as the recycling crisis. There is significant discussion about municipal waste, some of the issues of contamination and their impact on recycling, the impact and future of landfills in Victoria, and a range of other issues that have been raised in submissions and in public hearings. These issues include the introduction of a container deposit scheme, the development of waste to energy as a way of divert waste from landfill, the importance of education of the community in how to properly manage their recycling and waste, the development of a circular economy and product stewardship among other things. The committee also considers the overarching structures of government, and whether changes are needed to better oversee the recycling and waste management system in Victoria.

The Committee has made 46 recommendations on a range of issues. It looks forward to receiving the government's response to these recommendations.

The state government should be commended for the actions taken since the recycling crisis became apparent, both in terms of the financial assistance it has provided to local councils and industry players, and in the support it provided to SKM and the role it played in facilitating the sale of the company. These actions will assist the industry in Victoria to set new directions for the industry. We are seeing the recycling rate in Victoria, already the highest percentage in Australia, improve to 69 per cent.

The Committee has also been looking forward to the Infrastructure Victoria evidence-based review of the recycling and waste management industry in Victoria, which is due in April 2020. It is hoped that this review will provide the basis of strategies and policy settings that will lead to a stronger and more dynamic industry and will help the industry grow and prosper. That can only serve the Victorian community well.

I believe that this report will make a significant contribution to the development of better recycling and waste management practices in Victoria, and I commend both the report and its recommendations to the community and to the government.

I would like to thank my fellow Committee members, who come from a range of political parties and philosophical positions, for the professional and collegiate way they have approached this inquiry from the outset. While there may have been disagreements about some of the ways of achieving positive outcomes, the Committee members have acted at all times with a view to achieving the best possible outcomes for the Victorian community. The number of hearings, as well as the large number of quite detailed submissions, has required members to put in substantial effort and set aside a lot of time for the inquiry. Members have done this willingly and have made a significant contribution through their work on this inquiry to an improved recycling and waste management future.

I would also like to thank the staff of the Committee, in particular Committee Manager Michael Baker, Inquiry Officer Kieran Crowe and Research Assistant Alice Petrie. These staff have worked long hours and have assisted the Committee by managing a significant amount of data and a large number of public hearings, and the inquiry and final report would not be of the high standard that it is without their skill and dedication. On behalf of the Committee, I sincerely thank them for their efforts. I would also like to thank the Committee's Administrative Officer Justine Donohue and the rest of the Committee secretariat for the administrative work that has been done to a high standard throughout the inquiry.



**Cesar Melhem MP**  
**Chair**

# Findings and recommendations

## 1 Introduction

**RECOMMENDATION 1:** The Committee recommends that following a major incident where community members may be exposed to toxic smoke or other hazardous residues, the Department of Health and Human Services undertake public health testing in the affected suburbs and surrounding areas as required to ensure that there are no health impacts on local residents. Generalised results from these tests should be communicated to the community.

7

**RECOMMENDATION 2:** The Committee recommends that the Victorian Government run a publicity campaign to encourage metropolitan residents to download the VicEmergency app to supplement other communication methods. Information provided around incidents such as the Coolaroo, West Footscray and Campbellfield fires should include any specific health risks and details of where further information can be obtained.

8

**RECOMMENDATION 3:** That manifests be not only kept onsite, but it be mandatory that the businesses notify the EPA and all other authorities the exact details and quantities of all chemicals on site. This manifest should be online and available immediately to emergency services on multiple devices.

9

**FINDING 1:** The Committee is concerned that there is too much stockpiling of industrial and chemical waste and that it is being stored for too long and that this increases the risks to the community.

9

**FINDING 2:** The Committee considers that there is inadequate market capacity to process the stockpiled materials.

10

**RECOMMENDATION 4:** The Committee recommends that the suspension of licences for the storage of industrial and chemical waste be imposed immediately to ensure that companies are required to bring their storage volumes within the terms of their licences before they are allowed to continue to trade and that penalties for non-compliance are imposed at the time of the suspension.

10

**RECOMMENDATION 5:** The Government should facilitate the development of a more extensive market for stockpiled hazardous material.

10

## 2 Victorian Overview

**FINDING 3:** Victoria has the lowest landfill levy rate of all mainland states and this is acting as an incentive for waste to be transported to Victoria from states with a higher rate. 28

**FINDING 4:** A national approach to the setting of levies would assist in reducing the substantial variations in state levies and would thereby remove the financial incentives for transporting waste materials between jurisdictions. 28

**RECOMMENDATION 6:** That the landfill levy in Victoria be adjusted to the extent that the financial incentive to transport waste materials from other jurisdictions, as well as the incentive to send material to landfill, is removed. The Victorian Government should work with the Commonwealth Government and relevant stakeholders including local government to harmonise the landfill levy nationally. 29

**FINDING 5:** The Committee considers that the Sustainability Fund has not been as accessible as it should have been, particularly for local councils, at a time when recycling and waste management costs were significantly increased. 34

**RECOMMENDATION 7:** That the Victorian Government make clear through detailed guidelines about what the Sustainability Fund is for, who is able to access the Fund, how they access it and how are the Fund's outcomes measured. 34

**RECOMMENDATION 8:** In light of the concerns raised by councils about the accessibility of the Sustainability Fund, the Committee recommends, in line with the Auditor-General's recommendations, that the Sustainability Fund be audited to ensure that the Fund is accessible and demonstrates which programs have achieved against their specified legislative objectives and been allocated accordingly. 34

**RECOMMENDATION 9:** That a review of the sector and governance arrangements be undertaken to ensure that there are clear roles, responsibilities and accountabilities for various organisations within the waste management and recycling sector. 42

**FINDING 6:** There was limited recognition of the vulnerability of the Australian recycling industry prior to China's National Sword policy change and all levels of government, as well as the industry, were ill-prepared for the impacts of the policy. 49

**FINDING 7:** There was a significant over-reliance on one company to provide recycling services, which utilised a business model that relied on export to overseas markets for processing Victoria’s recycling material. This exposed Victoria to sudden market fluctuations and changes. 51

**FINDING 8:** The Victorian Government failed to undertake sufficient oversight of the recycling and waste management system in Victoria. 51

**FINDING 9:** A number of councils have been forced to send recycling to landfill as a result of the loss of recycling facilities. This has led to a loss of community trust in the councils and the recycling industry. There is also a significant financial cost. 53

**RECOMMENDATION 10:** The Victorian Government should establish clear guidelines under an environmental planning framework to ensure policy certainty to address the issues that councils are experiencing. 54

**FINDING 10:** The collapse of the recycling market following the implementation of China’s National Sword Policy and the consequent demise of SKM Recycling has significantly increased the costs of providing recycling services for a number of councils. These costs have had to be borne by the state government and the councils themselves. 57

**FINDING 11:** The Committee acknowledges that the impact of exporting contaminated waste products is felt by not only the local industry and the Victorian community, but also by the communities in other countries which are left with the problems associated with waste, and particularly plastic waste. 58

### 3 Municipal waste

**FINDING 12:** It is important to reduce contamination in municipal recycling so that it can meet better quality standards and become a more marketable product. 62

**FINDING 13:** Reduction of contamination in municipal recycling is a top priority for Victoria’s waste and resource recovery system. One of the key ways to reduce contamination is through a reduction of glass in co-mingled recycling bins. 63

**FINDING 14:** Glass is a key contaminant in co-mingled municipal recycling bins that may break and contaminate other recyclable materials. This affects the capacity for other co-mingled municipal materials to be recycled. 65

**RECOMMENDATION 11:** That the Victorian Government provide funding and support for all Victorian councils statewide to introduce a separate bin for municipal glass recycling. The Victorian Government should also conduct a study of the costs and benefits associated with the introduction of a separate municipal glass recycling bin, and these should be disclosed. 69

**RECOMMENDATION 12:** That the Victorian Government work in partnership with local councils to develop a standardised statewide system, appropriate to local needs, of food organics and garden organics services towards a goal zero of food organics and garden organics going to landfill. 74

**RECOMMENDATION 13:** That given that compost and soil conditioner made from food organics and garden organics may be used for agricultural purposes, in the interests of food safety, guidelines for its use should be clear and standards need to be published and enforced. Prior to the statewide rollout of the use of compost from food organics and garden organics for agricultural use, the Department of Health and Human Services should investigate relevant health risks. 77

**FINDING 15:** That a statewide education campaign would be beneficial for reducing contamination in municipal recycling and increasing recycling overall. 83

**FINDING 16:** That a statewide recycling education campaign will not be as effective without a statewide standardisation of municipal recycling practices and capabilities. 84

**RECOMMENDATION 14:** That the Victorian Government provide additional funding to its statewide recycling education campaign to achieve additional public take up of municipal recycling and ensure correct recycling practice. 86

**RECOMMENDATION 15:** That the Victorian Government ensure the statewide recycling education campaign is ongoing. Such a campaign should be similar to continuing public education campaigns such as those by the Transport Accident Commission and WorkSafe, which have achieved widespread public acceptance and influenced behavioural change. 86

**RECOMMENDATION 16:** That any statewide municipal recycling education campaign emphasises the importance of waste avoidance. 87

**RECOMMENDATION 17:** That the Victorian Government introduce a minimum statewide standard of municipal recycling capability across Victoria's local government areas to facilitate a statewide recycling education program that includes information about correct recycling practices. 88

**FINDING 17:** The promotion of uniform recycling practices across the state is essential for the successful implementation of a statewide education campaign. 88

**RECOMMENDATION 18:** That the Victorian Government provide funding to ensure all local councils are compliant with the Standards Australia policy on bin lid colours within 12 months. 91

**RECOMMENDATION 19:** That the Victorian Government implement a requirement for a third party auditor for Victorian waste and resource companies to ensure verification of resource recovery rates. 93

**FINDING 18:** The Committee finds that there is a strong case for the declaration of waste and resource recovery services an essential service under the *Essential Services Commission Act 2001*. 96

**RECOMMENDATION 20:** That the Government, when considering the advice from the Essential Services Commission about the applicability of waste and resource recovery as an essential service, take into account the Committee's view that it should be made an essential service. 96

**FINDING 19:** That any proposed container deposit scheme should include widely accessible collection points, including in regional Victoria, for example in supermarkets and at petrol stations. 101

**FINDING 20:** That container deposit schemes in other jurisdictions have substantially contributed to litter reduction. 101

**RECOMMENDATION 21:** That the Victorian Government consider the introduction of a container deposit scheme to supplement improved municipal kerbside recycling services, including conducting a cost-benefit analysis and consideration of impacts on consumers and the environment. 106

**FINDING 21:** The Committee is concerned about the lack of capacity in Victoria to adequately recycle or dispose of solar PV systems and supports the Government’s efforts to establish a product stewardship scheme for solar PV. 109

**RECOMMENDATION 22:** That the Victorian Government monitor disposal rates of solar PV systems and support the establishment of domestic solar PV system recyclers, and advocate for a product stewardship scheme. 109

**RECOMMENDATION 23:** That further work be undertaken by the Department of Environment, Land, Water and Planning to improve the capacity for multi-unit developments to collect, sort and recycle household waste, including, but not limited to, improvements in the planning process to facilitate this. 111

## 4 Waste avoidance

**FINDING 22:** Reducing consumption of single use plastics will require a multi-faceted response across the waste and resource recovery sector. This should be taken into consideration in the Victorian Government’s plastic pollution reduction plan. 122

**RECOMMENDATION 24:** That the Victorian Government require major supermarkets to reduce their use of single use plastics as a strategy for extending the shelf life of fresh fruit and vegetables, and to publicly report on these measures. Such arrangements may include, but not be limited to, consumers bringing their own containers to stores to purchase deli products and/or the reintroduction of washable and reusable milk bottles. 122

**FINDING 23:** The Commonwealth Government’s ongoing review of the *Product Stewardship Act 2011* (Cth) provides an important opportunity to ensure that the regime is strengthened so that manufacturers are responsible for their products throughout their full life cycle. 127

**RECOMMENDATION 25:** That the Victorian Government advocate to the Commonwealth Government for an enhanced national product stewardship scheme incorporating additional material streams, and establish defined pathways for durable goods. 127

**FINDING 24:** Built-in product obsolescence exacerbates existing strains on the waste and resource recovery sector and obstructs the principles of waste avoidance and a circular economy. 128

**RECOMMENDATION 26:** That the Victorian Government work with the Commonwealth Government to consider the introduction of extended warranty requirements for products in order to promote principles of repair and reuse rather than use and disposal. 128

**FINDING 25:** The Committee recognises the work and successes of repair cafes and supports the introduction of further initiatives across the state that extend the life of products. 128

**FINDING 26:** The Committee supports the 2025 National Packaging Targets. 130

**RECOMMENDATION 27:** That the Victorian Government works with the Commonwealth Government to make the Australian Packaging Covenant a mandatory product stewardship scheme. 134

**RECOMMENDATION 28:** That the Victorian Government works with the Commonwealth Government to introduce import requirements for products to contain packaging that is recyclable and/or contains recycled materials. 134

**RECOMMENDATION 29:** That the Victorian Government work with industry to ensure manufacturers can meet their responsibilities in relation to the National Packaging Targets, including the reduction of virgin plastics. 134

**RECOMMENDATION 30:** That the Victorian Government play a key role in clarifying packaging claims to ensure they are not misleading through its statewide education initiatives. 135

**RECOMMENDATION 31:** That the Victorian Government support widespread adoption of the Australasian Recycling Label in Victoria, including provision of assistance to smaller manufacturers to help them adjust. 137

## 5 Waste and resource recovery infrastructure

**FINDING 27:** The Committee recognises the efforts of Sustainability Victoria and the waste and resource recovery groups to encourage investment in more local infrastructure in regional Victoria. 147

**RECOMMENDATION 32:** The Committee recommends the Victorian Government provide further support to develop more regional waste and resource recovery businesses, a reduction of transport costs and local processing of recyclable materials to support regional employment. 147

**FINDING 28:** The Committee believes that Victoria's overall materials recovery facility sorting quality needs to be improved to meet lower contamination thresholds. 149

**FINDING 29:** The state's waste and resource recovery groups have not communicated the information contained in their required waste and resource recovery infrastructure schedules effectively. 152

**RECOMMENDATION 33:** That the state's waste and resource recovery groups should include more detailed information in their required infrastructure schedules and should provide a more detailed analysis of their infrastructure needs. 153

**RECOMMENDATION 34:** That the Victorian Government set a target of zero municipal residual waste being sent to landfill in Victoria by 2030. 156

**RECOMMENDATION 35:** That all building projects be required to lodge a disposal plan for all building waste with a high requirement for minimal waste to landfill. 156

## 6 Energy from waste

**FINDING 30:** The Committee welcomes the Commonwealth Government's interest in energy recovery from waste. 162

**RECOMMENDATION 36:** That the Victorian Government expedite its process of hazardous waste infrastructure planning. 176

**FINDING 31:** A policy statement on energy from waste is critical to provide certainty to investors and local government. **182**

**RECOMMENDATION 37:** That the Victorian Government implement energy from waste technologies in Victoria, in conjunction with a future circular economy policy, as an alternative to landfill for residual waste. **183**

**RECOMMENDATION 38:** That the Victorian Government remain ‘technology agnostic’ when developing a policy statement on energy from waste. A policy statement should further emphasise the use of best practice technologies that minimise any impact on the environment and on public health. **183**

**RECOMMENDATION 39:** That the Victorian Government ensure that energy from waste projects are informed by regional requirements that take into consideration the long-term needs and capacities of local councils. **183**

**RECOMMENDATION 40:** That the Victorian Government develop a strong regulatory framework around environment and public health outcomes for any energy from waste technologies adopted in Victoria, including in relation to monitoring and reporting on air emissions. Further, clarity would need to be provided around hazardous waste disposal of by-products and residues. **183**

## 7 Market development

**FINDING 32:** While the Committee welcomes this investment to create markets, it believes that more needs to be done to monitor the impact of this investment to ensure the sector is expanding and the investment meets its objectives. **187**

**FINDING 33:** The Committee welcomes the involvement of Infrastructure Victoria in the provision of advice for the infrastructure that will be required to develop the state’s reprocessing sector for recycled materials and better enable its use of recycled materials, and awaits its findings. **187**

**RECOMMENDATION 41:** That the Victorian Government work to improve data capture, monitoring and integrity in relation to recycling rates, markets for recyclables and the impacts of market development initiatives. **189**

**RECOMMENDATION 42:** That the Victorian Government set targets for the expansion of the recycling market. **192**

**RECOMMENDATION 43:** That the Victorian Government provide significant investment into research and development of new uses for key recycled materials. **192**

**RECOMMENDATION 44:** That the Victorian Government provide support to manufacturers to streamline the testing and standards development processes for products containing recycled materials, particularly for key products that are likely to see increased demand as a result of government procurement policies. **196**

**RECOMMENDATION 45:** That the Victorian Government introduce recycled content requirements for state and local government procurement and an obligation for agencies to publicly report on compliance with these requirements. **199**

**RECOMMENDATION 46:** That the Victorian Government introduce minimum recycled content requirements for new packaging produced in Victoria. **199**

# Acronyms and terms

APCO	Australian Packaging Covenant Organisation
CDS	Container deposit scheme
DELWP	Department of Environment, Land, Water and Planning
EPA	Environment Protection Authority Victoria
FOGO	Food organics and garden organics
MAV	Municipal Association of Victoria
MFB	Metropolitan Fire Brigade
MILL	Municipal and Industrial Landfill Levy
MRF	Materials recovery facility
NWR	National Waste Report 2018
SWRRIP	Statewide Waste and Resource Recovery Infrastructure Plan
UFU	United Firefighters Union of Australia - Victoria Branch



## 1.1 Conduct of the Inquiry

The Inquiry was referred to the Committee by the Legislative Council on 6 March 2019. This was two weeks before the appointment of the Committee members. The Parliament then went into recess for the next month and therefore there was a slight delay in the commencement of the Inquiry.

### 1.1.1 Advertising

The Committee advertised the Inquiry and called for submissions through its News Alert Service and on Parliament's Facebook page and through other social media channels. It was also advertised on the Parliament of Victoria website.

### 1.1.2 Stakeholder engagement

In addition to the general advertising, more than 100 letters were sent to key stakeholders, including government agencies, local government authorities, participants in the waste and recycling industries and environmental groups to inform them of the Inquiry and to invite them to prepare a submission.

## 1.2 Submissions

The Committee received 701 submissions, after extending the original deadlines for submissions to mid-August.

Submissions were received from individuals, government agencies at both state and local levels, national and international companies involved in the recycling and waste management industries, and national, statewide and local environmental groups.

The Committee published submissions on its website while the Inquiry progressed as they were read and accepted. A large number of submissions seeking confidentiality were received and those that were granted confidentiality were not published.

## 1.3 Public hearings

The public hearings for the Inquiry into recycling and waste management commenced on 3 May 2019 with witnesses appearing from the Department of Environment, Land, Water and Planning (DELWP) and from the Environment Protection Authority Victoria (EPA). On the same day, the Committee heard evidence from the Metropolitan Fire Brigade, the acting Chief Health Officer and Hume City Council. These hearings

1 related to the factory fires that had caused great community concern and that were caused by the illegal or inappropriate storage of chemical waste in various factories. These hearings formed the basis of the Committee's interim report, which was tabled in August. The interim report is discussed in the following section.

At its next set of hearings on 10 May 2019, the Committee continued its examination of issues related to the fires with evidence from WorkSafe Victoria. Further evidence related to the fires was heard from the United Firefighters Union of Australia - Victoria Branch (UFU) at a later hearing date in June. In these hearings, a number of firefighters who had been involved in fighting chemical fires gave evidence about the inherent risks, which are substantially increased by the illegal or inappropriate storage of industrial and chemical waste.

The Committee also heard from Sustainability Victoria, Visy and Australian Paper on broader issues related to recycling and waste management.

Further evidence was heard on 5 June, 24 June and 25 June 2019 on issues related to recycling and waste management generally. In early August, the Committee held a community hearing day where evidence was taken from a number of individuals and community organisations relating to their concerns about the factory fires and the illegal storage of chemical and industrial waste.

Following these hearings in Melbourne, the Committee held a series of regional hearings in August and September—for Eastern Victoria in Morwell, Northern Victoria in Echuca and Western Victoria in Dunkeld. At these hearings, a number of regional councils and other organisations in the regions gave evidence to the Committee about their concerns in relation to recycling and waste management.

Further hearings were held in Melbourne throughout October, where the Committee heard evidence from a number of industry groups and companies involved in recycling and waste management, environmental groups and metropolitan councils.

It was of significant disappointment to the Committee that the major supermarkets, namely Woolworths, Coles and Aldi declined invitations to appear before the Committee to give evidence at public hearings. As a significant part of the discussion around waste relating to plastics, and in particular plastic packaging, the Committee was extremely disappointed that the retail outlets responsible for selling a large proportion of goods packaged in plastic did not see fit to speak to the Committee. The Committee wrote to each of the supermarket chains, expressing its disappointment, and then posing a number of questions. Answers to these questions have informed elements of the Committee's report.

The Committee concluded its public hearings in early November, hearing further evidence from the government agencies and Infrastructure Victoria, who had been undertaking an inquiry of its own into the issue of recycling and waste management.

In all, the Committee held 14 days of hearings in a six-month period, hearing from a total of 135 witnesses. In addition to the submissions and a significant number of reports from other jurisdictions, this represented a substantial body of evidence from which to develop its findings and recommendations.

A full list of witnesses is provided in Appendix 1 to this report. The transcripts of all evidence given to the Committee are available at: <https://www.parliament.vic.gov.au/epc-lc/article/4144>.

The Committee is very grateful to the people and organisations who made themselves available to give evidence at these public hearings. In particular, the community members who provided the Committee with a very personal perspective on the impacts of the fires caused by illegal or inappropriate storage of chemical waste. This evidence went beyond policy settings and statistics and illustrated very strongly the human impact of what can happen when waste storage is mismanaged.

## 1.4 Interim report

A key element of the terms of reference was the requirement that the Committee table an interim report prior to concluding the Inquiry.<sup>1</sup> In this section, the Committee provides a very brief summary of key issues addressed in the interim report and makes some additional comments and some recommendations in relation to issues raised during that phase of the Inquiry.

### 1.4.1 Scope of the interim report

The Committee focussed on three major industrial fires at different locations in Victoria due to the scale of the respective incidents. Those fires were at:

- SKM Recycling's Coolaroo materials recovery facility on 13 July 2017.
- An industrial warehouse illegally storing a large quantity of chemical and industrial waste in West Footscray on 30 August 2018.
- A site owned by Bradbury Industrial Services, which is a chemical waste storage and disposal company, on 5 April 2019.

The Committee noted that there were several key issues that contributed to increased fire risks at these sites, including unfit and insufficient facilities to store and dispose of waste, a lax system of enforcement and monitoring of chemical waste storage, over-stockpiling and a reduction in the market of recycled goods.

The Committee was informed that fires involving undisclosed quantities of unknown chemicals and waste raise concerns surrounding the impacts to health and safety for

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<sup>1</sup> A copy of the interim report can be found at: <[https://www.parliament.vic.gov.au/images/stories/committees/SCEP/Recycling\\_and\\_Waste\\_Mgmt/interim\\_report/LCEPC\\_59-01\\_Text\\_WEB.pdf](https://www.parliament.vic.gov.au/images/stories/committees/SCEP/Recycling_and_Waste_Mgmt/interim_report/LCEPC_59-01_Text_WEB.pdf)>

key stakeholders, community organisations and individuals. In particular, the Committee heard about the health and safety risks firefighters are exposed to when attending fires caused by the non-compliance of a private company or individuals.

Evidence was given to the Committee from government agencies, community organisations and individuals in relation to the distress felt by residents due to health concerns and the lack of communication during and after industrial fires with particular regard to the ongoing health risks and the environmental impacts to surrounding areas.

The Committee noted that there are a number of overlaps in the regulatory framework for Victoria's waste and resource management system and were provided an overview of the framework by WorkSafe. The Committee was advised that there would be new environmental protection legislation to come into effect in 2020 that would broaden protections and penalties for non-compliance.

In particular, the Committee considered issues such as:

- the causes of increased fire risk
- the illegal dumping and storage of chemical waste
- the lack of facilities to dispose of chemical waste
- the over-stockpiling at legal recycling and waste processing facilities, as well as illegal dumping
- the inadequate system of proactive monitoring and enforcement of chemical waste storage by various authorities
- the risks from fires in buildings which were not fit for purpose.<sup>2</sup>

The Committee discussed in detail the risks to firefighters, both at the time of the incidents and in terms of long-term health impacts, having heard evidence from active firefighters that they are exposed to highly toxic smoke and debris produced by the burning of chemicals. The Committee was told in evidence that firefighters who attend these fires reported having suffered from:

- sore eyes, sore sinuses and a severe headache
- sinus infections
- fatigue and severe lack of concentration
- flu-like symptoms
- coughing, sore throat and hoarse voice
- lung irritation

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<sup>2</sup> Parliament of Victoria, Legislative Council Environment and Planning Committee, *Inquiry into recycling and waste management, interim report*, August 2019.

- blood nose.
- fatigue and exhaustion
- memory loss.<sup>3</sup>

In addition to firefighters, the Committee heard evidence that the community at large was also distressed and at risk from the fires and that there was inadequate information provided to the community during and immediately after the incidents. While the Committee was advised by the EPA and other government agencies that the smoke and chemical run-off did not cause immediate and large-scale public health concerns, hearings involving community members told a different story.

The Committee heard evidence indicating that individual community members experienced nausea and dizziness from fumes as a result of the fires, and families were forced to leave their homes during the period directly after the fires.<sup>4</sup>

A witness during the hearings told the Committee that she suffered nosebleeds after being exposed to Stony Creek, soon after the fires, while taking photographs of the effects of the fire.<sup>5</sup>

In addition to any physical effects, however, one of the major impacts of the fires was the distress caused to the community by both the fact of the fires and their causes, and the perceived poor communication from government agencies which left community members unsure of risk levels to their health and the environmental impact on the Creek, both short and long-term.<sup>6</sup>

In the interim report the Committee decided not to make any recommendations. This was simply because the Inquiry was less than halfway through and the Committee did not consider it appropriate to make recommendations when it had a significant amount of further evidence to hear.

The Committee did make a number of findings in the interim report, which were:

**INTERIM REPORT FINDING 1:** Emergency services personnel have been put at serious risk as a result of regulatory non-compliance by private companies and individuals.

It was strongly argued by the UFU in its submission to this Inquiry that it is not acceptable that current illegal stockpiling and transporting of toxic chemicals allows firefighters to be exposed to unnecessary, additional risk on top of what is already an inherently dangerous job.<sup>7</sup>

<sup>3</sup> Ibid., p. 17.

<sup>4</sup> Ibid., p. 22.

<sup>5</sup> Ibid., p. 23.

<sup>6</sup> Ibid., p. 24.

<sup>7</sup> United Firefighters Union, *Submission 408*, p. 7.

The union called for significant penalties against companies, their directors and persons associated with the company who engage in illegal activity that leads to firefighters being put at risk.

In the interim report, the Committee agreed that the putting at risk of firefighters and other emergency services workers was unacceptable. It did note, however, that recent changes to the *Environment Protection Act 1970* ('Environment Protection Act') have led to substantial increases in penalties for the breaching of responsibilities around managing industrial waste. These penalties include fines of up to \$322,000 for individuals and \$1.6 million for corporations. In instances where an individual commits a second breach within a five-year period of having been convicted of a previous offence, a fine of up to \$644,000 and also up to two years' imprisonment is now in place. Repeat offences by body corporates can lead to maximum penalties of up to \$3.2 million.<sup>8</sup>

The Committee fully supports the increases in penalties for breaches which place emergency services workers at risk. The Committee makes no recommendation on this issue as it considers the increased penalties already in place are appropriate. However, it is important that inspections and compliance monitoring is maintained to a level that ensures increased penalties are applied and are effective.

The Committee received evidence that even when remediation notices are issued, particularly under the *Building Act 1993* ('Building Act'), they are often not complied with.<sup>9</sup> Remediation notices are administered by local councils and the Act provides limited enforcement powers other than prosecution.

It is essential that the new penalties are used where appropriate to ensure that the industry takes seriously its obligations in maintaining safe and appropriate stockpiles of industrial and chemical waste. It should be noted that the *Dangerous Goods Amendment (Penalty Reforms) Bill 2019* passed its Third Reading in the Legislative Council on 31 October 2019. This Bill substantially increases penalties for a number of offences regarding the possession, control or disposal of dangerous goods and brings the penalty in line with the equivalent provisions under the Occupational Health and Safety Act 2004.<sup>10</sup>

**INTERIM REPORT FINDING 2:** While the information provided by the EPA and other agencies suggests that for the most part, air and waterway quality did not exceed human health guidelines, the Committee is concerned that some community members have reported adverse health impacts as a result of the fires.

<sup>8</sup> Parliament of Victoria, Legislative Council Environment and Planning Committee, *Inquiry into recycling and waste management, interim report*, p. 33.

<sup>9</sup> Stephen Munro, Member, United Firefighters Union, Public hearing, Melbourne, 25 June 2019, *Transcript of evidence*, p. 2.

<sup>10</sup> Dangerous Goods Amendment (Penalty Reform) Bill 2019 (Vic).

The Committee held a day of community hearings, where individuals and community groups that were affected by the fires were able to come and give evidence and tell their stories. The stories were confronting and did not necessarily support the view put by government agencies that there were no health impacts of the fires. While not dismissing the potential health impacts of sensitive people within the community, the acting Chief Health Officer told the Committee in hearings that her office had not received any health complaints following the fires and the measurements were below those that would spark health warnings. Therefore, they would not usually go and specifically investigate health impacts.

In the Committee's view, significant events such as the Coolaroo, West Footscray and Campbellfield fires warrant more detailed investigation than simply the testing of air and water quality during and immediately after the fire.

A health screening of residents, even on a voluntary participation basis, could ensure that the health of community members is not directly impacted by an incident. It would also provide the community with some assurance that they and their families were safe.

**RECOMMENDATION 1:** The Committee recommends that following a major incident where community members may be exposed to toxic smoke or other hazardous residues, the Department of Health and Human Services undertake public health testing in the affected suburbs and surrounding areas as required to ensure that there are no health impacts on local residents. Generalised results from these tests should be communicated to the community.

**INTERIM REPORT FINDING 3:** The Committee notes that while there are structures in place to ensure communication to the public during emergency responses, it is apparent there is not strong awareness about these communication channels in metropolitan areas.

It was a key issue in the interim report that the community felt there had been poor communication from government agencies about the incidents and the potential impacts. As one of the witnesses from a community group, the Anti-Toxic Waste Alliance, told the Committee, trauma tends to be deepened if you are not being well informed.<sup>11</sup>

The Committee notes that in the case of regional and rural residents, particularly in areas prone to bushfires, there is a strong reliance on the VicEmergency smartphone app, which provides details of events and incidents and allows residents to stay well informed about both the immediate threat and what mitigation activities are being undertaken, including details about meetings and access to further information.

<sup>11</sup> Parliament of Victoria, Legislative Council Environment and Planning Committee, *Inquiry into recycling and waste management, interim report*, p. 24.

In the city, as bushfires and other natural disasters are much less of a threat, there is a tendency for people not to have the app on their phone and therefore their access to information is limited.

The Committee considers there is an opportunity for the government agencies responsible for managing incidents such as the factory fires discussed in the interim report to promote and utilise the VicEmergency app. Incidents such as the Campbellfield fire were described and information provided on the app at the time. However, such a resource is of limited value if nobody in the area is using it.

In the final hearing of the inquiry, Dr Cathy Wilkinson of the EPA told the Committee in acknowledging the need for the VicEmergency app to have the same visibility in metropolitan populations, that the EPA had been working very closely with emergency Management Victoria fire agencies to raise awareness.<sup>12</sup>

She also told the Committee that the EPA's website about air quality, AirWatch, had now been enabled for mobile phones and was now live, improving the accessibility of information to the community. She said:

That was prepared with input from community as to what it should look like to meet their needs and so on, and the EMV website will link to this during an emergency and vice versa.<sup>13</sup>

**RECOMMENDATION 2:** The Committee recommends that the Victorian Government run a publicity campaign to encourage metropolitan residents to download the VicEmergency app to supplement other communication methods. Information provided around incidents such as the Coolaroo, West Footscray and Campbellfield fires should include any specific health risks and details of where further information can be obtained.

**INTERIM REPORT FINDING 4:** The Committee also finds that there was inadequate communication from the relevant agencies to the community about public health risks during and after the emergency.

This finding is largely addressed in recommendations one and two and no further recommendation is required.

**INTERIM REPORT FINDING 5:** The Committee is concerned that there may have been inadequate investigatory, compliance and enforcement responses to reported pollution events, particularly in metropolitan waterways, in recent years.

<sup>12</sup> Dr Cathy Wilkinson, CEO, Environment Protection Authority, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 14.

<sup>13</sup> Ibid.

While the finding in the interim report related to waterways, the issue of inadequate investigation and enforcement was of significant concern around all areas of the management of chemical industrial waste. It has been a criticism of government responses to the risks posed by chemical fires that investigation and enforcement has been inconsistent over a number of years. Both the EPA and local government have responsibilities in compliance monitoring, but both appear to have been under resourced or limited in their approaches, depending under which legislative authority they are acting.

One of the key issues is that even when a breach has been identified and there is a dangerous stockpiling of industrial chemicals, there can be a significant time lag between the time that a company has its licence suspended and the time when the mitigation actions are required. The EPA told the Committee in the earlier hearings that there was typically a two-week period to allow for due process before a suspension occurred and that the suspension of a licence did not involve a company ceasing to operate, but simply to take possession of no further chemicals until it had come back within the terms of its licence. In the public hearings early in the Inquiry, the EPA advised the Committee that they considered the suspension of licences to be a very strong regulatory tool because it effectively means that a company cannot accept any more material until it comes into compliance.

Whether this is indeed a strong regulatory tool is somewhat questionable. It certainly did not lead to a positive outcome in the case of the Bradbury fire at Campbellfield where, despite inspections following the suspension of the licence, the fire still took place within days of the suspension.

In relation to communication data available to emergency services, databases of information already exist that list chemicals on sites, but this information is not at hand when fire services attend an emergency. The Committee considers that it is unacceptable that emergency services personnel are attending major incidents without knowing what materials they are dealing with.

**RECOMMENDATION 3:** That manifests be not only kept onsite, but it be mandatory that the businesses notify the EPA and all other authorities the exact details and quantities of all chemicals on site. This manifest should be online and available immediately to emergency services on multiple devices.

In the view of the Committee, a more urgent requirement should accompany a suspension that companies should be required to stop trading and immediately reduce the volumes to bring them within the terms of the licence. Penalties for non-compliance should be imposed from the time of the suspension.

**FINDING 1:** The Committee is concerned that there is too much stockpiling of industrial and chemical waste and that it is being stored for too long and that this increases the risks to the community.

**FINDING 2:** The Committee considers that there is inadequate market capacity to process the stockpiled materials.

**RECOMMENDATION 4:** The Committee recommends that the suspension of licences for the storage of industrial and chemical waste be imposed immediately to ensure that companies are required to bring their storage volumes within the terms of their licences before they are allowed to continue to trade and that penalties for non-compliance are imposed at the time of the suspension.

**RECOMMENDATION 5:** The Government should facilitate the development of a more extensive market for stockpiled hazardous material.

**INTERIM REPORT FINDING 6:** There is regulatory overlap and a lack of a coordinated approach to fire safety regulation in the waste and resource recovery industry. The Committee looks forward to the outcome of the review of the regulatory framework governing fire risks at sites storing combustible recyclable and waste materials, including making significant recommendations and changes to the regulation, oversight and coordination of the response to fire risk at these sites.

The Committee was advised during the earlier hearings related to the fires in factories in Melbourne suburbs, that there was a division of labour between government agencies in relation to monitoring and managing the risks of these incidents. Specifically, the EPA is the regulator of pollution and waste; WorkSafe has an occupational health and safety role as well as a role under dangerous goods legislation; the fire agencies, and in particular, the MFB have a role in fire protection; Emergency Management Victoria is also involved in coordination of the emergency response and, on top of that, local governments have a role to play in the approval and monitoring of premises and facilities under the Building Act.

The complicated nature of the oversight responsibilities of the agencies is further reflected in the regulatory framework for the waste and resource recovery sector. The legal framework involves the Environment Protection Act administered by the EPA, the *Dangerous Goods Act 1985* administered by WorkSafe, along with the *Occupational Health and Safety Act 2004* which is also administered by WorkSafe. The Building Act also has a part to play in regulating the activities of companies storing industrial and chemical waste, and it is this Act that is perhaps most relevant to the firefighters as it includes requirements for essential safety measures such as fire safety sprinklers, fire hydrants, firm and water supplies and emergency exits.

What this leads to can be a disjointed management structure. The Committee noted in the interim report that the Government has established an oversight group which includes representatives from Emergency Management Victoria, WorkSafe, the EPA,

the Department of Justice and Community Safety, the Department of Premier and Cabinet, the Department of Treasury and Finance and the Department of Health and Human Services. This group is going to develop a framework for addressing high-risk waste sites.

In the final public hearing of the Inquiry in November 2019, the EPA provided the Committee with an update on the inspection activities since the last hearing, prior to the preparation of the interim report. Dr Cathy Wilkinson, the Chief Executive Officer of the EPA, told the Committee that a resource recovery facilities audit taskforce has now completed 743 inspections across 186 of the higher risk sites.<sup>14</sup> She said:

They are receiving continual attention. In terms of the illegal chemical waste, WorkSafe has control of I think it is 14 of those sites and has active monitoring programs in place for immediate risk and so on. Again, there is a cross-agency task force doing additional inspections in terms of identifying a risk-based approach to additional matters.<sup>15</sup>

The Committee acknowledges the work being done by the EPA and its task force to inspect the high risk sites and considers it essential that this inspection regime continues to be rigorous, and that action is taken where compliance issues are identified.

The Committee addresses the issue of governance and the overarching structures of government in a later section of the report.

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<sup>14</sup> Ibid., p. 6.

<sup>15</sup> Ibid.



## 2 Victorian Overview

### 2.1 Overview of recycling and waste management in Victoria

According to the Government, the waste and resource recovery industry employs 12,000 people, across 590 businesses, and contributes approximately \$4 billion to the Victorian economy annually.

In its submission to the Inquiry, the Government advised that in the 2016-17 financial year, the industry managed over 12 million tonnes of material. Of this material, over 8 million tonnes were diverted from landfill for reuse or recycling. This represents a 67 per cent resource recovery rate.

According to the submission, 86 per cent of material recovered in Victoria remained in Victoria, with 14 per cent being exported overseas. While the amount of waste generated has increased since 2013-14, per capita waste generation has remained stable over the past decade despite strong population growth.

The submission claims that on current trends, it is projected that the system will need to manage 20 million tonnes by 2046, with the growth of resource recovery expected to outstrip the growth of waste disposal.

**Table 2.1** A summary of material flows in Victoria in the 2016-17 financial year

Material	Recovered (tonnes)	Landfilled (tonnes)	Total recovered % by weight
Organics	1,095,831	1,480,086	42
Paper/cardboard	1,445,332	479,311	75
Glass	137,318	82,202	62
Plastics	130,695	422,659	24
Tyres/rubber	41,437	6,436	87
Metals	1,699,113	70,531	96
Aggregates	4,067,524	963,224	81
Textiles	3,465	156,011	2
Other	-	586,613	0

Source: Government of Victoria, *Submission 699*, p. 2.

## 2.1.1 Waste streams

A breakdown of the management of waste and recycling materials in Victoria makes for a reasonably complicated picture. Sustainability Victoria data has identified the waste managed within the Victorian system:

- approximately 1.2 million tonnes are prescribed industrial waste ('hazardous wastes')
- approximately 3.1 million tonnes are municipal (kerbside) solid waste
- approximately 4.5 million tonnes are non-priority commercial and industrial waste
- approximately 5.1 million tonnes are construction and demolition waste.<sup>16</sup>

The governance structures that are in place to manage the flow of waste are discussed later in the chapter, but it should be noted at the outset that all levels of government, industry and the community in general have roles to play in managing the flow of materials in the waste stream.

In evidence to the Committee in an early public hearing, the Secretary of the Department of Environment, Land, Water and Planning (DELWP), Mr John Bradley, told the Committee that:

... community and businesses are central as the generators of waste and are responsible for ensuring it is disposed of correctly. They also have significant control of what waste gets generated in the first place and in many cases are well-placed to avoid or minimise waste generation through purchasing decisions and business practices.<sup>17</sup>

Mr Bradley told the Committee that local government also has a key role as a:

... primary service provider to households across the state through regular kerbside collection of waste, recycling and organic material and also as an investor in waste facilities alongside industry.<sup>18</sup>

He further said that a number of councils own and operate waste infrastructure such as transfer stations and landfills, and that they also have a role as a regulator providing local government permits and overseeing waste facilities through the land use planning system.<sup>19</sup>

According to Mr Bradley, the Government sees its role as overseeing and guiding the waste and recycling system. It is largely involved in 'developing policy and ensuring whole-of-government oversight and strategic alignment with Victoria's waste and resource recovery priorities'. In addition, the Victorian Government is responsible

<sup>16</sup> Ibid.

<sup>17</sup> Mr John Bradley, Secretary, Department of Environment, Land, Water and Planning, Public hearing, Melbourne, 3 May 2019, *Transcript of evidence*, p. 3.

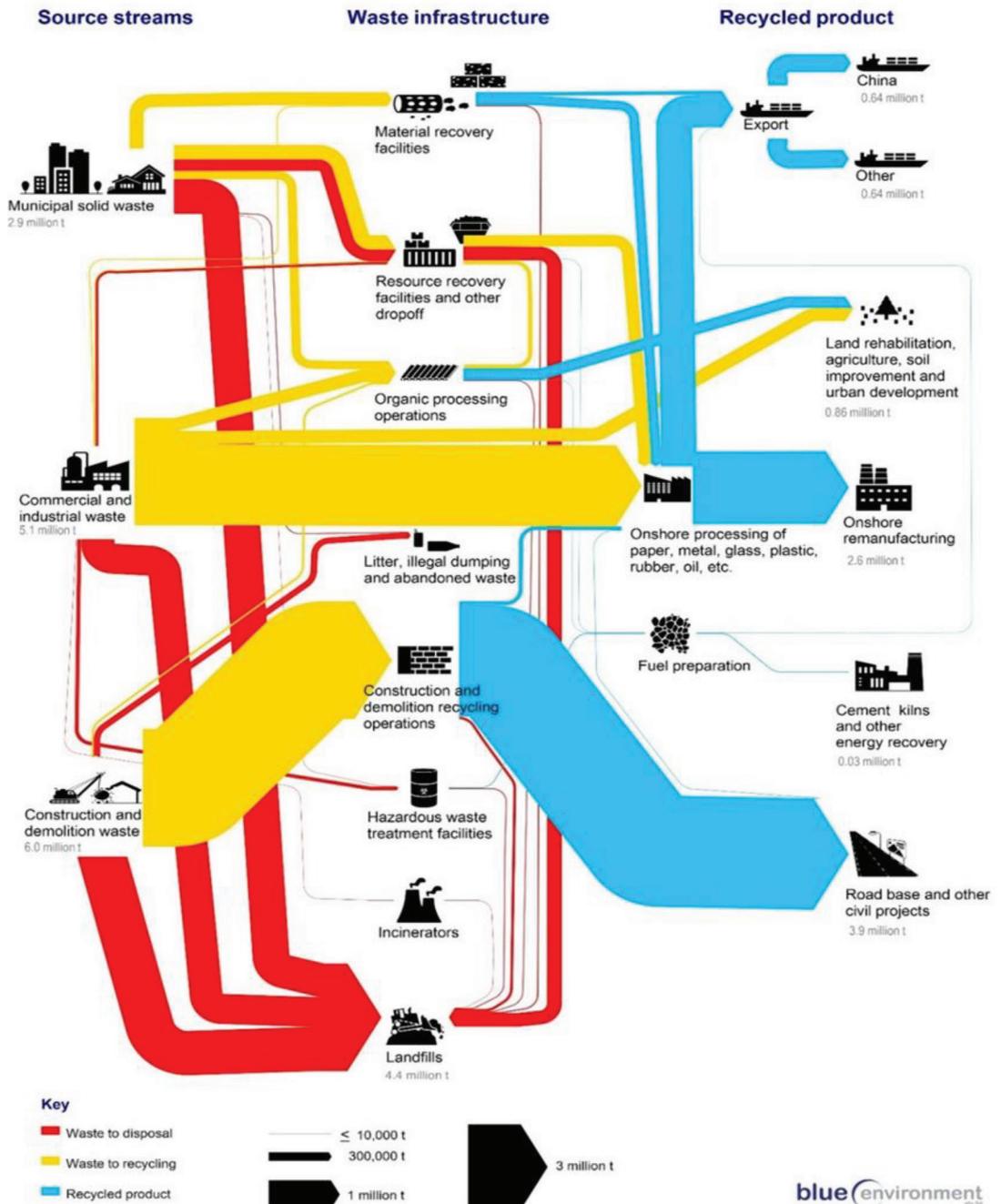
<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

for legislative development and oversight and is responsible for coordination and governance of the waste portfolio agencies. There is further discussion on the roles of the various government agencies later in this Chapter.

Figure 2.1 illustrates the flow of solid waste in the last year for which data is available, which is before China's National Sword policy disrupted the flow of recyclable materials.

**Figure 2.1** Flows of Victorian solid waste 2016-17



Source: Government of Victoria, *Submission 699*, p. 4.

## 2.1.2 Waste material types

The waste stream involves a number of categories of materials. The *National Waste Report 2018*, published by the Commonwealth Department of the Environment and Energy, has identified the following categories:

- masonry materials
- metals
- organics
- paper and cardboard
- plastics
- textiles, leather and rubber (excluding tyres)
- glass
- hazardous
- ash
- other.

These waste materials are divided into four streams:

- municipal solid waste (MSW)<sup>20</sup>
- construction and demolition waste (C&D)
- commercial and industrial (C&I) core waste
- commercial and industrial (C&I) (electricity generation) waste.<sup>21</sup>

A breakdown of the amounts of materials nationally shows that masonry materials and organics are the largest items going into the waste stream by weight. However, that is because they are the individually heaviest items. The volumes of materials are likely to tell a different story, with plastics and paper and cardboard being lighter and more voluminous when measured in million tonnes.

According to the *National Waste Report 2018*, in total an estimated 67 million tonnes of waste was generated in 2016-17, including 17.1 million tonnes of masonry materials, 14.2 million tonnes of organics, 12.3 million tonnes of ash, 6.3 million tonnes of hazardous waste (mainly contaminated soil), 5.6 million tonnes of paper and cardboard and 5.5 million tonnes of metals. This is equivalent to 2.7 tonnes per capita. Of the 67 million tonnes generated, nine per cent is classified as hazardous.

<sup>20</sup> This is waste produced primarily by households and council operations.

<sup>21</sup> Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

Possibly of more relevance are trends in the waste streams as they compare streams and materials against themselves. It is also useful to provide data on a per capita basis, for comparative purposes.

Figure 2.2 below shows that over the eleven-year data period, waste generation by stream has increased by 5.9 million tonnes (12 per cent) when ash is excluded.<sup>22</sup> By stream:

- MSW grew by 0.9 million tonnes (seven per cent)
- C&I waste by 1.6 million tonnes (eight per cent)
- C&D waste by 3.5 million tonnes (20 per cent).<sup>23</sup>

Municipal solid waste (largely household waste) has seen the smallest increases nationally. Much of the evidence received during the inquiry has revolved around household waste and so the focus of the majority of this report is around the management of municipal solid waste.

**Figure 2.2 Trends of core waste by stream, 2007–2017**



Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

On a per capita basis, the tonnes of waste being generated by households (municipal solid waste) has in fact been decreasing. Figure 2.3 below shows that the tonnes per capita of core waste (excluding ash) nationally has decreased by 9.7 per cent over the 11-year period covered by the *National Waste Report 2018*. This is a greater decrease than either commercial and industrial (-7.7 per cent) or construction and demolition which has continued to grow (+2.4 per cent).

<sup>22</sup> It should be noted that ash is a large waste stream, generated mostly by coal-fired power stations, and mostly managed on the generating site outside the main waste management system. For this reason, and because it is not produced in all jurisdictions, it is excluded from the following discussion of waste streams.

<sup>23</sup> Joe Pickin, *National Waste Report 2018*, p. 8.

**Figure 2.3 Tonnes of core waste by stream per capita, 2007–2017**

Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

Overall, the 11-year period of the *National Waste Report 2018* saw a 13 per cent increase in the volume of core waste being generated in Victoria, which was below the levels of all mainland states except Western Australia. This was despite a population increase over the same period of nearly 20 per cent.<sup>24</sup>

Table 2.2 below shows the relative waste generation in Australian jurisdictions. The acronym CAGR in the table is the compound average growth rate, showing the increase over the reporting period.

**Table 2.2 Waste generation by jurisdiction, 2007-2017**

	2007	2009	2010	2011	2014	2015	2016	2017	CAGR %
<b>ACT</b>	704	716	710	892	841	711	873	941	33.7
<b>NSW</b>	15,863	18,490	17,374	17,484	17,908	17,690	17,948	18,086	14.0
<b>NT</b>	528	374	377	371	567	474	487	347	-34.3
<b>Qld</b>	9,586	9,763	9,181	9,113	10,265	10,596	10,322	11,245	17.3
<b>SA</b>	3,115	3,320	3,321	3,830	3,898	3,811	4,068	4,034	29.5
<b>Tas</b>	831	787	844	924	900	931	1,066	938	12.9
<b>Vic</b>	12,088	11,519	12,855	13,167	12,459	13,153	13,341	13,714	13.5
<b>WA</b>	5,829	5,992	7,388	6,399	5,906	6,694	5,668	5,182	-11.1
<b>TOTAL</b>	<b>48,545</b>	<b>50,960</b>	<b>52,049</b>	<b>52,178</b>	<b>52,744</b>	<b>54,060</b>	<b>53,774</b>	<b>54,487</b>	<b>12.2</b>

Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

24 <<http://stat.data.abs.gov.au>>; ERP by LGA (ASGS 2016), 2001 to 2016.

### 2.1.3 Recycling rates

According to the *National Waste Report 2018*, approximately 31.7 million tonnes of waste materials were processed for recycling in 2016-17 and there has been a long-term trend of increased recycling rates across the different waste streams. In the 11-year timeframe used by the Report, the recycling rates across Australia for the different waste streams grew by the following rates:

**Table 2.3** Increases in recycling rates by waste stream, 2016-2017

Waste stream	Increase in recycling rate
	%
Construction and demolition waste	34
Municipal solid waste	31
Commercial and industrial waste	19

Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

The Government submission identified aggregates, masonry and soil as the largest component of the waste stream in Victoria by weight, with a recovery rate of 81 per cent. This is driven by the landfill levy and supported by local markets for recycled concrete and brick use as aggregates in road base and hardstand areas.<sup>25</sup>

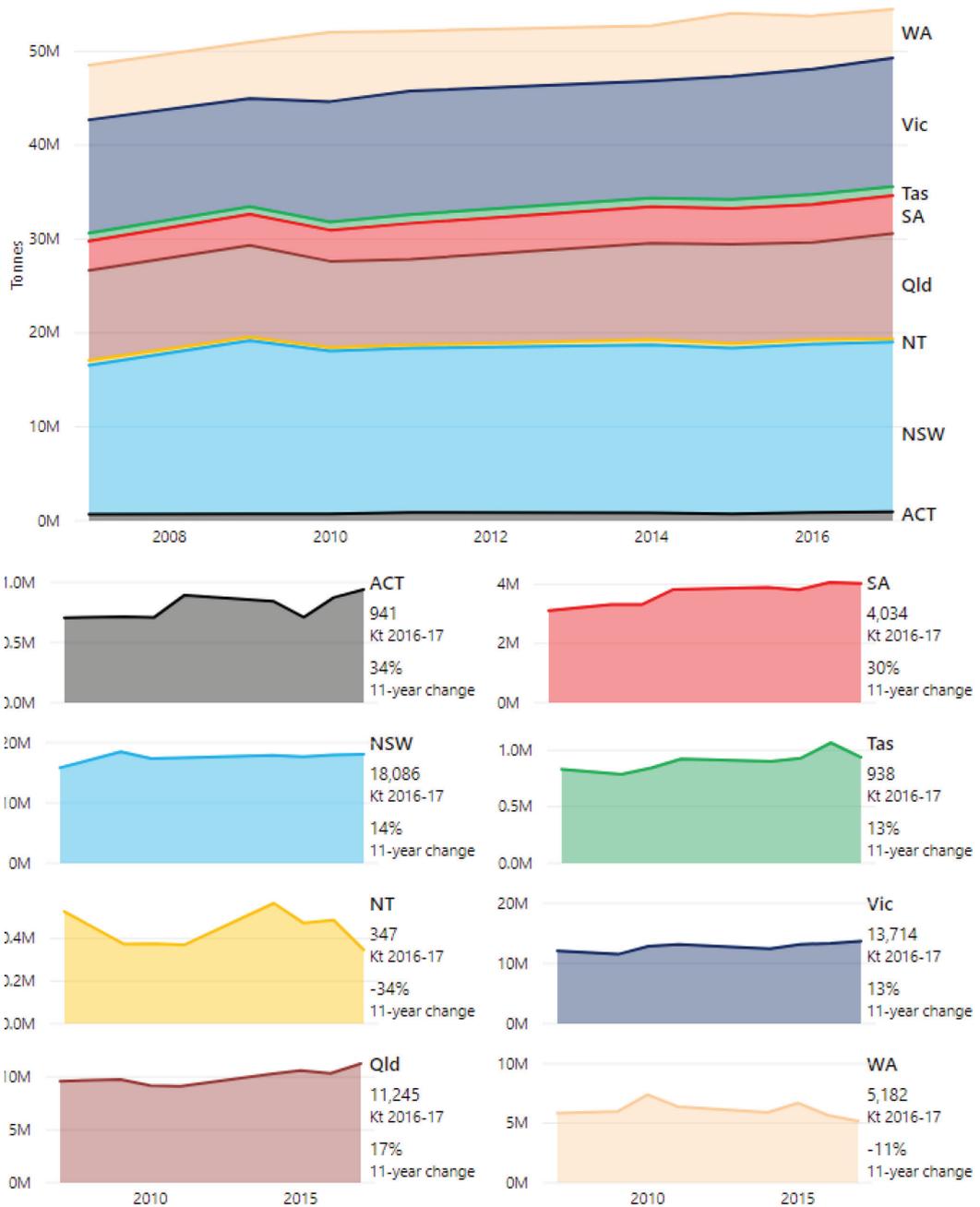
Metals (particularly aluminium and copper) maintain a high value on the market and thus also have a good recovery rate of 95 per cent. Conversely, those materials that are harder to separate and/or recycle like food waste, textiles and plastics have quite poor recovery rates of 10 per cent, one per cent and 26 per cent respectively.

Over the last decade or so, leading up to the implementation of China's National Sword policy in early 2018, there had been strong growth in recycling in Australia. Over the 11-year period from 2006 to 2017, Victoria had experienced the largest increase of 2.7 million tonnes of core waste to recycling.

The *National Waste Report 2018* places the relative performances of the states and territories into context. Figure 2.4 below shows the trends in the recycling of core waste by jurisdiction from 2006-07 to 2016-17.

<sup>25</sup> Government of Victoria, *Submission 699*, p. 40.

Figure 2.4 Trends in the recycling of core waste by jurisdiction, 2006-07 to 2016-17



Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

According to available data, in 2016-17 Victoria managed 12.87 million tonnes of materials, with approximately 4.25 million tonnes of waste being sent to landfill and 8.62 million tonnes (67 per cent) of materials recovered for recycling.<sup>26</sup>

26 *National Waste Report 2018*, p48

At the final hearing of the Inquiry in November 2019, the Committee was advised that there had been an increase in the percentage of material recovered for recycling, and the figure was now 69 per cent. This increase was due to increased recovery in the Construction and Demolition sector.<sup>27</sup>

Victoria's resource recovery rate up to 2016-17 was second only to South Australia's, with its recycling rate being nearly 68 per cent. Table 2.4 below shows the relative performance of each of the jurisdictions by energy recovery and recycling rate of core waste, giving a total resource recovery rate. Energy recovery is the process of recovering energy that is embodied in solid waste.<sup>28</sup>

**Table 2.4 Resource recovery and recycling rates of core waste by jurisdiction, 2016-17**

Jurisdiction	Energy recovery rate	Recycling rate	Total recovery rate
	%	%	%
ACT	4	49	53
NSW	4	59	63
NT	4	11	15
Qld	3	44	47
SA	4	78	82
Tas	4	49	53
Vic	4	68	72
WA	4	53	57
<b>Australia</b>	4	58	62

Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

The available data shows that leading up to the changes brought about by China's National Sword policy in 2018, Victoria's total rate of resource recovery was the second highest in Australia. The impact of the National Sword policy, however, was very significant in Victoria. This impact is discussed later in this Report, including the resource recovery data.

## 2.1.4 Landfill rates

According to the latest data available (2016-17), Victoria's waste and resource recovery system managed 12.87 million tonnes of material, which was a marginal increase on the previous year. Of this, approximately 4.25 million tonnes of waste were sent to landfill, which represents 33 per cent of the total. The remaining 8.62 million tonnes (67 per cent) of materials were recovered for recycling.<sup>29</sup>

<sup>27</sup> Mr Carl Muller, Interim CEO, Sustainability Victoria, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 22.

<sup>28</sup> Joe Pickin, *National Waste Report 2018*, p. vii.

<sup>29</sup> *Ibid.*, p. 39.

It is a major goal of the Government's *Statewide Waste and Resource Recovery Infrastructure Plan* (SWRRIP) to reduce the reliance on landfill in Victoria. As stated in the plan, landfills have played a necessary role in the sanitary management of waste and until full recovery can be achieved, landfills will continue to be required. These landfills protect the environment and public health. However, landfills will only be used for managing potential adverse impacts from the waste and materials that cannot be viably recovered or may arise from events such as fire and floods.<sup>30</sup>

All landfill sites must adhere to requirements in the Environment Protection Act. This includes adhering to EPA's *Waste Management Policy (Siting, Design and Management of Landfills)*. The materials accepted by landfills must be in accordance with the relevant EPA licence conditions, or, in the case of licence-exempt sites, the broader regulations. Licensed landfill operators need an auditor to acknowledge that the design and construction of new cells and landfills complies with the landfill best practice environmental management guidelines.<sup>31</sup>

In 2015–16, Victoria's landfills managed around 4,184,000 tonnes of waste and materials. Around another 424,000 tonnes of prescribed industrial waste went to licensed landfills throughout Victoria.<sup>32</sup>

There are 72 landfills operating in Victoria—47 licensed landfills and 25 landfills exempt from licensing. All landfills exempt from licensing are located in regional Victoria.

According to Sustainability Victoria, there has been a steady reduction in the number of landfills (both licensed and exempt) in the past 15 years due to:

- improved transport infrastructure, reducing cost of transport
- increased cost of operating landfills associated with increased regulatory requirements for environmental performance of landfills and levies
- local governments choosing to close landfills after assessing current and long term costs, benefits and risks associated with operating and rehabilitating landfills<sup>33</sup>
- Below is a breakdown of the types of landfills that are currently operating in Victoria.

<sup>30</sup> Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, Melbourne, 2018, p. 143.

<sup>31</sup> *Ibid.*, p. 144.

<sup>32</sup> *Ibid.*, p. 145.

<sup>33</sup> *Ibid.*

**Table 2.5** Types of waste accepted at landfills across Victoria

Type of waste	Number of landfills able to accept this material
Solid inert waste	72
Putrescible waste	57
Asbestos (domestic quantities only)	8
Prescribed industrial waste	
• Asbestos (commercial quantities only)	1
• Asbestos (commercial and domestic quantities)	20
• Category C (licence specific)	19
• Category B (licence specific)	1

Source: *Statewide Waste and Resource Recovery Infrastructure Plan*

In a public hearing, Stan Krpan, the then-CEO of Sustainability Victoria told the Committee that there is a focus on reducing reliance on landfill and that each of the seven regional plans that sit under the SWRRIP has a landfill schedule, which is a 'regulatory instrument that restricts the availability of landfill airspace in Victoria and by doing so creates an incentive for resource recovery activities'.<sup>34</sup>

While support for a reduction in waste going to landfill is largely universal, the limited and diminishing numbers of landfill sites is not without its problems, even without the complications of the National Sword policy shift. Mr Craig Dunn, General Manager of Communications and Sustainability at Australian Paper told the Committee at a public hearing that:

... Melbourne is facing a second waste crisis for its general household waste. Within the next few years the last significant putrescible landfill in the south-east Melbourne region will close, and currently there is no alternative to this landfill.<sup>35</sup>

There is also a lifespan of landfill sites that leaves with it a long-term cost of rehabilitating land for re-use. Mr Alex Serpo, Secretary of the National Waste and Recycling Industry Council told the Committee that:

... the average landfill in Australia might last 30 or 40 years, so you pay in today's dollars to dispose of a tonne of waste when you go across the weighbridge, but then the after-care for that landfill will occur in 40 years in dollars which are 40 years in the future. So that is a huge future cost.<sup>36</sup>

<sup>34</sup> Stan Krpan, CEO, Sustainability Victoria, Public hearing hearing, Melbourne, 10 May 2019, *Transcript of evidence*, p. 2.

<sup>35</sup> Craig Dunn, General Manager Communications and Sustainability, Australian Paper, Public hearing, Melbourne, 10 May 2019, *Transcript of evidence*, p. 2.

<sup>36</sup> Alex Serpo, Secretary, National Waste and Recycling Industry Council, Public hearing, Melbourne, 5 June 2019, *Transcript of evidence*, p. 16.

## 2.1.5 Waste levy

In Victoria, the Municipal and Industrial Landfill Levy (MILL) is intended to act as a deterrent to increasing our landfill. The levy seeks to create an incentive to re-use, recycle or reduce waste that would otherwise end up in local landfills. It should be noted that this may have resulted in the unintended consequence that landfill waste is more frequently illegally dumped. The money collected through the MILL funds the agencies and programs that manage waste in the state.<sup>37</sup>

The MILL is paid by licensed landfill operators for each tonne of waste deposited, with the cost passed on to the user through gate fees. The MILL is collected by the EPA then transferred to a trust account managed by DELWP.<sup>38</sup>

According to the *National Waste Report 2018*, most jurisdictions require landfills to pay some amount to the state for each tonne of waste deposited in landfill. The additional fee acts as an incentive for recycling, because it pushes up the cost of landfill. Generally, collected funds are used in part to fund recycling infrastructure.<sup>39</sup>

Waste/landfill levies were first introduced in 1971 by NSW at \$0.56 per tonne. Since then South Australia, Victoria, Western Australia and Queensland have introduced levies.<sup>40</sup> According to the *National Waste Report 2018*, in 2018-19 rates ranged in price from \$0 to \$250 with an estimated \$1.13 billion raised. The National Waste and Recycling Industry Council suggest that in 2019-20 this is expected to increase to \$1.54 billion with the introduction of the waste levy in Queensland. The Council further estimates that this will equate to approximately \$58 per capita per year, up from \$39 per capita per year in 2018-19.<sup>41</sup>

In Victoria, according to government sources, one of the key purposes of the landfill levy is to provide additional and ongoing funding to support efforts by government, industry and the community to reduce waste. Landfill levies create an incentive for waste generators to investigate ways to reduce the amount of waste they generate and dispose of to landfill.

The *Environment Protection (Amendment) Act 2006* introduced increased and differential levies on the disposal of prescribed industrial waste to landfill, to reflect the level of hazard posed by different categories of prescribed industrial waste.

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<sup>37</sup> Department of Environment, Land, Water and Planning, *Investing in a more sustainable future: Victorian Government Sustainability Fund 2017-18 Activities Report*, 2018.

<sup>38</sup> Ibid.

<sup>39</sup> Joe Pickin, *National Waste Report 2018*, p. 39.

<sup>40</sup> Rose Read, 'Levy reform urgently needed', *Waste Management Review*, 11 October 2019, <<https://wastemanagementreview.com.au/levy-reform-urgently-needed>> accessed 12 November 2019.

<sup>41</sup> Ibid.

The prescribed industrial waste levy seeks to provide a financial incentive to industry to accelerate waste avoidance, reuse and recycling, and will expand industry programs to reduce waste. Levy revenues are being reinvested in EPA programs to support industry to avoid the generation of prescribed industrial waste or to find safe reuse alternatives to disposal.

From 1 July 2015 the municipal and industrial rates are based on fee units, as set out in the *Environment Protection Act*, as shown below.

**Table 2.6** Amount payable as landfill levy from 1 July 2015

Date when waste is deposited	Amount payable for each tonne deposited (in fee units)			
	Schedule C Premises <sup>(a)</sup>		Non-Schedule C Premises	
	Municipal waste	Industrial waste	Municipal waste	Industrial waste
On or after 1 July 2015	4.45	4.45	2.23	3.90

(a) A Schedule C premises is a metropolitan or provincial premises. A non-Schedule C premises is a rural premises

Source: *Environment Protection Act 1970*, Schedule DA.

Based on this schedule, the current fees payable for each tonne of municipal solid waste and commercial and industrial waste (referred to here combined as 'waste' as they are charged at the same rate) that goes to landfill is \$64.30 (in the metropolitan area).

This is substantially lower than that charged in most other states. For example, the rate charged in NSW for waste in the metropolitan area is \$141.20 per tonne.

**Table 2.7** Overview of solid waste levy charges—metropolitan (2018–19)<sup>(a)</sup>

State/territory	Landfill levy (2018-19) Solid waste \$ per tonne
ACT	96.05
NSW	141.20
NT	0.00
Queensland	70.00
South Australia	100.00
Tasmania	7.50
Victoria	64.30
Western Australia	70.00

(a) There are some minor variations in the categorisation of waste between states and some states have differing rates for metropolitan and regional/rural areas, so the estimate used is for metropolitan solid waste

Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

As Table 2.7 shows, Victoria has the second lowest of the states' levies, with only Tasmania being lower.<sup>42</sup> With the second largest population (and therefore greater waste generation), the low Victorian figure has more potential impact.

As the main reason for the waste levy is to encourage alternatives to sending waste materials to landfill, it is clear that the low levy charged in Victoria leads to a reduction in the incentive to divert materials from landfill and towards recycling.

In Victoria, the levy also helps fund the environmental agencies. The Committee was told in a public hearing by the Secretary of DELWP that:

... the collection of the municipal and industrial landfill levy is the source of funds that is collected, and those funds do fund environmental agencies, including significant environmental agencies with responsibilities for waste, including not only the EPA itself but also Sustainability Victoria and those waste and resource recovery groups, and contributions of funding go to fund those agencies and have for a longstanding period.<sup>43</sup>

The landfill levy plays a significant role in funding the environmental governance structures. However, its key role is as one of the levers government has to control the amount of material that goes to landfill, compared to what is sent to recycling.

One of the problems with such different rates of levies being charged in different states is the incentive for waste to be sent from one state with a higher landfill levy rate to one with a lower rate. The Committee has been advised that this is already happening and that without harmonisation of levy rates across states, it is likely to continue. Mr Dunn, told the Committee that:

So if the landfill levy was increased, for instance, to match New South Wales, it would be a very competitive option. We believe that that is something that is desirable anyway, because we do not want to have these perverse outcomes where waste is being transported interstate, as we saw from the New South Wales to Queensland example. Hence Queensland increased their levies.<sup>44</sup>

This issue was further expanded on by Rose Read, the Chief Executive Officer of the National Waste and Recycling Industry Council, who discussed the issue prior to Queensland imposing its waste levy in July 2019. She told the Committee that the levy has a big impact and makes recovering resources more affordable. She said in the hearing:

There is no levy in Queensland, and New South Wales has the highest levy. So you are talking about \$140 to a zero, and we are looking at seeing that going from 140 to 75 from 1 July 2019. But in the last three or four years we have seen a massive movement

<sup>42</sup> Tasmania's levy is voluntary and is charged by local authorities at a rate of between \$0 and \$7.50, and is therefore not comparable to the mainland states' levies.

<sup>43</sup> Bradley, *Transcript of evidence*, p. 18.

<sup>44</sup> Dunn, *Transcript of evidence*, p. 10.

predominantly of construction and demolition materials from New South Wales to Queensland because it was cheaper for them to dispose of it there. It was quite legal what they were doing. They were disposing of them in legal landfills in Queensland.<sup>45</sup>

The impact of different rates between states in terms of reducing the incentive to divert material from landfill was raised by Ian Guss of Recovered Energy Australia, who told the Committee that the levy did not have to be the same in all states, but the differences needed to be smaller so there was not the same incentive to transport waste across state lines. He said in a public hearing:

... we do not need you to increase the levy, but you need to increase the levy in Victoria now because as of last week South Australia announced an increase of its levy to \$140 a tonne. You have got New South Wales at \$143 a tonne. I do not believe we need to harmonise, but you need to be within \$50 or \$60 to stop the transport of waste across the border. We are sucking in waste; we will suck in more waste.<sup>46</sup>

This view was further supported by Cleanaway. The Head of Strategy, Mergers and Acquisitions, Mr Frank Lintvelt, told the Committee that the massive differences between the states means that there is potential to 'invest in New South Wales but not, for example, in Queensland where there was up until recently no levy at all'.<sup>47</sup>

To illustrate, Mr Lintvelt told the Committee that:

... the rates for sending something to landfill in New South Wales are well into the \$200s, in Queensland it is around \$30 or \$40 or \$50. So you can imagine that the way we look at it—avoid sending a tonne of something into landfill in Queensland you are not saving much; you are saving \$30. To avoid sending it into a landfill in New South Wales you save over \$200.<sup>48</sup>

Despite the concerns raised about the lower levy charged in Victoria, as is previously discussed, Victoria's recycling rate has been one of the highest in the nation. This would indicate that the levy is simply one of the factors that impact on recycling rates and is not necessarily definitive.

However, there is a strongly held view that there is a significant negative impact of the differential between states. Rose Read has stated that:

... differentials in levies across regions and between states has created a levy avoidance industry, both legal and illegal, resulting in potentially recyclable material ending up in landfill, and hazardous material being disposed of inappropriately.<sup>49</sup>

<sup>45</sup> Rose Read, Chief Executive Officer, National Waste and Recycling Industry Council, Public hearing, Melbourne, 5 June 2019, *Transcript of evidence*, p. 4.

<sup>46</sup> Ian Guss, Director, Recovered Energy Australia, Public hearing, Melbourne, 24 October 2019, *Transcript of evidence*, p. 5.

<sup>47</sup> Mr Frank Lintvelt, Head of Strategy, Mergers and Acquisitions, Cleanaway, Public hearing, Melbourne, 25 June 2019, *Transcript of evidence*, p. 5.

<sup>48</sup> *Ibid.*

<sup>49</sup> Read, 'Levy reform urgently needed'.

According to Ms Read, it is estimated that between 1.5 to three million tonnes of waste has been transported per annum either significant distances to landfills where levies do not apply or charge a significantly lower rate, are dumped illegally, are stockpiled or are hidden to avoid levies.<sup>50</sup>

As a result of this, the National Waste and Recycling Industry Council suggests that there is an urgent need to reform the current state levy structures, pricing, administration and investment management and that there needs to be a coordinated national approach to remove inconsistencies that lead to poor waste management behaviours and outcomes.

The Committee has also been persuaded by much of the evidence during the Inquiry that the low landfill levy in Victoria is not providing any disincentive for material to be sent straight to landfill. While it is so much cheaper to send material to landfill than to process it in other ways, it is going to be difficult to make the diversion of materials from landfill the preferred option.

In its final hearing, the Committee heard from Ms Gayle Sloan, the Chief Executive Officer of the Waste Management and Resource Recovery Association of Australia, who also considered this a key issue. She told the Committee that in order to effectively be a resource recovery economic tool, 'we know from work done by Access Economics and others it needs to be over \$100 a tonne'.<sup>51</sup> She said:

One-hundred dollars would incentivise that diversion away and investment in resource recovery and that job creation, but numbers below that do not make sense in the sense that it does not guarantee products moving from landfill to recovery. We know it is more expensive to resource recover, but that is because there are jobs and manufacturing and investment as a result of it. I would put to you that Victoria's levy is too low. It does need to be adjusted.<sup>52</sup>

**FINDING 3:** Victoria has the lowest landfill levy rate of all mainland states and this is acting as an incentive for waste to be transported to Victoria from states with a higher rate.

**FINDING 4:** A national approach to the setting of levies would assist in reducing the substantial variations in state levies and would thereby remove the financial incentives for transporting waste materials between jurisdictions.

<sup>50</sup> Ibid.

<sup>51</sup> Ms Gayle Sloan, CEO, Waste Management and Resource Recovery Association of Australia, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 15.

<sup>52</sup> Ibid.

**RECOMMENDATION 6:** That the landfill levy in Victoria be adjusted to the extent that the financial incentive to transport waste materials from other jurisdictions, as well as the incentive to send material to landfill, is removed. The Victorian Government should work with the Commonwealth Government and relevant stakeholders including local government to harmonise the landfill levy nationally.

## 2.1.6 Sustainability Fund

The Sustainability Fund was established in 2005 by s 70F of the *Environment Protection Act*.<sup>53</sup> The fund receives money collected from the MILL. After funds are distributed by the Minister for Energy, Environment and Climate Change to key environmental agencies including the EPA, Sustainability Victoria and the seven waste and resource recovery groups, remaining revenue is transferred and held in the Sustainability Fund.

Its purpose is to:

- foster environmentally sustainable uses of resources and best practices in waste management to advance the social and economic development of Victoria
- foster community action or innovation in relation to the reduction of greenhouse gas substance emissions or adaptation or adjustment to climate change in Victoria.

Funding allocations are made by the Premier and the Minister in accordance with the Fund's Priority Statement and government policy.

Up to the end of the 2017-18 financial year, the Fund has committed almost \$1 billion from its inception to projects ranging from sustainable transport, water efficiency, improved resource recovery, reduced waste going to landfill and environmental reform.<sup>54</sup> It should be noted that not all expenditure from the Fund related to recycling and waste management.

A total of \$375.7 million has been spent from the Fund since 2010-18, with projects ranging from small local community initiatives to large-scale resource recovery investments. The 2017-18 year saw the highest spend in the Fund's history.

In the final public hearing of the Inquiry, Mr Bradley told the Committee that more than \$141 million had been allocated from the Sustainability Fund to recycling and waste management, including:

- **\$34.9 million** to further strengthen recycling in Victoria
- **\$3.7 million** to combat illegal stockpiling, mismanagement of hazardous waste
- **\$1 million** to develop the Recycling Industry Strategic Plan to address the impacts of China's National Sword policy

<sup>53</sup> *Environment Protection Act 1970* (Vic) s 70F.

<sup>54</sup> Department of Environment, *Investing in a more sustainable future*.

- **\$37 million** for Recycling Industry Strategic Plan to facilitate the renegotiation of council contracts with recycling processors, to stabilise the sector, improve the quality of recycled material streams, develop new markets for materials
- **\$9 million** to support EPA's illegal dumping strikeforce
- **\$30.4 million** to support action to keep e-waste out of landfill, enhance Victoria's capacity to manage waste, litter and resource recovery
- **\$16 million** towards Household Chemical Collection program, support Waste and Resource Recovery Groups to deliver essential waste management services, implement government's commitment to ban e-waste from landfill.<sup>55</sup>

Mr Bradley also told the Committee that the 'overwhelming majority of that fund balance', \$406 million at 30 June, is committed through public announcements by the Government across the forward estimates to programs that address the purposes of the fund, which includes waste and resource recovery.

Mr Bradley told the Committee:

... as you can see from the update today and from the initiatives that will come out as part of the circular economy policy, there will be a very significant commitment on the part of the government through the circular economy policy to get on the ground change across the community in those key areas of priority ...<sup>56</sup>

According to the DELWP's annual report, the income from the MILL in 2018 was \$228.9 million. After funding state environment agencies, the remaining \$80 million of the levy went into the Sustainability Fund to foster sustainable use of resources, best practice waste management and reduction of greenhouse gas emissions.<sup>57</sup>

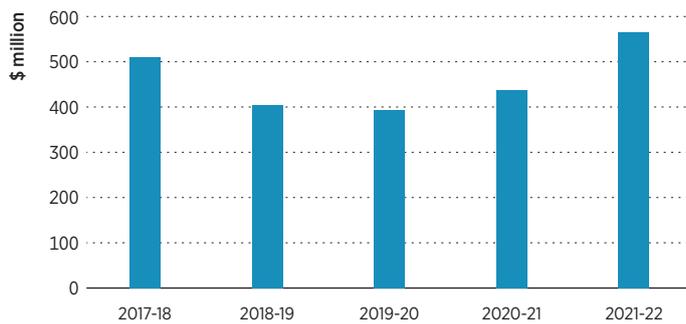
The published balance of the Sustainability Fund as of 30 June 2018 was \$511.3 million.<sup>58</sup> It is forecast to rise to \$565.1 million by 2022.

<sup>55</sup> Department of Environment, Land, Water and Planning, Presentation at public hearing, 6 November 2019.

<sup>56</sup> Mr John Bradley, Secretary, Department of Environment, Land, Water and Planning, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 5.

<sup>57</sup> Municipal Association of Victoria, *Rescue our Recycling*, 2019, <<http://www.mav.asn.au/news-resources/campaigns/rescue-our-recycling>> accessed 12 November 2019.

<sup>58</sup> Ibid.

**Figure 2.5 Sustainability Fund forecasted balances, 2017-2022**

Source: Department of Environment, Land, Water and Planning, *Investing in a more sustainable future: Victorian Government Sustainability Fund 2017-18 Activities Report*, 2018.

In evidence before the Committee, Mr Bradley told the Committee:

DELWP administers the Sustainability Fund and supports that decision-making under the fund through an independently chaired committee, providing advice on the Sustainability Fund, which receives a portion of the landfill levy revenue after funding environmental agencies.<sup>59</sup>

The administration of the Sustainability Fund has been the subject of some criticism in the past. The Auditor-General undertook an examination of the administration of the Fund in 2018 and found that while there was no evidence of any program that received funding not aligning with the legislative objectives of the Fund, there is a potential risk that this could happen due to the governance practices at the time.<sup>60</sup>

The Auditor-General's report recommended that the Sustainability Fund should be assessed to ensure that the achievements of the Fund clearly demonstrate the extent to which programs have contributed to their specified legislative objectives, ensuring funded programs clearly demonstrate the extent to which programs have contributed to their specified legislative objectives.<sup>61</sup>

Sustainability Victoria described the use of the Sustainability Fund in a public hearing:

The residue (of the landfill levy) becomes a trust fund called the Sustainability Fund, and that Sustainability Fund can only be allocated by the Premier and the Minister for Energy, Environment and Climate Change, who is obviously our minister. It is allocated generally, as I understand it, through the state budget process in May, and it is at that time that we would be advised whether there are any programs which we have been asked to deliver...<sup>62</sup>

<sup>59</sup> Bradley, *Transcript of evidence*, p. 3.

<sup>60</sup> Victorian Auditor-General's Office, *Managing the Municipal and Industrial Landfill Levy: Independent assurance report to Parliament 2018-19: 2*, 2018.

<sup>61</sup> Ibid.

<sup>62</sup> Krpan, *Transcript of evidence*, p. 19.

There have been references to the Sustainability Fund throughout the Inquiry from stakeholders who see it as a resource that could greatly assist in addressing issues that are affecting Victoria in waste management and recycling.

In both its submission and in evidence given in public hearings, the Municipal Association of Victoria indicated that it believes the Government needs to use the Sustainability Fund more extensively in supporting local government to address waste management and recycling issues. In a public hearing, Kerry Thompson, the Association's Chief Executive Officer, told the Committee that its submission placed a high priority on the use of the Fund. She said:

For the Victorian government, we had 'Action 1: Invest in recycling infrastructure', and that was to commit greater quantities of the Sustainability Fund money to bolster sorting and processing capability in Victoria; 'Action 2: Fund and support market development', to commit greater quantities of Sustainability Fund money to drive demand for recycled content.<sup>63</sup>

In its submission, the Municipal Association of Victoria discussed what they referred to as the 'hypothetical fund' called the Sustainability Fund and said that the 'lack of investment of Sustainability Fund monies back into the Victorian waste and resource recovery system has long been of concern and frustration to councils'.<sup>64</sup> The submission stated that:

The MAV has repeatedly called on successive State governments to use landfill levy income for its intended purpose. Instead successive governments have chosen to stockpile Sustainability Fund monies to bolster the Government's bottom line or, as has occurred more recently, to pay for initiatives not at all related to waste and resource recovery.<sup>65</sup>

The submission cited the Auditor-General's report which suggested that there may be an 'opportunity cost associated with the large portion of unspent money in the Sustainability Fund', and that 'the public may reasonably question the quantum of the charge on every tonne of waste that goes to landfill'.<sup>66</sup>

The Committee also heard that there needed to be some caution used in the allocation of funds from the Sustainability Fund. Frank Lintvelt of Cleanaway told the Committee in a public hearing that while they believed there is a role for the Government in supporting the industry through its Sustainability Fund:

... it is important that these funds are allocated to high-quality projects, including larger scale projects, proposed by credible developers with a social licence to operate. Without this, there is a risk funds will end up supporting the creation of inadequate

<sup>63</sup> Ms Kerry Thompson, CEO, Municipal Association of Victoria, Public hearing, Melbourne, 24 June 2019, *Transcript of evidence*, p. 3.

<sup>64</sup> Municipal Association of Victoria, *Submission 651*, p. 22.

<sup>65</sup> *Ibid.*

<sup>66</sup> *Ibid.*, p. 23.

infrastructure operated by parties with questionable practices and creating renewed distortion in the market.<sup>67</sup>

In the regions, this issue is of particular concern to local government. Tim Rowe, Manager, Natural Environment and Parks for the Wellington Shire Council told the Committee in a regional hearing that:

We are concerned that waste management initiatives have not been prioritised for allocation of the Sustainability Fund, as is the original intent of the fund under section 70 of the EPA Act. As a regional council who pays about \$1 million per annum in EPA levies—and our friends at Latrobe would pay more—not enough is received in return to assist in direct action to achieve positive outcomes in waste and resource management...<sup>68</sup>

In evidence at a public hearing in Echuca, Paul McKenzie, General Manager of Regulatory and Community Services at Campaspe Shire Council, and Chair of the Goulburn Valley Waste and Resource Recovery Group, told the Committee that there is a 'bit of dissatisfaction about the lack of availability of funds for the works that we currently have identified'.<sup>69</sup> He told the Committee that a number of local governments:

... are beginning to understand the amount of risk that they are enduring and need to take to do these works but of course do not have sufficient resources to address them.<sup>70</sup>

He said that there is a potential for councils having to increase their debt or reduce services 'unless we get access to the Sustainability Fund again. Once again, we will get regional councils that have a lesser level of service'.<sup>71</sup>

In a hearing in regional Victoria the Committee also heard that the Fund could be better used and that Victoria should follow New South Wales in investing more of it into recycling programs. Mr Rowe told the Committee that:

The State Government should be more transparent with this fund and, we believe, follow the lead of the New South Wales Government, who have committed to reinvesting 100 per cent of the waste levy it currently collects from industry, council and businesses. In nine years the New South Wales Government has allocated \$802 million for its Waste Less, Recycle More initiative.<sup>72</sup>

<sup>67</sup> Lintvelt, *Transcript of evidence*, p. 3.

<sup>68</sup> Mr Tim Rowe, Manager, Natural Environment and Parks, Wellington Shire Council, Public hearing, Morwell, 21 August 2019, *Transcript of evidence*, p. 5.

<sup>69</sup> Paul McKenzie, General Manager, Regulatory and Community Services, Campaspe Shire Council, Public hearing, Echuca, 3 September 2019, *Transcript of evidence*, p. 29.

<sup>70</sup> Ibid.

<sup>71</sup> Ibid.

<sup>72</sup> Rowe, *Transcript of evidence*, p. 5.

The Department of Environment, Land, Water and Planning has reported that it has developed a monitoring and evaluation framework which is intended to:

- provide transparency and accountability for the use of the Sustainability Fund
- show achievement against the legislated objectives
- support good decision-making within the Fund
- contribute to broader learnings about initiatives related to sustainability in Victoria.<sup>73</sup>

The Committee understands the expressed concerns from the local government sector that the Sustainability Fund is not as accessible to councils to help them manage what are difficult circumstances in waste management as they would like them to be. The Committee acknowledges that the Sustainability Fund is intended to support a wide range of projects including sustainable transport, water efficiency, improved resource recovery, reduced waste going to landfill and environmental reform.<sup>74</sup>

The Committee also recognises that nearly \$35 million was provided in the last reporting period from the Fund to support programs in the area of waste management.

**FINDING 5:** The Committee considers that the Sustainability Fund has not been as accessible as it should have been, particularly for local councils, at a time when recycling and waste management costs were significantly increased.

**RECOMMENDATION 7:** That the Victorian Government make clear through detailed guidelines about what the Sustainability Fund is for, who is able to access the Fund, how they access it and how are the Fund's outcomes measured.

**RECOMMENDATION 8:** In light of the concerns raised by councils about the accessibility of the Sustainability Fund, the Committee recommends, in line with the Auditor-General's recommendations, that the Sustainability Fund be audited to ensure that the Fund is accessible and demonstrates which programs have achieved against their specified legislative objectives and been allocated accordingly.

As stated earlier in this Chapter, different levels of government play different roles in the management of waste and recycling in Victoria. The following sections identify the different roles played by state government agencies, as well as the roles played at the local government level.

<sup>73</sup> Department of Environment, *Investing in a more sustainable future*.

<sup>74</sup> Ibid.

## 2.1.7 Commonwealth Government

The regulation and management of waste and resource recovery in Australia is primarily the responsibility of state and territory governments. The Commonwealth Government's role in waste is focused on ensuring our international obligations are met and providing effective national coordination.<sup>75</sup> The Commonwealth Government agency responsible for waste management and recycling issues, among other environmental and energy areas of policy, is the Department of the Environment and Energy. The Department designs and implements policy and programs to 'protect and conserve the environment, water and heritage, promote climate action, and provide adequate, reliable and affordable energy'.<sup>76</sup> The Department plays a central coordinating role in the development of the National Waste Policy.

The Department does not play an active role in directly providing services at a state level so the focus of this report will be at the state and local government level. The Committee has, however, relied on some of the excellent resources developed and published by the Department, particularly the *National Waste Report 2018*.

## 2.1.8 State government

This report focusses on the roles played by the state and local governments, as they have the central oversight and operational roles in Victoria.

The state government agencies charged with responsibility in the waste and recycling sector tend to have an oversight, policy setting and regulatory role, rather than a role in service provision. Following is a brief summary of the key agencies and their functions.

## 2.1.9 Department of Environment, Land, Water and Planning

The Department of Environment, Land, Water and Planning develops statewide strategies, plans and policies to achieve Victoria's waste and recycling objectives, in line with legislated requirements and government commitments.

This includes:

- developing and implementing policy, strategies and specific programs, including new policy initiatives such as the circular economy policy
- developing and overseeing strategies to improve and strengthen Victoria's waste and resource recovery sector, including infrastructure development and job creation
- delivering the Recycling Industry Strategic Plan, with partner agencies, and specific actions in the SWRRIP

<sup>75</sup> Commonwealth of Australia, *2018 National Waste Policy: less waste more resources*, 2018.

<sup>76</sup> Department of the Environment and Energy, *About us*, 2019, <<https://www.environment.gov.au/about-us>> accessed 12 November 2019.

- working with portfolio agencies, industry and community in addressing the public health and environmental risks posed by waste
- oversight of the administration of the Sustainability Fund
- ensuring good governance across portfolio agencies.<sup>77</sup>

### 2.1.10 Environment Protection Authority

The EPA is a statutory authority whose objective is to protect public health and the environment by preventing and reducing the harmful effects of pollution and waste.

The EPA enforces the Environment Protection Act and the *Environment Protection Act 2017*, which include a number of duties relating to the regulation of the waste and resource recovery sector. Its primary duties in relation to the sector are to ensure compliance with both Acts and associated regulations, including licencing and approvals.

Specifically, the key roles of the EPA include activities that are of a regulatory nature, to support compliance and enforcement of environment protection regulation relating to waste and resource recovery. This includes:

- applying legislation and regulations related to waste management and resource recovery
- works approvals and licencing
- developing technical guidelines and statutory rules
- waste education campaigns related to EPA activities (with Sustainability Victoria)
- advising on priority materials for market development (with Sustainability Victoria)
- collecting landfill data and levies
- reviewing landfill schedules in line with state environmental protection policies and waste management policies; and
- contributing to the development of policy, particularly from an operational and technical point of view.<sup>78</sup>

### 2.1.11 Sustainability Victoria

Sustainability Victoria's statutory objective is to facilitate and promote environmental sustainability in the use of resources. Established under the *Sustainability Victoria Act 2005*, Sustainability Victoria is a statutory body with a board appointed by the

<sup>77</sup> Department of Environment, Land, Water and Planning, *Waste and Resource Recovery Portfolio Roles and Responsibilities*, May 2019.

<sup>78</sup> Ibid.

Minister for Energy, Environment and Climate Change. Sustainability Victoria is responsible for the preparation of the SWRRIP on behalf of the Victorian Government. It is a central component of Victoria's Waste and Resource Recovery Infrastructure Planning Framework and Victoria's integrated approach to waste and recycling.

The SWRRIP, which was republished in April 2018, is intended to develop an integrated statewide waste and resource recovery system that continues to provide an essential community service.

Specifically, the key roles of Sustainability Victoria include:

- developing projects and programs to promote and facilitate the sustainable use of natural resources
- preparing and reviewing the SWRRIP and ensuring that it is used as intended
- supporting DELWP and the waste and resource recovery groups in the implementation of the SWRRIP and Regional Waste and Resource Recovery Infrastructure Plans
- developing and coordinating statewide implementation of the *Victorian Market Development Strategy for Recovered Resources*, *Victorian Organics Resource Recovery Strategy* and the *Victorian Waste Education Strategy*
- facilitating investment in programs that support waste and resource recovery policy.<sup>79</sup>

### 2.1.12 Waste and resource recovery groups

There are seven waste and resource recovery groups in Victoria established 2014 by the Environment Protection Act. They are statutory authorities and their objectives and functions include the development of Regional Waste and Resource Recovery Infrastructure Plans, supporting local governments to procure waste and recycling services, undertaking regional resource recovery planning and educating businesses and communities on waste avoidance and reduction.<sup>80</sup>

The key roles of the waste and resource recovery groups include:

- preparing, implementing and reviewing the Regional Waste and Resource Recovery Implementation Plans
- influencing local land use planning for waste and resource recovery infrastructure
- facilitating joint procurement of waste and recycling services on behalf of local governments

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<sup>79</sup> Ibid.

<sup>80</sup> Ibid.

- integrating regional and local knowledge into statewide strategies
- engaging with waste and resource recovery industries and managing grant programs to support local waste and resource recovery industry development.

The waste and resource recovery groups are the primary government and business collaboration regarding waste and resource recovery systems, infrastructure and services.

The seven groups are:

- Metropolitan Waste and Resource Recovery Group
- Barwon South West Waste and Resource Recovery Group
- Gippsland Waste and Resource Recovery Group
- Goulburn Valley Waste and Resource Recovery Group
- Grampians Central West Waste and Resource Recovery Group
- Loddon Mallee Waste and Resource Recovery Group
- North East Waste and Resource Recovery Group.<sup>81</sup>

### 2.1.13 Commissioner for Environmental Sustainability

In 2003, the first Commissioner for Environmental Sustainability was appointed after the Victorian Parliament passed the *Commissioner for Environmental Sustainability Act 2003*. The Commissioner's role is to provide independent and objective scientific reporting to inform policy-makers, scientists and the wider Victorian public on the state's natural environment.

According to the Act, the Commissioner's mandate is to:

- review and report on the condition of Victoria's environment
- encourage decision-making that facilitates ecologically sustainable development
- enhance knowledge and understanding of issues relating to ecologically sustainable development and the environment
- encourage Victorian and local governments to adopt sound environmental practices and procedures.

In 2019, the Commissioner published the *State of the Environment 2018 Report*, which provided a detailed overview of the current health of Victoria's natural environment, the adequacy of the science that underpins the management of the natural environment and the future focus that is needed.

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<sup>81</sup> Ibid.

The report was the first Victorian state of the environment report developed as a scientific baseline report which will enable comparisons over time.

One of the key areas in relation to waste and resource recovery discussed in the report was the development of indicators and the monitoring and reporting to measure delivery of the current SWRRIP and regional waste and resource recovery implementation plans, particularly against the design principles espoused in the circular economy design. The report also recommended that institutional planning and procurement processes are developed that support the delivery of the circular economy strategy. The circular economy is discussed in more detail in Chapter 6 of this report.

### 2.1.14 Infrastructure Victoria

Infrastructure Victoria does not have a formal role in the management of recycling and waste. However, in April 2019 the Special Minister of State commissioned Infrastructure Victoria to provide advice on the infrastructure that would be required and the role for government in providing support to:

- develop Victoria's re-processing sector for recycled material
- better enable the use of products containing recycled materials in a variety of Victoria industries
- support a waste to energy sector that prioritises the extraction of recyclable material and recovers energy only from the residual waste
- support high levels of resource recovery for organics, particularly food organics.<sup>82</sup>

In October 2019, Infrastructure Victoria tabled its interim report, with its final report due to be tabled in April 2020. The study being undertaken is an evidence-based study which includes an interjurisdictional analysis, sector mapping, infrastructure and legislative analysis and stakeholder and community engagement.

At this stage of the study, Infrastructure Victoria have not made recommendations but have identified some potential actions that may be taken within the waste management and recycling sector. These include:

- the setting of overarching policy framework with recycling targets
- improving data collection
- implementing an ongoing education campaign
- a consistent approach to waste collection processes across councils
- and a review of the landfill levy settings.<sup>83</sup>

<sup>82</sup> Infrastructure Victoria, Presentation at public hearing, 6 November 2019.

<sup>83</sup> Ibid.

Many of these issues are addressed in this report and the Committee looks forward to seeing the final report and advice to government from Infrastructure Victoria in the first half of 2020.

### 2.1.15 Auditor-General's comments on governance of the recycling and waste management industry

In June 2019, the Victorian Auditor-General tabled a report in Parliament about recovering and reprocessing resources from waste. In this report, the Auditor-General was highly critical of governance arrangements, and in particular the lack of action to minimise waste, to invest in infrastructure, and closely regulate the sector. It is not the Committee's intention to re-prosecute the Auditor-General's review. This Inquiry and report have been based on the evidence gathered by the Committee through its submissions and public hearings. However, it is useful to note the key findings of the Auditor-General's report as they provide context for the current governance arrangements.

The Auditor-General was highly critical of the governance of the waste management sector and said in the report that:

- Victorian agencies responsible for managing the waste sector are not responding strategically to waste and resource recovery issues.
- DELWP has not fulfilled its leadership role to ensure that the state operates under an overarching waste policy.
- The lack of an overarching statewide policy deprives responsible government agencies and their stakeholders of a clear and definitive direction for waste management, which means that government agencies' responses to waste issues have been ad hoc and reactive.
- In the absence of an overarching waste policy, relevant agencies have also not been able to effectively plan for sufficient infrastructure and markets to manage the state's waste.
- EPA has not effectively monitored and addressed the growth of inappropriately managed stockpiles across the state, which pose health and fire risks to the community and the environment.<sup>84</sup>

As well as being critical of the fact that there was no overarching statewide policy governing recycling and waste management, the Auditor-General considered that statewide guidance was unclear, there was limited implementation of statewide strategies, and that gaps existed in statewide waste management instruments (such as relevant plans, strategies, policies and regulations).<sup>85</sup>

<sup>84</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste: Independent assurance report to Parliament 2018-19: 27*, VAGO, Melbourne, 2019, p. 9.

<sup>85</sup> *Ibid.*, p. 13.

The Auditor-General also made the point that the current waste data in Victoria is incomplete and unreliable and that this affects government's ability to make well-informed planning and investment decisions.<sup>86</sup>

Of equal concern, the Auditor-General suggested that the incompleteness and unreliability of the data means that DELWP and Sustainability Victoria have limited understanding of whether the unchanged statewide recovery rate is accurate and whether it is due to improved resource recovery or unfavourable reasons such as unaccounted waste stockpiling or illegal dumping.<sup>87</sup>

In responding to the Auditor-General's criticisms and recommendations, the Government accepted all recommendations and identified a number of actions that it intended to take to address concerns. These included:

- the development of the circular economy policy and action plan
- the inclusion of targets and allocated timelines within the 10-year action plan
- the development of an evaluation framework that will measure and report on progress towards the circular economy policy objectives
- consideration by DELWP of ways to publicly report on progress against objectives
- provision of input into the development of a national action plan to deliver the 2018 National Waste Policy
- investigation and provision of advice on options to improve organic waste management
- advice from the EPA that it would continue to work through the resource recovery facilities audit taskforce and that it had conducted more than 550 inspections at the time of the Auditor-General's report
- investment of \$5.5 million in a new electronic waste tracking system and sharing the data from that system.

In the Committee's view, addressing the concerns raised by the Auditor-General should be a priority for the Victorian Government and a review of progress made should be undertaken towards the end of 2020, to ensure that improvements are apparent and are continuing to be made.

During the hearings, the Committee heard that there was confusion about which organisations or agencies had responsibility ultimately for carrying out necessary functions within the sector and especially when something went wrong. There is a need to undertake a review of sector organisations and structures to ensure that there are clear roles, responsibilities and accountabilities for various organisations within the waste management and recycling sector.

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<sup>86</sup> Ibid.

<sup>87</sup> Ibid., p. 14.

**RECOMMENDATION 9:** That a review of the sector and governance arrangements be undertaken to ensure that there are clear roles, responsibilities and accountabilities for various organisations within the waste management and recycling sector.

## 2.1.16 Local government

As the provider of waste services and infrastructure, local government plays a critical role in the waste and resource recovery system. They are involved in recycling and waste management more so than other levels of government, whose role tends to be policy setting, regulation and oversight.

Local government authorities (councils) have responsibility for waste management within their local areas and play an important role in providing household waste collection and recycling services, managing and operating landfill sites, delivering education and awareness programs, and providing and maintaining litter infrastructure.<sup>88</sup>

Specific waste services provided by local councils can include:

- kerbside collection and disposal of general household garbage
- hard rubbish collections
- kerbside recycling services that may include paper, glass, plastic and metal waste products
- kerbside garden organics collection services or kerbside food (kitchen) organics and garden organics services
- drop off for disposal and/or recycling of other specific types of items including metals, chemicals, oil, e-waste, paper, cardboard, garden organics or used printer cartridges
- operation of resource recovery centres/transfer stations for disposal and recycling services
- operation of landfills for the disposal of waste
- operation of re-sale shops to sell diverted materials
- commercial waste removal services in specific circumstances
- community education services about waste, resource recovery and litter
- provision and servicing of publicly placed bins for the collection of waste and recycling.

<sup>88</sup> Department of the Environment and Energy, *Policies and governance for waste*, 2019, <<https://www.environment.gov.au/protection/waste-resource-recovery/national-waste-reports/national-waste-report-2013/policies-and-governance>> accessed 12 November 2019.

Due to the central role councils play in the provision of these services, and the costs imposed upon them as a result, the challenges that have developed have had a substantial impact on local governments across Victoria.

### Collection role

The issue of the collection of waste, particularly from households, represents a number of challenges. For household waste, the responsibility falls largely on local government. It is a significant cost for councils, and represents a significant problem for regional and rural councils due to larger distances and lower rate bases.

The issue of co-mingling of waste and its impacts on recycling and the related issue of proposals to increase the number of bins used in household waste collection will be discussed in later sections.

The collection and management of kerbside waste is a significant cost for all councils. It is a particularly high cost for regional and rural councils. This is also addressed in detail in later sections of the report.

### Landfill management

As stated previously, local government is responsible for the management of the majority of landfill sites in Victoria. Many of the municipal landfill sites have been closed in recent years, often due to the cost of running them and limits to available land. Of the 588 landfill sites listed on the Victorian Landfill Register, administered by the EPA, only 74 remain open.<sup>89</sup>

Managing landfills represents particular issues for regional and rural councils, due to the costs in collecting and then running the landfill facilities themselves. They also can have long-term negative environmental impacts.

In Gippsland, for example, there has been a shift to reducing the reliance on landfill facilities. Matthew Peake, the CEO of the Gippsland Waste and Resource Recovery Group, told the Committee in a public hearing that in his region local government runs nine landfills, with about 130,000 tonnes that are disposed of to landfill each year.<sup>90</sup>

He said:

... one of our key priorities is to reduce our reliance on landfill. I think if you look at Gippsland over the last 30 years, we have something like 42 landfills that have been closed over that period of time, so it is quite a substantial closure program.<sup>91</sup>

<sup>89</sup> Environment Protection Authority Victoria, *Victorian Landfill Register*, 2019, <<https://ref.epa.vic.gov.au/your-environment/waste/landfills/victorian-landfill-register#VLR>> accessed 12 November 2019.

<sup>90</sup> Mr Matthew Peake, CEO, Gippsland Waste and Resource Recovery Group, Public hearing, Morwell, 21 August 2019 *Transcript of evidence*, p. 37.

<sup>91</sup> Ibid.

He said that landfills are not particularly desirable facilities to have in a region and that there are ‘about 120 past landfills that we have identified across the region that would still pose some sort of environmental issue to the region.’<sup>92</sup>

Another issue for councils is the aftercare costs once a landfill site is closed. The Committee was told that once a landfill is closed off there is usually a 30-year aftercare program. In a public hearing, the Chief Financial Officer of Baw Baw Shire Council, Malcolm Lewis, told the Committee that the council had a closed landfill facility at Trafalgar which had a 30-year aftercare cost, for which the council had to budget in the vicinity of \$9 million. He said:

That was closed about four years ago. So that is a \$9 million impost potentially, and that impost has actually increased every year in terms of the future projections of that 30-year aftercare component, probably in the last two or three years. Each year that estimate of provision that needs to be put aside to fund that closed landfill has increased.<sup>93</sup>

This issue of ‘legacy landfill’ costs are also an issue for metropolitan councils. The Committee has been told that the EPA’s changing compliance requirements necessitate an increasing level of funding by councils to comply and that these costs are in excess of annual operating services requirements.<sup>94</sup>

### Education role

One of the issues that has been a recurring theme throughout the Inquiry is education of the community in how to manage their own waste at the source. Effective waste management at the household level will have a substantial impact on the capacity of both the waste management and recycling sectors to manage the volume of material being produced.

There is a more detailed discussion about the need for education at a statewide level in Chapter 3.

## 2.2 The recycling crisis

Changes to China’s policy of importing recyclable material, and the resultant collapse of Victoria’s largest recycling company, has led to what has been referred to as a ‘crisis’ in Victoria’s recycling landscape over the past two years. The crisis has seen significant amounts of previously-recyclable materials being sent to landfill sites, the stockpiling of large amounts of materials awaiting a solution to the lack of recycling facilities and some significant and dangerous fires that threaten public health and safety. The threat of more fires of this kind are ever present.

<sup>92</sup> Ibid.

<sup>93</sup> Mr Malcolm Lewis, Chief Financial Officer, Baw Baw Shire Council, Public hearing, Morwell, 21 August 2019, *Transcript of evidence*, p. 26.

<sup>94</sup> City of Monash, *Submission 476*, p. 4.

## 2.2.1 Causes of the crisis

There is no doubt that the crisis being faced by the recycling industry in Victoria has been triggered by the decision announced in 2017 by the Chinese Government to cease taking certain materials for recycling. However, the causes of the crisis are more complicated than one policy shift, albeit an enormously significant one. Some of the recent and longer-term reasons for the current crisis are discussed below.

## 2.2.2 China's National Sword policy

Throughout the recent coverage of the current recycling crisis, there has been a lot spoken about China's National Sword policy.

This is a policy that has banned the importation of certain types of solid waste into China, as well as set strict contamination limits on recyclable materials. This means that China will not accept shipments that are mixed with contaminants, the wrong type of recyclable, or low-quality recyclables like greasy paper goods. The policy was announced in July 2017, and the ban officially began 1 January 2018.

In addition to the bans, China is reducing the number of import licences, meaning that fewer businesses will be able to import waste.<sup>95</sup> The import permits determine which companies can import solid waste and the types and amounts of waste they can import.<sup>96</sup>

The standards of contamination that were established by the policy change included thresholds of 0.5 per cent impurities for both paper and plastics. Under previous standards, paper bales with more than 1.5 per cent contamination were rejected at the port of entry.<sup>97</sup>

National Sword followed the previous Green Fence policy in 2013 when China 'introduced a temporary restriction on waste imports that required significantly less contamination' which was intended to 'increase the quality of the plastic waste that China was receiving while also reducing illegal foreign smuggling and trading'.<sup>98</sup>

The effect of this change of policy is that there has been a significant reduction in the rates of recyclable material being imported by China, the largest importer of such material in the world. This has created a substantial build-up of recyclable materials in Australia, as well as in other countries. These materials are being stockpiled and, of even more concern, are being sent to landfill.<sup>99</sup>

<sup>95</sup> Kevin Pink, 'What is the National Sword?', *Center for EcoTechnology*, 9 May 2018, <<https://www.centerforecotology.org/what-is-the-national-sword>> accessed 12 November 2019.

<sup>96</sup> Australian Packaging Covenant Organisation, Envisage Works, Helen Lewis Research, Sustainable Resource Use, *Market Impact Assessment Report: Chinese Import Restrictions for Packaging In Australia*, Australian Packaging Covenant Organisation, March 2018, p. 6.

<sup>97</sup> *Ibid.*, p. 5.

<sup>98</sup> Amy L. Brooks, Shunli Wang and Jenna R. Jambeck, 'The Chinese import ban and its impact on global plastic waste trade', *Science Advances*, vol. 4, no. 6, June 2018.

<sup>99</sup> *Ibid.*

It should be noted that China has not completely banned the import of all recycled plastic and paper, but now requires a cleaner version of these materials. It has banned the import of 24 types of waste material and set a tougher standard for contamination levels in others.<sup>100</sup>

The point has been made throughout the Inquiry that the contamination of recycled materials was the issue that has led to China restricting imports of recyclable materials. Early in the Inquiry, the Committee was told that:

... it was not that they said they did not want to take recycling materials, it was the standard that changed, and the standard became pretty high from what was a particularly broad range of commodities that they were accepting around plastics and papers.<sup>101</sup>

Regardless of the intent of the policy change, the impact on the Australian recycling industry has been substantial. As described to the Committee by Frank Lintvelt from Cleanaway, Australia's largest recycling company:

When [China's National Sword policy] hit, recycling companies with contaminated commodities struggled to find alternative markets for their product, and prices collapsed while they were locked into low-priced, rebate-style council contracts. This led to the accumulation of large stockpiles associated with fires and several domestic recycling companies facing financial distress.<sup>102</sup>

The Australian Packaging Covenant Organisation (APCO) has reported that the change in Chinese import restrictions have resulted in a significant reduction in the value of scrap paper and cardboard, and the sale of scrap plastics to China has virtually ceased.<sup>103</sup> APCO reported that:

- In January 2017 around 71 per cent of Australian exports of scrap paper/paperboard and scrap plastics were exported to China (98,300 tonnes of the 139,400 tonnes total).
- By January 2018 this had fallen to 34 per cent of Australian exports (43,200 tonnes of the 128,200 tonnes total).

The APCO report suggested that the flood of some types of scrap paper and plastics in international recycling markets has caused substantial price falls for these commodities:

- mixed paper scrap: \$124 tonne to \$0 tonne
- mixed plastics scrapL: \$325 tonne to \$75 tonne
- cardboard: \$210 tonne to \$125 tonne.<sup>104</sup>

<sup>100</sup> Tom Eng, 'Could the Chinese National Sword inspire global recycling innovation?', *Tomra Recycling*, 29 May 2019, <<https://recycling.tomra.com/blog/chinese-national-sword-inspire-global-recycling-innovation>> accessed 12 November 2019.

<sup>101</sup> Ms Kylie White, Acting Secretary, Environment and Climate Change, Department of Environment, Land, Water and Planning, Public hearing, Melbourne, 3 May 2019, *Transcript of evidence*, p. 16.

<sup>102</sup> Lintvelt, *Transcript of evidence*, p. 2.

<sup>103</sup> Australian Packaging Covenant Organisation, *Market Impact Assessment Report*, p. 1.

<sup>104</sup> Ibid.

To put these commodity price falls into perspective, the APCO assessment suggests that the fall in value of mixed paper, between the baseline value and the value at the end of February 2018, has contributed \$50 per tonne (67 per cent) of the loss in value of one tonne of kerbside co-mingled recyclables.<sup>105</sup>

Similarly, cardboard contributed \$14 per tonne (19 per cent) of the loss in value, and mixed plastics contributed \$8 per tonne (11 per cent) of the loss in value.<sup>106</sup>

Data is not currently available for the time period since the actions taken by China as part of its National Sword policy, so it is not possible to make definitive statements about its impact on recycling rates specifically in Victoria. However, work is being done on the impact globally of the policy change.<sup>107</sup>

In terms of the impact on Victoria, however, it is possible to illustrate the volumes of materials that have previously been exported and how these are now affected by the new restrictions. As can be seen in the table and graph below, the impact was likely much greater in Victoria than in other states, based on the amount of recyclable materials being exported to China directly before the policy came into effect.

**Table 2.8 Australian exports of recyclables affected by Chinese restrictions—by jurisdiction of origin (thousands of tonnes), 2016-17**

Recycled material type	NSW	NT	Qld	SA	Tas	Vic	WA
Metals	63	0.1	35	14	1.8	43	45
Paper and cardboard	135	0.3	216	17	0	520	32
Plastics	43	0	7	4	0.5	66	4
<b>All recycled materials</b>	<b>240</b>	<b>0.4</b>	<b>258</b>	<b>36</b>	<b>2.3</b>	<b>629</b>	<b>81</b>
<b>Percentage of total (%)</b>	<b>19</b>	<b>0</b>	<b>21</b>	<b>3</b>	<b>0</b>	<b>50</b>	<b>6</b>

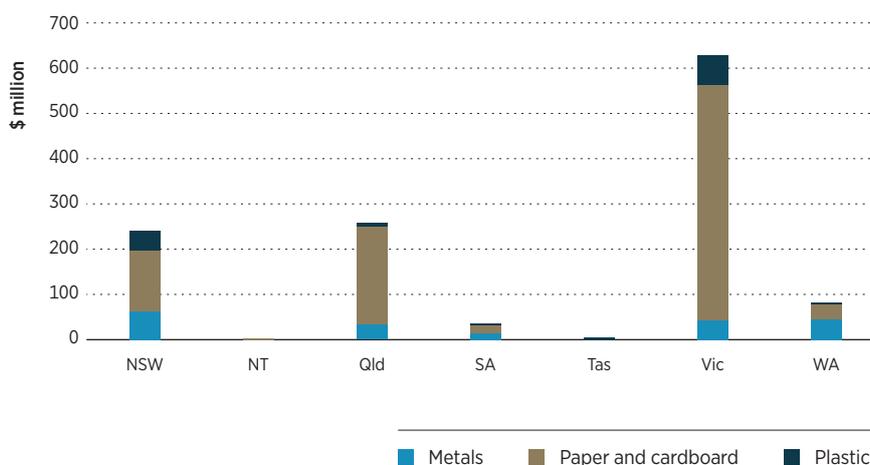
Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

It should be noted that these figures represent the tonnages from the exporting jurisdiction which means they may have been generated interstate and transported to the exporting jurisdiction.

<sup>105</sup> Ibid., p. 2.

<sup>106</sup> Ibid.

<sup>107</sup> Amy L. Brooks, 'The Chinese import ban and its impact on global plastic waste trade'.

**Figure 2.6 Australian exports of recyclables affected by Chinese restrictions, 2016-17**

Source: Adapted from data in Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018.

China's National Sword policy has had a substantial impact on the Australian recycling industry simply because it restricted Australia's access to by far its biggest market. The APCO report stated that:

During the first half of 2017 China and Hong Kong were the dominant markets for Australian exports of scrap plastics, paper or paperboard accounting for 59.4% of plastics and 62.8% of paper or paperboard by weight. During the second half of 2017 this fell to 27.8% of plastics and 45.3% of paper or paperboard, with scrap plastics continuing to fall sharply over the last quarter of 2017 and into January 2018.<sup>108</sup>

The impact on exports of scrap plastics was stark, with exports falling from 10,000 tonnes in January 2017 to 400 tonnes in January 2018, a fall of 96 per cent. Scrap paper and paperboard exports were also badly affected, falling by 52 per cent over the same period, from 88,300 tonnes to 42,800 tonnes.<sup>109</sup>

One of the issues raised during the inquiry regarding the National Sword policy's impact has been how much it was expected and whether adequate mitigation was undertaken to lessen its impacts.

In responding to the question of whether the government or industry should have been aware of, and takings steps to mitigate against, the likely impacts of China's policy shift, the then-CEO of Sustainability Victoria told the Committee that China had announced its Green Fence policy in 2013 and that did not ultimately impact on any recycling markets or exporting materials. He said in evidence:

<sup>108</sup> Australian Packaging Covenant Organisation, *Market Impact Assessment Report*, p. 15.

<sup>109</sup> Ibid.

... my recollection of that period of time between 2013 and 2017 ... is that it was seen as an announcement but that it was unlikely to affect any significant operations in Victoria, and for that reason I am not aware of any contingency plans in the industry or in the state government or local government or indeed at a federal level...<sup>110</sup>

According to the MAV, there was limited understanding about the implications of the change in policy in China and there was a level of complacency in the industry generally. Kerry Thompson, the CEO of the MAV told the Committee that there was little appreciation or understanding within any level of government of the implications of the National Sword policy for the Victorian recycling system and that:

Based on events of the last 18 or so months, it is also questionable whether our recycling industry understood and anticipated the impacts. In addition to a lack of action in anticipation of National Sword, we believe there has been a broader failure across all three tiers of government to consider the overall health and robustness of the recycling system over a long period of time.<sup>111</sup>

It is generally agreed that the impacts were not entirely understood or were underestimated. To some extent, Ms Thompson suggested that this was because none of the levels of government had done any detailed analysis of the situation and what the implications would be for the Victorian recycling industry. She told the Committee that:

... federal, state and local—should have probably done a real analysis about what this was going to do. Again, I think if we had transparency over the industry and we knew what recycling they were collecting, what they were exporting, we may have been able to do that analysis and go, ‘We’re going to have a real problem’. My sense is none of the players in the market—so federal, state, local and industry—realised the impact of the China’s National Sword Policy position...<sup>112</sup>

This view was put by a number of witnesses and submissions to the Inquiry.

In a public hearing in Melbourne, Karen Davies, the Manager of Roads, Fleet and Waste for Moreland City Council, echoed the view that there appeared to be little preparation for the impacts of the National Sword policy. She told the Committee that the policy change was known about 18 months prior to its implementation, however:

... it really feels like no-one did anything about it. The processors did not seem to act. Perhaps people thought China was not serious. But the general consensus and feeling was that there was nothing done in anticipation of it.<sup>113</sup>

**FINDING 6:** There was limited recognition of the vulnerability of the Australian recycling industry prior to China’s National Sword policy change and all levels of government, as well as the industry, were ill-prepared for the impacts of the policy.

<sup>110</sup> Krpan, *Transcript of evidence*, p. 15.

<sup>111</sup> Thompson, *Transcript of evidence*, p. 2.

<sup>112</sup> *Ibid.*, p. 8.

<sup>113</sup> Ms Karen Davies, Manager, Roads, Fleet and Waste, Moreland City Council, Public hearing, Melbourne, 22 October 2019, *Transcript of evidence*, pp. 28-9.

### 2.2.3 Limited service providers

A recurring theme throughout the Inquiry has been around the issue of the limited number of companies participating in the recycling industry in Victoria.

In July 2019, SKM Recycling closed, leaving more than 30 councils without a recycling provider. SKM was by far the largest provider of recycling services in Victoria and its collapse has highlighted the vulnerability of the system where there was a reliance on a single major service provider.

SKM Recycling owned five sites across Victoria, featuring three materials recovery facilities, a glass processing plant, a plastics sorting facility and a transfer station.

Prior to the 2017 announcement that China would stop accepting recyclable material imports over a certain contamination grade, SKM exported a number of its products internationally. In the aftermath of these policies, key markets were closed to processors and exporters. This had a significant impact on SKM's operations.

In August 2019, SKM was put into receivership and was subsequently sold to Cleanaway in October 2019.

SKM had been involved in a number of industrial fires and other incidents during recent years, which largely related to the over-stockpiling of materials at its facilities. These fires were covered in detail in the Interim report and will not be discussed here.

However, the place of SKM as the predominant recycling service provider and the challenges that have confronted local governments since its collapse have been raised throughout the Inquiry.

The MAV highlighted the impact of one major provider of recycling services. In a public hearing, the Manager of Environment and Regulatory Services for the Municipal Association of Victoria, Claire Dunn, told the Committee that the temporary closure of one major recycling service provider showed that we are very dependent on that provider and if councils are unable to send recyclable material to that provider, 'we do not have sufficient capacity in our system to prevent that material from going to landfill.'<sup>114</sup>

We have one service provider that takes more than 50 per cent of the state's recycling, and we had some 34 councils—or less than 34 councils, probably around 30 councils—sending material to landfill earlier this year simply because there was nowhere else for the material to go.<sup>115</sup>

Paul McKenzie of Campaspe Shire Council also raised the issue of the limited number of companies involved in the recycling industry:

<sup>114</sup> Claire Dunn, Manager, Environment and Regulatory Services, Municipal Association of Victoria, Public hearing, Melbourne, 24 June 2019, *Transcript of evidence*, p. 5.

<sup>115</sup> *Ibid.*

We are seeing far too much consolidation of power into a few of the main businesses that have a monopoly on a number of different aspects of the waste and recycling industry, which is probably not healthy.<sup>116</sup>

Part of awarding any contract should be an analysis of the financial health of the company and its management.

In the Victorian context this meant that SKM, was the major recycling processor for 38 or so councils, responsible for processing approximately 50 per cent of Victoria's recycling. Figures show that 14 per cent of Victoria's recycling was being sent offshore under the arrangements SKM had to access overseas market, and namely China.

Submissions and evidence given during the hearings raised the following issues, that were not formally resolved during the course of the hearing, and they were:

- Having one processor playing having market dominance leaving the market vulnerable should a problem occur.
- Viability concerns given the singular market approach, where the market was undercut which in turn reduced competition and alternative processors, questions remain about the longevity of such an arrangement which exposed Councils to considerable risk.
- The inadequate risk management around choices for awarding a contract to an organisation where further questions may not have been asked about where the recycling was bound for, how it was used and/or processed and whether recycling generated in Victoria should be offshored to other countries rather than being processed locally in Victoria.

**FINDING 7:** There was a significant over-reliance on one company to provide recycling services, which utilised a business model that relied on export to overseas markets for processing Victoria's recycling material. This exposed Victoria to sudden market fluctuations and changes.

**FINDING 8:** The Victorian Government failed to undertake sufficient oversight of the recycling and waste management system in Victoria.

## 2.2.4 The impact of market collapse

The trade restrictions surrounding the international export of recyclable material, particularly in China led to firstly the temporary closure of SKM Recycling, and then the company going into receivership and subsequently being sold. This has led to a number of issues for the recycling industry, the community and all levels of government.

<sup>116</sup> McKenzie, *Transcript of evidence*, p. 32.

## Recycling to landfill

One of the first impacts of the collapse of the market, and of the inability of the recycling industry to manage the amount of recyclable waste without the export markets, has been that recyclables are being taken to landfills because there are no recycling facilities that can manage the volume of materials.

According to the Waste Management and Resource Recovery Association of Australia, like other jurisdictions across Australia, Victoria is continuing to feel the impacts of China's policy decision but its challenges are not solely caused by the National Sword policy. The Association's submission to the Inquiry stated that even before 1 January 2018, Victoria was experiencing a decline in the recovery of a number of primary material streams. In 2016–17:

- paper and cardboard—7 per cent decrease to 1.44 million tonnes
- glass—21 per cent decrease to 137,000 tonnes
- plastics—12 per cent decrease to 131,000 tonnes.<sup>117</sup>

The submission also suggested that Victoria has a range of unique issues that have exacerbated the challenges, including the fact that the cost of kerbside collections per resident had not changed in 15 years and the rebates paid for kerbside were out of step with national trends.<sup>118</sup>

However, the collapse of SKM and the recycling market as a result of China's National Sword policy has seen a substantial increase in the number of councils that have had to send their recyclable collections to landfill, as they currently have no other options.

In public hearings, the Committee heard that councils were having to send recycling to landfill at a substantial cost. Bernadette Thomas, Acting Manager of Sustainable Environment and Waste for Hume City Council told the Committee that she estimated that the Council, which had about 70,000 collections a fortnight, spent an additional \$20,000 a week to send recyclables to their own landfills as well as to a private landfill.<sup>119</sup>

The MAV told the Committee that the fact that councils had been forced to send their recyclables to landfill had meant that they had gone from a net financial gain from collecting recyclables to a substantial cost. Coral Ross, President of the MAV suggested that this represented a 'changeover' of about \$160 a tonne for councils and she estimated that the councils were spending about \$30,000 per week for landfill and transportation costs.<sup>120</sup>

<sup>117</sup> Waste Management and Resource Recovery Association of Australia, *Submission 686*, p. 1.

<sup>118</sup> *Ibid.*

<sup>119</sup> Ms Bernadette Thomas, Acting Manager, Sustainable Environment and Waste, Hume City Council, Public hearing, Melbourne, 3 May 2019, *Transcript of evidence*, p. 6.

<sup>120</sup> Cr Coral Ross, President, Municipal Association of Victoria, Public hearing, Melbourne, 24 June 2019, *Transcript of evidence*, p. 8.

One of the impacts of councils sending recyclables to landfill has been something of a loss of trust in the community about the recycling system. Coral Ross told the Committee in a public hearing that:

Because so many councils had to have their recycling go to landfill, there is a distrust amongst the community, so that is why you need to have a statewide campaign.<sup>121</sup>

The Committee can not verify how much recyclable material is heading to landfill as a result of the collapse of SKM and the recycling market. The Committee was told by one council that ‘we are very confident that we are not having recyclables going into our landfill, but there is very little tracking and policy of reporting where our recyclables actually go.’<sup>122</sup>

Fiona Weigall, General Manager of Asset and Environment for East Gippsland Shire Council told the Committee that this lack of tracking needs to be addressed to restore community confidence in the recycling system. She said in a public hearing that:

We believe there could be policy around all recyclables so that we can track the downstream processing and tell our communities where they go and restore that community confidence that their recyclables are not going into landfill and can be used appropriately.<sup>123</sup>

**FINDING 9:** A number of councils have been forced to send recycling to landfill as a result of the loss of recycling facilities. This has led to a loss of community trust in the councils and the recycling industry. There is also a significant financial cost.

This issue is further discussed in Chapter 4.

### Stockpiling—fire risk

The issue of the stockpiling of recyclables and waste materials was the central theme of the Committee’s interim report tabled in August 2019. Therefore, it will not be addressed in detail again in this report. However, a few further comments need to be made as the issue continued to be brought to the Committee’s attention after the tabling of the Interim report.

The Committee agrees with the Waste Management and Resource Recovery Association of Australia that temporary storage, or stockpiling, can be part of a legitimate resource recovery operation. As the Association’s submission suggested, it is often necessary to aggregate materials for transport efficiencies.<sup>124</sup>

<sup>121</sup> Ibid., p. 6.

<sup>122</sup> Ms Fiona Weigall, General Manager, Assets and Environment, East Gippsland Shire Council, Public hearing, Morwell, 21 August 2019 *Transcript of evidence*, p. 16.

<sup>123</sup> Ibid., p. 18.

<sup>124</sup> Waste Management and Resource Recovery Association of Australia, *Submission 686*, p. 5.

In its interim report, the Committee noted advice given by the EPA that stockpiles of recyclable materials are not inherently dangerous, as long as they are managed and stored appropriately. The Committee noted that stockpiles of recyclable materials are now required to conform to fire safety standards according to the EPA's waste management policy.<sup>125</sup>

However, stockpiling beyond what can meet actual market demand for these materials, is proving to be problematic.

Recyclable materials that are not going straight to landfills are being stockpiled in anticipation of the recycling industry being able to catch up with demand. This is leading to sometimes dangerous amounts of often flammable and toxic waste being stored inappropriately or in buildings and areas that are not fit for purpose. This represents a risk to the community, with fires and their toxic residues a constant threat.

The UFU emphasised the danger of stockpiling to firefighters and emergency services workers, telling the Committee in its submission that the illegal stockpiling of toxic chemical waste will kill. The submission stated that:

It has likely already altered the life expectancy of firefighters who have to fight these fires as a result of the illegal activity of unscrupulous persons who seek to profit from stash and burn business model.<sup>126</sup>

The MAV's submission supported the adoption of the *Waste Management Policy (Combustible Recyclable and Waste Materials)* and the establishment of the Resource Recovery Audit Taskforce led by the EPA. However, it suggested that the resourcing afforded to the Taskforce is not commensurate to the significant human and environmental risks these stockpiles pose to the community.<sup>127</sup>

According to the MAV, the penalties attached to illegal storage and non-compliant stockpiling are also grossly inadequate. It is hoped that the changes to the *Environment Protection Amendment Act 2018*, when they come into effect in 2020, and that were discussed in the interim report, will help reduce illegal and non-compliant stockpiling.

**RECOMMENDATION 10:** The Victorian Government should establish clear guidelines under an environmental planning framework to ensure policy certainty to address the issues that councils are experiencing.

<sup>125</sup> Parliament of Victoria, Legislative Council Environment and Planning Committee, *Inquiry into recycling and waste management*, p. 13.

<sup>126</sup> United Firefighters Union, *Submission 408*, p. 5.

<sup>127</sup> Municipal Association of Victoria, *Submission 657*, p. 19.

## Increasing costs

The Committee has heard evidence that China's National Sword policy has had a direct impact on the costs of a number of stages of the waste management process. The impact has been felt particularly hard in regional Victoria where 'there will be costs that cannot be met, particularly high costs compared to anybody that is in a metropolitan area'.<sup>128</sup>

In a regional hearing, the Committee was told that small councils, particularly rural councils, have seen an increase in the cost to recycle following the implementation of the National Sword policy. Geoff Rollinson, Director of Infrastructure and Development for Gannawarra Shire Council told the Committee that:

The impacts of the cost of recycling: leading up to the China sword policy our recycling costs were zero. They have gone to approximately \$95 000 per annum. That was one of our concerns when that came in midstream, budget year. We had set our budget. We had not made an allowance for this impact. In the first year, 2017–2018, thanks to the support for \$60 a tonne the costs were only around \$20 000. But last year the full cost to council was \$95 000, which represents about 1 per cent of rate income and which is making things just a little bit tough once again in a small rural council.<sup>129</sup>

This impact was not restricted to smaller councils. Shepparton City Council also told the Committee that the policy had led to substantial increases in its costs. Ms Janelle Bunfield, Manager of Works and Waste at Greater Shepparton City Council told the Committee in a regional hearing that:

As a result of the changes our costs went from \$0 a tonne to \$120 a tonne. This equates to approximately \$900 000 per annum. To date we have not passed any of these costs on to our ratepayers, and we have absorbed these. If the recycling market volatility continues, council is concerned that there will be further increases in this, and therefore we will no longer be able to absorb those costs and we cannot avoid passing them on to our ratepayers.<sup>130</sup>

In relation to the costs of collection of kerbside waste for regional councils, increased costs on the downstream processing of recycling materials have resulted in those costs been passed on to the councils. For example, in a regional public hearing, the Committee was told that the impact of China's policy on one recycler led to them going to a council and telling them that without a variation to their kerbside collection contract, they would go out of business. Deirdre Griepsma, Manager of Sustainable Environment for Bass Coast Shire Council told the Committee that when the kerbside collection contract was first awarded, the contractor was receiving a \$40-a-tonne payment at the gate from the recycler, Visy. Then, when China's policy came in, Visy wrote to that contractor and told them that the situation had changed and they

<sup>128</sup> McKenzie, *Transcript of evidence*, p. 28.

<sup>129</sup> Geoff Rollinson, Director of Infrastructure and Development, Gannawarra Shire Council, Public hearing, Echuca, 3 September 2019, *Transcript of evidence*, p. 1.

<sup>130</sup> Ms Janelle Bunfield, Manager, Works and Waste, Greater Shepparton City Council, Public hearing, Echuca, 3 September 2019, *Transcript of evidence*, p. 15.

renegotiated after 30 days and it became a \$60-a-tonne payment, which represented about \$100 per tonne.<sup>131</sup> So the net difference was \$100 per tonne. Ms Griepsma told the Committee:

Our kerbside contractor then came to council and essentially said, 'Look, we can't absorb these costs. That will essentially put us into insolvency. We would become insolvent'. Therefore councils sat down and went through an exercise with the contractor and established to pick up those costs, which is around \$600 000 per annum.<sup>132</sup>

There was recognition that the Victorian Government has provided some relief for local councils in the short term, which is helping offset the initial financial shock of the change in the Chinese policy.

Robert Gibson, Manager of Environmental and Regulatory Services for Moyne Shire Council told the Committee that the Government assistance to assist with the additional costs of sending recycling to landfill was welcome, but the longer term issue remains. He said in a public hearing in western Victoria that:

At the moment obviously the Government has provided a sum of money to assist council with the immediate cost of sending their recyclable material to landfill. That comes with a pretty narrow window of opportunity and a few caveats with it that do not make it all that appealing in some cases. Given that it is only going to come from July through to November it obviously helps cover the short-term costs of landfilling. For us it is probably in the \$30 000, \$40 000 ballpark figures compared to the \$250 000 that it is going to take to solve the problem.<sup>133</sup>

The need to provide longer term support was also identified by metropolitan councils. In its submission, the City of Whittlesea told the Committee that while it noted the short-term funding relief which had been used to cover recent additional costs:

... in the long term landfill levy funds should be expended on measures that achieve a genuine change in how Victoria manages its waste and captures resources.<sup>134</sup>

In particular, the submission suggested that the Government:

- fund and support market development to drive demand for recycled content
- support research and development to increase uptake of new uses for recycled materials
- set mandatory procurement targets for Australian recycled material by government agencies
- incentivise procurement of Australian recycled content by others.<sup>135</sup>

<sup>131</sup> Ms Deirdre Griepsma, Manager, Sustainable Environment, Bass Coast Shire Council, Public hearing, Morwell, 21 August 2019, *Transcript of evidence*, p. 28.

<sup>132</sup> Ibid.

<sup>133</sup> Mr Robert Gibson, Manager, Environmental and Regulatory Services, Moyne Shire Council, Public hearing, Dunkeld, 19 September 2019, *Transcript of evidence*, p. 26.

<sup>134</sup> City of Whittlesea, *Submission 529*, p. 2.

<sup>135</sup> Ibid.

**FINDING 10:** The collapse of the recycling market following the implementation of China's National Sword Policy and the consequent demise of SKM Recycling has significantly increased the costs of providing recycling services for a number of councils. These costs have had to be borne by the state government and the councils themselves.

### 2.2.5 Impact on communities outside Victoria

As stated in the previous section, the National Sword policy has led to a very limited external market for Australia's recyclable materials. Not only has it removed a destination for more than half of the material, it has seen a collapse in the price that can be obtained for the material.

While the focus of this Inquiry is the impact of the recycling crisis on the Victorian community, the Committee is also aware that it has adversely impacted on Australia's near neighbours as well.

In a submission, Indonesian-based organisation Brantas River Coalition To Stop Imported Plastic (BRACSIP) told the Committee that the unsorted waste and scrap paper exported from Australia has been increasing since 2017, with the amounts being exported being 47.5 times bigger than in 2016.<sup>136</sup>

While the submission acknowledged that some of the plastic waste is recyclable and therefore has economic value, the issue of contamination is a problem for these destinations, much as they are for China. The submission stated that:

... the plastic waste sorting and recycling process is done with lack of knowledge and awareness of local community for environmental and health protection. After collecting recyclable and valuable plastic the leftover residual plastic scraps usually being dumped front yard of community houses...<sup>137</sup>

This dumping of uneconomic plastic waste is having a significant environmental impact on these communities. BRACSIP told the Committee that local waste collectors in nearby communities 'usually dumped plastic waste scraps on the riverbanks of Brantas, destroying riparian habitat and polluting Brantas River with plastic scraps, toxic ashes, and micro-plastic particles'.<sup>138</sup>

Subsequent correspondence from BRACSIP and the non-governmental organisation Ecoton, has detailed the impact of Australian waste being sent in large quantities to Indonesia. The correspondence advised the Committee that:

- Australian exports of unsorted scrap paper to East Java in Indonesia increased significantly since 2017, with net weight 4.794 tonnes or 47.5 times bigger than 2016 (101 tonnes), and increased to 13.825 tonnes in 2018 or 137 times bigger than 2016.

<sup>136</sup> Brantas River Coalition To Stop Imported Plastic, *Submission 638*, p. 2.

<sup>137</sup> *Ibid.*

<sup>138</sup> *Ibid.*

- The fraction of unsorted scrap paper in total Australian waste and scrap paper exports to East Java increased significantly from 0.4 per cent in 2016 to 18.7 per cent in 2017, 36.1 per cent in 2018 and increased to 171.3 per cent in January 2019.
- The net weight of unsorted scrap paper was 4.3 times bigger than its monthly average in 2018, while the net weight of waste paper import tended to be equivalent to its monthly average in 2018.
- The data indicates that an enormous increase of unsorted scrap paper from Australia has been flooding in to East Java with plastic waste contaminants hidden in waste paper bales imported during 2018 to early 2019 after China banned plastic waste imports.<sup>139</sup>

This is consistent with media reports in May 2019 which suggested that waste was being illegally dumped by Australian companies. Reports suggested that what was supposed to be scrap paper was found by an environmental audit to be 30 per cent illegal scrap plastic.<sup>140</sup>

**FINDING 11:** The Committee acknowledges that the impact of exporting contaminated waste products is felt by not only the local industry and the Victorian community, but also by the communities in other countries which are left with the problems associated with waste, and particularly plastic waste.

## 2.2.6 Government responses

The Government's submission to the Inquiry discussed its response to the changes in Chinese policy. It also advised that the Commonwealth Government has made some representations to China to either amend or delay the proposed restrictions. Despite this, China introduced the restrictions from January 2018.<sup>141</sup> The submission also made the point that the impact of the policy shift is not an Australia-specific issue but is being felt internationally.

The submission quoted Mr Simon Ellin, Chief Executive of the Recycling Association, a UK network of independent waste and recycling operators, who stated in December 2017 that 'after discussion with recycling representatives in the US and Europe, it was clear no one was prepared for the new standards'. He also stated that 'the ban and greater restrictions on imports is being implemented too quickly' and that 'we in the UK, US and elsewhere do not have enough time to adapt' to these restrictions.<sup>142</sup>

<sup>139</sup> ECOTON, correspondence, 3 October 2019.

<sup>140</sup> Ben Graham, 'Indonesian village being inundated with illegal plastic waste from Australia', *news.com.au*, 29 May 2019, <<https://www.news.com.au/technology/environment/indonesian-village-being-inundated-with-illegal-plastic-waste-from-australia/news-story/9a03e5a78d67f25994f4176731a30822>> accessed 12 November 2019.

<sup>141</sup> Government of Victoria, *Submission 699*, p. 15.

<sup>142</sup> *Ibid.*

For its part, the Victorian Government told the Committee in its submission that it was the first to respond in Australia, with \$12.5 million in funding quickly made available to local councils to cover a portion of increased costs associated with renegotiating contracts with waste and recycling services, as well as assistance with commercial and legal advice.<sup>143</sup> In addition to the funds made available to councils, the Committee was told in the final public hearing of the Inquiry that the Government had also made a \$10 million loan to the receivers of SKM, KordaMentha, which was to facilitate the return to processing recyclable material and to clear waste stockpiles at disclaimed sites, as well as fund essential maintenance work to assist plants in returning to processing waste.<sup>144</sup> In addition, the Government advised that a further \$1 million was provided to the recycling industry to 'fast-track infrastructure upgrades to materials recovery facilities to improve the quality of recycled paper, cardboard and plastic'.<sup>145</sup> Perhaps of more long-term significance, the Government advises that it has developed the *Recycling Industry Strategic Plan*. This plan is intended to be implemented in partnership with industry, local government and the community and is underpinned by \$37 million of funding, broken down as:

- \$13.5 million to stabilise the recycling sector and provide immediate support to councils and industry to maintain kerbside recycling (announced in February 2018 to help councils and industry manage short-term market disruptions).<sup>146</sup>
- \$13.9 million to improve the quality of recycled materials, including an education program to help the community recycle effectively.
- \$4.2 million to improve the productivity of the recycling sector.
- \$5.5 million to develop markets for recycled materials (including supporting the use of government procurement to help drive local demand for recycled materials).<sup>147</sup>

The Government's submission has identified a number of actions that have already been taken, including:

- \$10.8 million in temporary relief funding has been delivered to 76 of 79 councils and three alpine resort boards.
- \$2.1 million has been allocated in grants to five companies through the Recycling Industry Transition Support program, run by Sustainability Victoria.
- \$4.8 million has been allocated for industry and local government to develop infrastructure for the collection, sorting and processing of recyclable materials as part of round three of the Resource Recovery Infrastructure Fund.

<sup>143</sup> Ibid., p. 17.

<sup>144</sup> Department of Environment.

<sup>145</sup> Ibid.

<sup>146</sup> This included \$6.6m rebate available for councils affected by the SKM closure, with 23 councils eligible for the rebate. Funding commenced distribution in October 2019.

<sup>147</sup> Government of Victoria, *Submission 699*, p. 17.

- \$1.9 million was awarded in 2018 to 13 projects through the Research, Development and Demonstration grants program, of which \$472,100 was funded via the *Recycling Industry Strategic Plan*.
- DELWP, Sustainability Victoria and the seven waste and resource recovery groups are analysing potential options, implementation costs and benefits for improved collection and sorting of packaging recyclables from Victorian households.
- The Metropolitan Waste and Resource Recovery Group is working with Local Government Victoria and the MAV to establish robust recycling contracts across Victoria.
- The Metropolitan Waste and Resource Recovery Group has established a panel contract for recycling processing to assist councils if they are not able to continue with their existing service providers.
- DELWP is drafting a review of the regulatory framework governing fire risks at sites storing combustible recyclable and waste materials.
- Sustainability Victoria is identifying material streams that present the greatest opportunities to increase the Government's own consumption of recycled products through its procurement practices.
- DELWP is conducting research and analysis to inform the development of a whole-of-government circular economy policy and action plan for Victoria.<sup>148</sup>

Other than expenditure of funds, the Government identified a number of operational and policy responses that they have taken to address the challenges that have arisen.

In its submission, the Government identified the immediate responses, which included:

- Sustainability Victoria released the first two of a series of bulletins, providing up to date information on the quantity and destination of materials recovered for recycling.
- The EPA was given greater responsibility for regulating the environmental safety of recycling sites, which previously were effectively regulated through local government development approvals.
- The EPA's resources were increased, and in collaboration with other government agencies, they undertook investigations identifying criminal dangerous goods and hazardous waste stockpiling and non-compliant practices. This was done in part through an overhaul of the Environment Protection Act, and increased penalties under the *Dangerous Goods Act 1985*.

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<sup>148</sup> Ibid., p. 19.

# 3 Municipal waste

## 3.1 What is municipal waste?

Municipal waste is generated primarily from residential activities and is collected by, or on behalf of, local councils.<sup>149</sup> This includes landfill waste, co-mingled recycling, garden organics, and food organics and garden organics (FOGO) waste that is picked up through kerbside collection services.

According to the Government submission, in 2016-17, municipal waste accounted for 23 per cent of waste generated in Victoria.<sup>150</sup>

## 3.2 Municipal recycling in Victoria

In 2016-17, approximately 40 per cent of municipal waste in Victoria was recycled.<sup>151</sup> The recycling rate for municipal waste is considerably lower than the recycling rates for the other waste streams of commercial and industrial waste, which is 68 per cent and construction and demolition waste, which is 81 per cent.<sup>152</sup>

The Committee was told that 90 per cent of Victorians have access to a kerbside recycling collection, which is one of the highest collection rates per dwelling in the world.<sup>153</sup> Of the material recovered for recycling in 2016-17, approximately 86 per cent by weight, was recycled in Victoria.<sup>154</sup> The remaining 14 per cent was exported overseas.<sup>155</sup>

Mr Krpan, then-CEO of Sustainability Victoria, told the Committee at a public hearing that in the past 10 years in particular, Victoria, like many other jurisdictions in the western world had taken advantage of international demand for material in municipal recycling such as plastic, paper and cardboard. China in particular has been a key purchaser of this material to supply its manufacturing sector.<sup>156</sup>

As noted in Chapter 2, much of the demand from China ended with the implementation of its National Sword policy. The policy meant that only recyclable materials with 'very low' contamination rates of 0.5 per cent would be accepted.<sup>157</sup> Mr Krpan told the

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149 Ibid., p. 5.

150 Ibid.

151 Krpan, *Transcript of evidence*, p. 15.

152 Government of Victoria, *Submission 699*, p. 41.

153 Krpan, *Transcript of evidence*, p. 8.

154 Ibid., p. 3.

155 Government of Victoria, *Submission 699*, p. 2.

156 Krpan, *Transcript of evidence*, p. 3.

157 Ibid.

Committee that this has ‘impacted recycling markets globally, mostly because most markets cannot meet that quality standard’.<sup>158</sup>

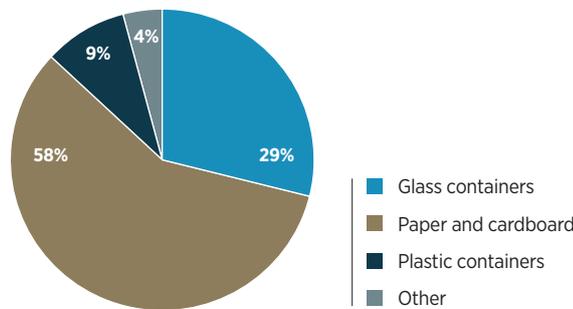
**FINDING 12:** It is important to reduce contamination in municipal recycling so that it can meet better quality standards and become a more marketable product.

### 3.3 Contamination in municipal recycling

#### 3.3.1 Co-mingled recycling bins

Victoria uses a co-mingled bin for municipal recycling. This means that all recyclable material including paper, plastic, glass and aluminium is put together into the same bin.

**Figure 3.1** Average composition of a co-mingled recycling bin



Source: Government of Victoria, *Submission 699*, p. 49.

As displayed in Figure 3.1, the majority of the contents of co-mingled bins is paper and cardboard, followed by glass, plastic, and other materials.<sup>159</sup>

The Committee understands that a co-mingled bin has been in use in Victoria for at least 25 years.<sup>160</sup> Ms Alana Morgan, Corporate Council at Visy said that the co-mingled system was introduced for the convenience of consumers and recyclers, partly to reduce the need for multiple collection runs for each type of recyclable material.<sup>161</sup>

While a co-mingled recycling bin provides convenience, the contents of the bin can mix and cross-contaminate. For example, glass bottles can break and become embedded in paper and cardboard.<sup>162</sup> Landfill waste may also be deposited in recycling bins and

<sup>158</sup> Ibid.

<sup>159</sup> Government of Victoria, *Submission 699*, p. 49.

<sup>160</sup> Mr Gary Combes, Regional Procurement Director, Asia-Pacific, Owens-Illinois Inc, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 2.

<sup>161</sup> Ms Alana Morgan, Corporate Counsel, Visy, Public hearing, Melbourne, 10 May 2019, *Transcript of evidence*, p. 10.

<sup>162</sup> Mr Richard Macchiesi, General Manager Insights and Innovation, Visy, Public hearing, Melbourne, 10 May 2019, *Transcript of evidence*, p. 10.

cause contamination.<sup>163</sup> Once products are contaminated, they are harder to recycle and less valuable to sell. The Victorian Government's submission noted these issues in their submission to the Inquiry:

Contamination in kerbside recycling, caused by items being incorrectly placed in recycling bins or by inefficiencies in the sorting of materials post-collection at material recovery facilities, has led to low quality and low value materials representing a large portion of Victoria's kerbside collected material. These materials are difficult to sort and process, and demand for these products has weakened since China's trade restrictions were introduced.<sup>164</sup>

A number of other organisations who gave evidence agreed that contamination of co-mingled recycling was hindering the ability of the materials to be sold and recycled. Glenn Reddick, Manager of City Amenity at Warrnambool City Council said that co-mingled recycling was contaminated and difficult to sell: 'commingled recycling which is such a dirty product and so expensive to separate that it really knocks out the local market'.<sup>165</sup>

Another witness, Gary Combes from glass bottle manufacturer Owens-Illinois Inc believed that the use of co-mingled municipal recycling bins was no longer economically sustainable due to contamination:

Commingled recycling has been our reality for the last 25 years. It has reached a ceiling in terms of its suitability for this market. Certainly we do not believe it is no longer viable—certainly in terms of the quality of outcome that it can deliver; the economic sustainability of it. At the end of the day the availability of end market solutions just is not there.<sup>166</sup>

Mr Krpan from Sustainability Victoria acknowledged that reducing contamination in municipal recycling was a top priority for industry and local government:

... the very clear view from industry and local government is we have to reduce contamination in the recycling stream because that compromises the ability to then recycle it. Not only in China but even locally that quality has to improve.<sup>167</sup>

**FINDING 13:** Reduction of contamination in municipal recycling is a top priority for Victoria's waste and resource recovery system. One of the key ways to reduce contamination is through a reduction of glass in co-mingled recycling bins.

<sup>163</sup> Mr Simon Mackie, Member, National Waste and Recycling Industry Council, Public hearing, Melbourne, 5 June 2019, *Transcript of evidence*, p. 13.

<sup>164</sup> Government of Victoria, *Submission 699*, p. 26.

<sup>165</sup> Mr Glenn Reddick, Manager, City Amenity, Warrnambool City Council, Public hearing, Dunkeld, 19 September 2019, *Transcript of evidence*, p. 4.

<sup>166</sup> Combes, *Transcript of evidence*, p. 2.

<sup>167</sup> Krpan, *Transcript of evidence*, p. 8.

### 3.4 Glass contamination in municipal recycling

Glass is a major contributor to contamination in municipal recycling. Mr Simon Mackie, the operator of a materials recovery facility (MRF)<sup>168</sup> in Bendigo described how glass, particularly glass bottles, often break in co-mingled recycling bins because they have thin walls:

The trouble with the glass now is that it is thin-wall. So in the old days, anyone who drank out of longnecks—and some of you are old enough to remember what a longneck is—knew they were solid. Yes? No longer. You try and buy a stubby now and they are all thin—and of course, because the manufacturing industry needs to make sure they are as cheap as they can possibly be, because they have got price margins to meet as well. When we put that into a truck it just smashes. It smashes.<sup>169</sup>

Richard Macchiesi from Visy described how broken glass can become imbedded in paper and cardboard products and make them difficult to recycle:

... just to give you an example, the amount of glass that is impregnated in our paper. So if you put your cardboard box from your vegetable shopping in the bin, then you throw three wine bottles on top, for example, that goes into the truck, which as a co-mingle, the bottles can break. As those bottles break, then that glass gets impregnated into the paper because of pressure and compacting, and it gets to the MRF, then it is swished around and goes through the process, and sometimes shards of glass just cannot be removed from the cardboard, so contamination levels go up.<sup>170</sup>

Wendy Bezzina, CEO of Latrobe Valley Enterprises said that broken glass in co-mingled municipal recycling bins was also a problem for her business. Latrobe Valley Enterprises is contracted to provide cardboard and paper from municipal recycling bins to a paper manufacturer. She said that she had to stop using products from co-mingled bins to keep the contract:

... glass for us is a big issue. Even though they would pre-sort, glass shards are absolutely through everything and they stick in the cardboard and the paper. That was compromising our contract with Australian Paper to be able to put our cardboard out to them, so we had to cease taking on that commingled product.<sup>171</sup>

A number of other submitters and witnesses who gave evidence to the Committee agreed that glass in co-mingled recycling bins may contaminate the contents of the bin and bring down the value of the recyclable material in the bin:

<sup>168</sup> A materials recovery facility (MRF) is a centre for the receipt, sorting and transfer of materials recovered from the waste stream before transporting to another facility for recovery and management. At a MRF, materials may undergo mechanical treatment for sorting by characteristics such as weight, size, magnetism and optical density and may include cleaning and compression. Materials may be received as mixed streams such as commingled recyclables from households and businesses or single streams such as metals. See, Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, p. 170.

<sup>169</sup> Mackie, *Transcript of evidence*, p. 13.

<sup>170</sup> Macchiesi, *Transcript of evidence*, p. 10.

<sup>171</sup> Wendy Bezzina, CEO, Latrobe Valley Enterprises, Public hearing, Melbourne, 21 August 2019, *Transcript of evidence*, p. 46.

- ‘We know there is a problem with commingled, particularly with glass...’<sup>172</sup>
- ‘But the real issue there is that glass is a problem in the MRFs and the commingled...’<sup>173</sup>
- ‘When glass breaks it risks contaminating the paper stream and is difficult to filter out.’<sup>174</sup>

Given these assessments, the Committee believes it is vital to reduce the amount of glass in co-mingled recycling bins or cut it out altogether.

**FINDING 14:** Glass is a key contaminant in co-mingled municipal recycling bins that may break and contaminate other recyclable materials. This affects the capacity for other co-mingled municipal materials to be recycled.

### 3.5 A separate municipal glass recycling bin

One method to prevent or drastically reduce the amount of glass in co-mingled recycling is to provide an additional kerbside recycling bin for glass. This bin would be separate from the standard co-mingled recycling bin and would ensure glass was not mixed with other recyclable materials at home. Mr Combes from Owens-Illinois said that he believed that separation of glass at home (the source) is key to ensuring non-contaminated municipal recycling products:

Whatever system we do put in place, the key is the separation of those materials at the source. So we can debate at length the type of system we want to put in place, but that is the truth: the separation at the source is the only solution, and then the debate should be around what is the solution around that separation at the source.<sup>175</sup>

The MAV in its submission said that they supported the introduction of a separate kerbside glass recycling bin. They believe a separate bin would decrease contamination and increase the value of glass and non-glass recyclable materials:

Separation of glass at the kerbside into its own stream could increase this recovery rate to 90 per cent.<sup>176</sup> Separation of glass would also reduce the contamination of other recyclable materials, chiefly paper and plastic, by glass fragments. This would result in both the glass and nonglass streams being easier to process and of higher value to users of recyclable material.<sup>177</sup>

<sup>172</sup> Rowe, *Transcript of evidence*, p. 10.

<sup>173</sup> Peter Anderson, Chief Executive Officer, Victorian Transport Association, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 10.

<sup>174</sup> Zero Waste Victoria, *Submission 631*, p. 7.

<sup>175</sup> Combes, *Transcript of evidence*, p. 2.

<sup>176</sup> Owens-Illinois Asia Pacific, submission to Senate Standing Committees on Environment and Communications, Inquiry into Waste and Recycling Industry in Australia, p. 7.

<sup>177</sup> Municipal Association of Victoria, *Submission 651*, p. 26.

The Committee agrees that a separate glass recycling bin would assist in lowering contamination of co-mingled municipal recycling. However, the Committee heard that there are a number of issues to be taken into account when considering the introduction of an additional glass recycling bin. These include the costs, both in economic and environmental terms, of introducing a separate glass bin. The introduction of a separate glass bin for municipal recycling should be considered alongside the impacts of any proposed container deposit scheme.

### 3.5.1 The economic and environmental considerations for a separate municipal glass collection service

The provision of a separate glass bin may require more funding for an additional collection service. There may also be additional infrastructure and environmental costs.

#### Economic considerations

Moyne Shire Council will introduce a separate glass collection bin at the start of 2020.<sup>178</sup> Robert Gibson, Manager of Environmental and Regulatory Services at Moyne Shire Council told the Committee that the estimated cost to the Council to introduce the bin will be approximately \$250,000.<sup>179</sup> He added that he estimated \$50,000 will need to be spent on an education campaign to inform residents about the new bin and when it will be collected.<sup>180</sup>

The City of Ballarat has introduced a policy to require residents to cease putting glass in their co-mingled recycling bins. According to its website, the Council says this policy is intended to reduce glass contamination in co-mingled recycling.<sup>181</sup> Residents are asked to deposit their glass at collection points in the council area or put it into landfill. The Council notes on its website that it has not introduced a separate glass recycling bin because it 'does not want to burden ratepayers with an additional fee'. It says that the estimated cost of providing a separate glass bin 'would add approximately \$80 to the current annual household waste charge'.<sup>182</sup>

However, evidence was provided from the City of Yarra regarding a trial it is undertaking for both the introduction of a separate glass bin and a food and organics bin. Food and organics will be discussed in detail in section 3.7. The City of Yarra have been able to introduce a glass bin and a food and organics bin trial within its existing budget.<sup>183</sup> The Committee notes they have also received a grant from Sustainability Victoria to

<sup>178</sup> Moyne Shire Council, *Better4Moyne – Fourth bin for glass collection: Frequently Asked Questions*, October 2019, p. 1.

<sup>179</sup> Gibson, *Transcript of evidence*, p. 26.

<sup>180</sup> *Ibid.*, p. 28.

<sup>181</sup> City of Ballarat, *FAQs and further resources: Recycling in Ballarat is changing*, 2019, <<https://www.ballarat.vic.gov.au/recycle/faqs>> accessed 14 November 2019.

<sup>182</sup> *Ibid.*

<sup>183</sup> Cr Danae Bosler, Mayor, Yarra City Council, Public hearing, Melbourne, 22 October 2019 *Transcript of evidence*, p. 15.

assist with the trial.<sup>184</sup> The City of Yarra also does not have a waste charge.<sup>185</sup> This was achieved through a change to the collection timetables. Landfill and recycling bins were collected less often:

One of the things we are trying to do is balance the cost by reducing the logistics. A lot of the cost in waste is actually in transporting, and if you can move to fortnightly from weekly for some of the services, you can actually offset that to some extent. Particularly with something like glass that can be collected less regularly because it is not putrescible, there is an opportunity for that.<sup>186</sup>

The Committee notes that the costs associated with the introduction of a separate bin for municipal glass recycling may be considerable. However, as outlined by the City of Yarra, it may be possible to mitigate these costs through a change in pickup frequency for other bins. Any possible mitigation in costs may vary between local government areas depending on their existing collection frequencies.

### Environmental considerations

In relation to the environmental impact of an extra bin, Ifte Hossain, Team Leader of Waste Services at Greater Shepparton City Council said that the carbon footprint of a collection service for an extra bin needed to be considered when adding an extra bin for collection:

From a three-bin system to four or more bins? It is a good idea, at the same time when you think about carbon footprint and the resources, you will have to have a separate truck to collect those, so that is going to have more of a carbon footprint, so you need to think about the whole thing.<sup>187</sup>

The Committee notes the difficulties and costs associated with the introduction of a separate glass recycling bin and is cognisant that they must be taken into account when considering the benefits of removing glass from co-mingled recycling bins.

## 3.5.2 Experiences with the introduction of separate municipal glass recycling bins

The Committee heard from some councils that are in the planning stages of introducing a separate glass bin, and others that are undertaking trials of glass bins.<sup>188</sup>

<sup>184</sup> Ibid., p. 14.

<sup>185</sup> Ibid., p. 15.

<sup>186</sup> Mr Chris Leivers, Director, City Works and Assets, Yarra City Council, Public hearing, Melbourne, 22 October 2019, *Transcript of evidence*, p. 26.

<sup>187</sup> Mr Ifte Hossain, Team Leader, Waste Services, Greater Shepparton City Council, Public hearing, Echuca, 3 September 2019, *Transcript of evidence*, p. 24.

<sup>188</sup> The Committee is aware of the following councils that are introducing or trialling separate glass recycling bins: City of Yarra, Moyne Shire Council, Macedon Ranges Shire Council, Warrnambool City Council.

Warrnambool City Council are making preparations for the introduction of a glass bin. The Council said that they have found a local road building company who is planning to buy a glass crusher that will take all the glass collected in Warrnambool's glass collection scheme and crush it for road base:

We have a local company in Warrnambool that has recently been in the media called Fulton Hogan, who are a road builder. They have a use for the glass, so the glass that we collect from our kerbside collection—they are investing in a glass crusher in Warrnambool, and that will replace a lot of aggregate material that would ordinarily be mined. There is also a local business that is doing a CBD glass collection—so around all the restaurants, collecting the bottles—and they will go to Fulton Hogan.<sup>189</sup>

Mr Reddick noted the expected improvement in other streams of municipal recycling as a result of glass being removed: 'if the glass comes out it becomes much less expensive to recycle and it brings local recycling into play'.<sup>190</sup>

### The City of Yarra glass and FOGO bin trial

The City of Yarra is currently conducting a glass and FOGO bin trial. The trial involves the introduction of a separate glass and FOGO bin, in addition to landfill and co-mingled recycling bins. The trial is taking place over the course of a year, beginning in June 2019.<sup>191</sup> It is centred on 1300 households in Abbotsford, which offer a mix of residential and business uses typical of the makeup of the larger City of Yarra.<sup>192</sup> The area also includes higher density areas and multi-unit developments. Cr Danae Bosler, Mayor of the City of Yarra said that the trial had so far succeeded in bringing down contamination rates in municipal recycling:

... the contamination rates have plummeted. We have gone from contamination rates of 15 per cent to 3 per cent. That is outstanding.<sup>193</sup>

Cr Bosler attributed the trial's success so far to a concerted education campaign before the trial began and ongoing engagement to ensure the correct practices are being followed:

We did not just rock up on 1 July and wheel four bins out to the front of your house. We went through a really substantial process with that community of consultation and pop-up stalls. I was out at pop-up stalls with residents. We were doing letterbox drops. On the bin days we had staff walking the streets working with residents, knocking on doors. Like, you cannot just rock up on the day and shove four bins out the front of people's houses; you have to work with that community about what that looks like.<sup>194</sup>

<sup>189</sup> Reddick, *Transcript of evidence*, p. 4.

<sup>190</sup> Ibid.

<sup>191</sup> Yarra City Council, *Yarra Waste Revolution in Abbotsford: What is changing?*, 2019, <<https://www.yarracity.vic.gov.au/waste-revolution-abbotsford-trial/what-is-changing>> accessed 14 November 2019.

<sup>192</sup> Ibid.

<sup>193</sup> Bosler, *Transcript of evidence*, p. 14.

<sup>194</sup> Ibid.

The benefits of education campaigns to reduce contamination in municipal recycling is discussed in detail in section 3.8.1.

The City of Yarra noted that one of the challenges with the trial has been the involvement of multi-unit developments or apartment blocks. Chris Leivers, Director of City Works and Assets at the City of Yarra noted that through concerted education programs and engagement with the building managers of multi-unit sites, the City of Yarra has been able to bring down contamination rates. This education and engagement is reinforced with an expectation that the bins may not be collected if they have a high rate of contamination:

Contamination [in multi-unit developments] is now about the same as a household, because what we said to the manager was, 'This is what we expect; you haven't been able to achieve that this time. You're going to have to get a commercial collector to collect that'.<sup>195</sup>

The Committee commends the City of Yarra's trial, notes the successes achieved so far in the decrease in contamination of municipal recycling and hopes the Government will study the lessons learnt by the City of Yarra.

### 3.5.3 The Committee's view in relation to the introduction of a separate glass bin for municipal recycling

The Committee supports the introduction of a separate glass recycling bin for kerbside municipal recycling across Victoria. This is due to the weight of the evidence it has received about the potential for a separate glass bin to reduce contamination rates in kerbside municipal recycling.

The Committee believes that while the costs for such a scheme may be considerable,<sup>196</sup> the overall benefits to Victoria's waste and resource recovery system are greater. The Government should provide funding and support to councils to implement a separate municipal glass recycling bin.

As discussed previously in this section, the introduction of a separate municipal glass recycling bin should be considered in parallel with any proposed container deposit scheme.

**RECOMMENDATION 11:** That the Victorian Government provide funding and support for all Victorian councils statewide to introduce a separate bin for municipal glass recycling. The Victorian Government should also conduct a study of the costs and benefits associated with the introduction of a separate municipal glass recycling bin, and these should be disclosed.

<sup>195</sup> Leivers, *Transcript of evidence*, p. 22.

<sup>196</sup> A discussion of the detailed costings of the implementation of a statewide FOGO scheme is discussed in section 3.7.9.

### 3.5.4 Uses for glass collected in a separate municipal recycling bin

The Committee would like to ensure where possible that glass collected as part of a municipal scheme with a separate glass bin is used in a way that would encourage its ongoing re-use, such as for re-making glass bottles. Gary Combes from Owens-Illinois noted that glass is able to be re-used many times over:

Glass is truly the most sustainable packaging option available because it is infinitely recyclable—it can be turned back into a bottle within 30 days of being consumed, going through the recycling system. It is the only true closed-loop packaging system in Australia at the moment that is working well.<sup>197</sup>

While it will not always be possible to use glass for remanufacture as a like product, care should be taken by councils and the waste and resource recovery groups to preference such uses when designing contracts. This is preferable to the use of glass for single-use purposes such as reuse in road base. Further uses of recycled materials are discussed in Chapter 7.

## 3.6 Landfill waste contamination in kerbside municipal recycling

The Committee was told that while glass is a key source of contamination in co-mingled municipal recycling, there were other items of waste deposited in municipal recycling that belonged in landfill bins. Mr Krpan from Sustainability Victoria said that approximately 5 to 10 per cent of materials in co-mingled recycling bins cannot be recycled, and that the key contaminants were ‘clothing or textiles, food waste, flexible plastics like plastic bags and film, and things put in plastic bags’.<sup>198</sup>

Simon Mackie, an MRF operator in Bendigo said that the proportion of landfill waste reaching his MRF was higher, at about 15 per cent.<sup>199</sup> He gave the Committee an example of the kinds of landfill waste that he has seen at his facility:

In our MRF we get everything, even though it is a recycling facility, from dirty nappies to dead snakes and everything in between. I have seen a whole bathroom come through a MRF. I have seen literally the sink, the plumbing, everything, because the community think—or do not think, as the case may be—‘Here’s some space, and I can get rid of it and it’s not going to cost me anything’.<sup>200</sup>

Mr Krpan said that educating the community about the correct items to put in co-mingled recycling bins was the key to ensuring contamination of landfill waste in municipal recycling was kept down.<sup>201</sup> The importance of education for municipal recycling will be discussed in section 3.8.1.

<sup>197</sup> Combes, *Transcript of evidence*, p. 1.

<sup>198</sup> Krpan, *Transcript of evidence*, p. 4.

<sup>199</sup> Mackie, *Transcript of evidence*, p. 13.

<sup>200</sup> Ibid.

<sup>201</sup> Krpan, *Transcript of evidence*, p. 4.

## 3.7 Food organics and garden organics

Organic content makes up a large proportion of household waste. Sustainability Victoria told the Committee that 40 per cent of the waste in municipal landfill bins is organic waste, primarily food waste.<sup>202</sup> This organic material causes leachate in landfill and is a contributor to greenhouse gasses, including methane.<sup>203</sup>

### 3.7.1 Different types of organic waste and municipal collection arrangements

#### Organic waste (without food)

Organics waste bins are one of the three bins typically offered by Victorian councils. 56 of the 79 Victorian councils offer an organics bin.<sup>204</sup> Organics bins allow residents to deposit garden waste including grass clippings and small branches. The collection frequency varies from council to council.

#### Food organics and garden organics

Food organics and garden organics bins allow residents to deposit both garden organic waste and food waste in the same bin. A FOGO service is only offered by some Victorian councils. The Committee was told in May 2019 that 19 councils offer a FOGO service.<sup>205</sup> Some councils provide a 'kitchen caddy' for residents to collect food waste in the kitchen before depositing it in their larger FOGO bin.<sup>206</sup>

### 3.7.2 Diversion of food waste from landfill

A number of witnesses at public hearings expressed the view that diversion of organic waste, primarily food, from the waste stream was an effective way to cut down significantly on the amount of waste sent to landfill.

Table 3.1 illustrates the amount of organic waste that is recovered and that which is landfilled in Victoria in 2016-17.

<sup>202</sup> Ibid., p. 12.

<sup>203</sup> Ibid.

<sup>204</sup> Government of Victoria, *Submission 699*, p. 43.

<sup>205</sup> Matt Genever, Director Resource Recovery, Sustainability Victoria, Public hearing, Melbourne, 10 May 2019 *Transcript of evidence*, p. 13; Krpan, *Transcript of evidence*, p. 13.

<sup>206</sup> See for example: Gibson, *Transcript of evidence*, p. 26.

**Table 3.1** Composition and recovery of organic waste in Victoria, 2016-17

Waste type	Recovered	Landfilled	Total managed	Recovery rate (%)
Food organics	69,800	909,380	979,180	7
Garden organics	507,434	263,170	770,604	66
Wood/timber	227,912	307,536	535,448	43
Other organics	290,685	-	290,685	100

Source: Government of Victoria, *Submission 699*, p. 39.

The Committee notes the poor recovery rate of food waste of seven per cent.

The diversion of food waste from landfill is an opportunity to cut down on landfill waste and greenhouse gas emissions. For example, Dr Jonathan Speer from Infrastructure Victoria told the Committee that his organisation has been asked to investigate how to best remove food waste from landfill because it is an area with a poor recovery rate:

... we have been asked to look at how we can have a high level of recovery of organics, and particularly food organics. I am sure the committee is aware of the sorts of numbers and the opportunity that might be available there.<sup>207</sup>

### Greenhouse gas emissions from landfilled food and organic waste

The Metropolitan Waste and Resource Recovery Group notes in its guide for local government on introducing FOGO services that food waste in landfill produces methane as it breaks down. The guide says that methane is a potent greenhouse gas, which is 25 times stronger than carbon dioxide.<sup>208</sup> The report cites Glen Eira City Council, which calculated that 79 per cent of the Council's greenhouse gas emissions were as a result of the food waste it sent to landfill.<sup>209</sup>

Councillor Gross, from Port Phillip Council, told the Committee that once in landfill, food and organic waste produces methane, which is a more potent greenhouse gas than carbon dioxide:

When waste decomposes and breaks down it decomposes differently if it is in an anaerobic or oxygen-deprived place—i.e. in a landfill, under the ground. So if you look at that graph, you start off with the oxygen depleting over the first two phases—that is that thick grey line starting at 20 and going down to zero. Then the methanogens take over. Methanogens are methane producing bacteria and they bring the mix of emissions up to sort of close to 50-50 CO<sub>2</sub> and methane. Methane is important because it has 30 times

<sup>207</sup> Dr Jonathan Speer, Executive Director, Advisory and Corporate, Infrastructure Victoria, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 2.

<sup>208</sup> Metropolitan Waste and Resource Recovery Group, *Introducing a kerbside food and garden organics collection service: A guide for local government*, September 2018, p. 13.

<sup>209</sup> *Ibid.*

more global warming potential than CO<sub>2</sub>. That is why I obsess about this methane and why I think your task is incredibly important. It is not just about the local drama du jour—and there is always a drama in waste—but it is about the methane...<sup>210</sup>

It should be noted that some landfills collect landfill gas for use in energy. The Metropolitan Waste and Resource Recovery Group in its FOGO guide stated that 30-50 per cent of landfill gas emissions are likely to be collected.<sup>211</sup>

The Committee believes it is important to ensure food and organic waste is diverted from landfill, both to ensure it is reused and to limit the greenhouse gas emissions associated with FOGO in landfill.

### 3.7.3 Food waste avoidance

Avoidance of food waste is a key component in reducing the amount of food waste that reaches landfill. This has been identified by Sustainability Victoria, who run an education campaign titled 'Love Food, Hate Waste'.<sup>212</sup> The campaign noted that each year Victorians throw away 250,000 tonnes of edible food.<sup>213</sup> The Committee supports food waste avoidance education and believes that the avoidance of such waste is the most desirable method of cutting down on the environmental and economic costs of food waste.

### 3.7.4 Uses of food and organics waste and infrastructure required

Food and organics waste can be re-used and made into products. The uses the Committee was informed about for FOGO waste are:

- mulch (for garden waste)
- compost and soil conditioner (for garden and food waste)
- energy.

#### Mulch

The Committee was informed by some councils that they use garden organics waste for mulching. For example, Gannawarra Shire Council told the Committee at a public hearing that they have a program where residents can purchase mulch made from garden waste.<sup>214</sup> Similarly, Bass Coast Shire Council said they have a mulching facility at a transfer station where residents can purchase mulch.<sup>215</sup>

<sup>210</sup> Cr Dick Gross, Mayor, City of Port Phillip, Public hearing, Melbourne, 22 October 2019, *Transcript of evidence*, p. 1.

<sup>211</sup> Metropolitan Waste and Resource Recovery Group, *Introducing a kerbside food and garden organics collection service*, p. 13.

<sup>212</sup> Krpan, *Transcript of evidence*, p. 5.

<sup>213</sup> Sustainability Victoria, *Love food hate waste*, 2019, <<https://www.sustainability.vic.gov.au/campaigns/love-food-hate-waste>> accessed 14 November 2019.

<sup>214</sup> Rollinson, *Transcript of evidence*, p. 3.

<sup>215</sup> Griepsma, *Transcript of evidence*, p. 32.

### Compost and soil conditioner

Food and garden organics may be made into compost and soil conditioner. The material is supplied by councils who collect the waste from households. The Committee was given an example of a new facility in Dandenong that is able to take the FOGO waste of councils in south eastern Melbourne. The facility has a capacity of 120,000 tonnes of waste per year, which it is able to process into 50,000 tonnes of compost.<sup>216</sup>

### Energy

Organic waste is also used in Victoria to generate energy via a process known as anaerobic digestion. Energy recovery from waste will be discussed in detail in Chapter 6.

#### 3.7.5 The Committee's view on the statewide introduction of a separate FOGO bin

The Committee notes the considerable costs that may be involved with the introduction of a statewide FOGO service for all Victorian councils. However, the benefits in reducing greenhouse gas emissions and the impact the introduction of a FOGO service would have on the amount of waste ending up in landfill are recognised.

The Committee does not recommend any particular model of FOGO program. It believes local councils should financially contribute to such a service and recommends that the Government provide financial support to Victorian local councils who have not established a FOGO service and wish to do so. Such support should be considered particularly during the initial implementation phase of a FOGO service where infrastructure and education costs may be increased. The Committee hopes that, as has been the experience with some councils, savings can be made over time through a reduction in landfill levy payments.

**RECOMMENDATION 12:** That the Victorian Government work in partnership with local councils to develop a standardised statewide system, appropriate to local needs, of food organics and garden organics services towards a goal zero of food organics and garden organics going to landfill.

#### 3.7.6 Biodegradable bags suitable for composting

Some councils accept FOGO waste for composting in biodegradable bags, while others do not. The Committee heard this was due to disagreement about whether the bags could act as a contaminant. For example, Mr Genever from Sustainability Victoria said

<sup>216</sup> Sacyr, 'Sacyr officially launches waste treatment plant in Melbourne Australia', *Features News*, 17 May 2019, <[http://www.sacyr.com/es\\_en/Channel/News-Channel/news/featuresnews/2019/Inauguracion/20190517\\_Inauguracion\\_residuos\\_melbourne.aspx](http://www.sacyr.com/es_en/Channel/News-Channel/news/featuresnews/2019/Inauguracion/20190517_Inauguracion_residuos_melbourne.aspx)> accessed 14 November 2019.

that some bags which claim to break down in the composting process may not do so, and that it was possible that such bags could act as a contaminant:

Where the challenge is, is things like our organics collection services, because people think, 'Oh, it's compostable. It says this bag's compostable; I'll put it in my green waste bin'. And what we know from experience with our composting colleagues is that the vast majority of them are not able to be broken down through the composting process, and so they end up as being inadvertently more of a contaminant in one of our parts of our recycling sector in an effort to try and fix another part.<sup>217</sup>

The Committee notes there are Australian Standards for companies who wish to certify their biodegradable plastic bags are suitable for composting, and another for biodegradable plastic bags suitable for home composting.<sup>218</sup> A voluntary scheme for companies wishing to have their claims of compliance with the standards verified is administered by the Australian Bioplastics Association.<sup>219</sup>

Natasza Letowt-Vorbek, Coordinator of Waste Contracts and Projects for the City of Boroondara told the Committee that in her view composting bags could be used in the composting process and that economic considerations on the part of composters were a barrier for their widespread acceptance:

Through my research in the UK I know this to be to do with the loading rhythm, so it is about their business model. So it is about how many times a week they can fill and shut the door on the in-vessel and do that processing, because they have a week-long processing in the in-vessel instead of two to four weeks which it takes for the bags to compost. So you can see how the business model then is built on quite a fast turnaround over one week. Other reprocessors have elected to go for a slightly different business model and are going for the 10 to 14 days, which means that liners can be included and composted.<sup>220</sup>

Further, she said that reluctance on the part of some councils to accept composting bags could impede more widespread take up of FOGO bins due to concerns on the part of residents about the odour from food waste:

I did some studies—a pilot study in the UK about 15 years ago, where I indicated that there was a significant perceived barrier to do with exactly what you said: as soon as FOGO is mentioned, 'It's going to smell. It's going to be yucky'—the 'yuck' factor, we colloquially term it. A number of studies have subsequently proven that the provision of liners will increase the engagement and capture of materials, so with the primary

<sup>217</sup> Genever, *Transcript of evidence*, p. 11.

<sup>218</sup> The Standards are: Australian Standard AS 4736-2006 Biodegradable plastics - Biodegradable plastics suitable for composting and other microbial treatment and Australian Standard AS 5810-2010 Home Composting - Biodegradable plastics suitable for home composting.

<sup>219</sup> Australasian Bioplastics Association, *Certification*, 2019, <<https://www.bioplastics.org.au/certification>> accessed 14 November 2019.

<sup>220</sup> Ms Natasza Letowt-Vorbek, Coordinator, Waste Contracts and Projects, City of Boroondara, Public hearing, Melbourne, 22 October 2019, *Transcript of evidence*, p. 48.

objective being to divert recoverable organic resources from landfill, the provision of compostable bags I would advocate for, having been round this whirligig a few times.<sup>221</sup>

### 3.7.7 Composting at home

Another option for some Victorians is to re-use FOGO waste through home composting. The Committee acknowledges there are many Victorian households where home composting is impractical due to space and other considerations.

There are a number of programs run by councils throughout Victoria to assist residents with home composting. For example, Greater Bendigo City Council told the Committee that it provided subsidised worm farms and compost bins for its residents who did not want to be part of its FOGO scheme.<sup>222</sup> Similarly, Banyule City Council told the Committee about a 'green cone biodigester' they supply to residents that can be buried in a resident's garden to compost food waste.<sup>223</sup>

The Committee supports the efforts of councils to provide help to residents to compost their own food and organic waste at home for their own use.

### 3.7.8 FOGO contamination

The Committee heard concerns that municipal FOGO waste could include contaminants, which could be a health and environmental concern once it is made into compost. Ms Kylie White, Deputy Secretary, Environment and Climate Change at DELWP told the Committee that compost from FOGO waste could be used for agricultural purposes, but that it needed to be free of bacteria and contaminants. She said that the key contaminant was non-organic material deposited in FOGO bins.<sup>224</sup>

Dr Cathy Wilkinson from the EPA added that an EPA analysis of physical contamination levels of FOGO waste at local council transfer stations found a 3 to 5 per cent degree of contamination. She said that, ideally, the component of contamination should be much lower, preferably 0.5 per cent.<sup>225</sup>

Ms White said that the issue of contamination of non-organic products could be addressed through appropriate education programs to ensure that non-organic items are not deposited in FOGO bins.<sup>226</sup>

<sup>221</sup> Ibid.

<sup>222</sup> Ms Brooke Pearce, Manager, Resource, Recovery and Education, Greater Bendigo City Council, Public hearing, Echuca, 3 September 2019, *Transcript of evidence*, p. 19.

<sup>223</sup> Mr Andrew Croft, Waste Management Coordinator, Banyule City Council, Public hearing, Melbourne, 22 October 2019, *Transcript of evidence*, p. 20.

<sup>224</sup> Ms Kylie White, Deputy Secretary, Environment and Climate Change, Department of Environment, Land, Water and Planning, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, pp. 3-4.

<sup>225</sup> Wilkinson, *Transcript of evidence*, p. 4.

<sup>226</sup> White, *Transcript of evidence*, p. 4.

Mr Ifte Hossain from Greater Shepparton City Council told the Committee that he believed there was some subjectivity about the uses for compost that may be contaminated:

... there are some grey lines at the moment about what should be the standard for the final product in the compost material that we are talking about, because we are hearing that those products are not classified as fertiliser, but it is a good material for moisture conditioning material, like you can use it at wineries to keep the moisture. But you should not mix it with the soil because the end product still has pathogens in it—they do not get killed. It is not 100 per cent treated material.<sup>227</sup>

Dr Spear from Infrastructure Victoria also said that standards for compost from FOGO waste needed to be clear so as to generate confidence in the product:

in terms of improving product disclosure and generally raising awareness and standards for organic material, agriculture is obviously a potential end market for compost, and that would replace chemical fertilisers. However, if I am growing lettuce, I need to be assured that this material is meeting the very high food quality standards that are demanded for public and environmental health. So I think there is a lot of work that needs to be done there in having standards that are understandable and in generating confidence in the products for that uptake to occur.<sup>228</sup>

The EPA administers a standard for contaminants in compost, including plastic. It is outlined in the *Designing, constructing and operating composting facilities* guideline.<sup>229</sup> The Committee encourages the EPA to work with councils and industry to ensure the products from FOGO waste meet the requirements outlined in the guide.

**RECOMMENDATION 13:** That given that compost and soil conditioner made from food organics and garden organics may be used for agricultural purposes, in the interests of food safety, guidelines for its use should be clear and standards need to be published and enforced. Prior to the statewide rollout of the use of compost from food organics and garden organics for agricultural use, the Department of Health and Human Services should investigate relevant health risks.

### 3.7.9 Costs for introducing FOGO services

Like the introduction of a separate glass bin, a FOGO service is an added cost to councils, which may be passed onto ratepayers. However, the Committee was told that the extra cost of running a FOGO service could, over time, be subsidised or outweighed by the savings that councils achieve by having landfill volume, and thus less landfill levy costs.

<sup>227</sup> Hossain, *Transcript of evidence*, p. 17.

<sup>228</sup> Spear, *Transcript of evidence*, p. 42.

<sup>229</sup> Environment Protection Authority Victoria, *Guideline: Designing, constructing and operating composting facilities: Publication 1588.1*, June 2017, p. 21.

For example, Mr Bo Li, from the Victorian Local Governance Association cited two councils who had introduced a FOGO service. He said that there were up-front capital costs when introducing the program that were offset somewhat by savings in landfill levy costs:

We do want to bring to the attention of the committee the fact that the FOGO waste management does require some initial investment by the council. We quoted two examples, where Bayside City Council estimated an additional \$900 000 required to implement FOGO waste management for the 2019–2020 financial year and reducing that to \$320 000 in 2021–2022. If you look at a regional city such as Mildura, they estimated an additional \$2 million would be required in the first year, reducing to \$1.4–1.5 million, and the main reason for that is actually there is no FOGO waste processing centre within 400 kilometres of that particular regional city. So there are some up-front costs required by council, notwithstanding the fact that they will have some reduction in terms of the landfill levy that they will have to pay.<sup>230</sup>

Deirdre Griepsma from Bass Coast Shire Council told the Committee that the Council also have a FOGO collection bin. She noted the environmental benefits of reduction in landfill as a result of FOGO, as well as the savings in landfill levy costs:

The overall cost—and some of these are lag indicators rather than lead—per household per annum is \$1.85 a week, and I should clarify that, per household to have that FOGO bin, to have that food organic/green organic bin. Processing as a raw cost is actually more than going to landfill as far as paying a levy, but the offset that comes with that is the benefit of—in our case—a reduction in around 5000 tonnes of CO<sub>2</sub> equivalence of landfill gas, because that organic material is not breaking down and emitting landfill gas. You are not using up your airspace in your landfill, therefore your capital costs are reduced, and your rehabilitation and aftercare costs are reduced. You have also got savings in the landfill levy. Bass Coast at the moment is saving—or not paying—around \$283 000 in landfill levies per annum to the EPA. So there are a number of different ways that those costs play out over a time period, because for instance, your capital costs will not be realised for four or five years with the input of that particular service level.<sup>231</sup>

Other councils acknowledged the costs associated with the scheme and emphasised the importance of education for ratepayers so that they were content with the possible extra charge for the service. Tim Rowe from Wellington Shire Council said:

If we do go to a joint procurement process, the tender specifications will include FOGO, so food organics and green organics. For us that is the provision of a third bin, and that might cost anywhere between \$70 and \$90 per annum based on some feasibility studies that have been done. Obviously that is an added cost to the community, so we would have to make sure that our engagement process with the community is strong enough to be able to articulate the benefits of that, and there are many benefits around reduction of material landfill, greenhouse gas emission reduction, reduction in capital

<sup>230</sup> Bo Li, Senior Policy Adviser, Victorian Local Governance Association, Public hearing, Melbourne, 24 June 2019, *Transcript of evidence*, p. 5.

<sup>231</sup> Griepsma, *Transcript of evidence*, p. 31.

costs for managing landfills and those sorts of things. So there is lots of benefit there— financial benefit as well as environmental benefit.<sup>232</sup>

As well as possible increased costs to ratepayers for collection services, there are significant capital costs required to establish the infrastructure to process FOGO waste into compost. For example, in 2019 a \$65 million organics processing facility was opened in Dandenong. The facility will take FOGO waste from eight metropolitan councils in Melbourne's south east.<sup>233</sup> The Committee believes that it is important to ensure that adequate infrastructure is available to process any increase in FOGO waste that may arise from increased uptake of FOGO services.

### 3.7.10 A costing for a fortnightly statewide kerbside food and garden waste collection with 120L bins from the Victorian Parliamentary Budget Office

The Victorian Parliamentary Budget Office (PBO) conducted a costing for a fortnightly statewide kerbside food and garden waste collection of 120 litre bins. The policy would require local councils to collect FOGO waste fortnightly, and recommend that they collect landfill bins fortnightly as well.<sup>234</sup>

The policy costing was based on the Government providing funding to local councils to allocate 120 litre FOGO bins to households without one and to collect the bins on a fortnightly basis. The policy does not involve any financial contribution from local councils or ratepayers. The policy would also adjust Government funding to councils to take into account the decrease in landfill waste as a result of increased FOGO collection.<sup>235</sup>

Finally, the proposed policy would establish a fund to provide grants to organisations that establish organic waste recycling facilities in regional areas.<sup>236</sup>

The cumulative costing for the policy between 2019-20 and 2022-23 was an overall net budget cost of \$514.7 million. This would take into account estimated one off costs of providing additional bins for \$77 million and \$90 million for regional organic recycling facilities. It also took into account the decrease in landfill levy fees collected by the Government.<sup>237</sup>

Over a 10-year period, the overall cumulative net budget cost of the policy was estimated at \$1.521 billion.<sup>238</sup>

<sup>232</sup> Rowe, *Transcript of evidence*, p. 8.

<sup>233</sup> Metropolitan Waste and Resource Recovery Group, 'New facility to boost Melbourne's organic processing capacity', *News*, 20 May 2019, <<https://www.mwrrg.vic.gov.au/news/new-facility-to-boost-melbournes-organic-processing-capacity>> accessed 14 November 2019.

<sup>234</sup> Parliamentary Budget Office, *Fortnightly statewide kerbside food and garden waste collection 120L bins: Published policy costings*, 24 October 2019, <<https://sway.office.com/hBqFAtmRBYpKheCk>> accessed 14 November 2019.

<sup>235</sup> *Ibid.*

<sup>236</sup> *Ibid.*

<sup>237</sup> *Ibid.*

<sup>238</sup> *Ibid.*

## 3.8 Municipal recycling education

The Committee heard that delivery of education about municipal recycling in Victoria is fragmented amongst a number of organisations and that there is not a consistent statewide approach. This has prevented messages about recycling from reaching mass audiences and has provided contradictory information about what can and can't be recycled.

This is in part due to inconsistent recycling practices and capabilities across Victoria's council areas. Where possible, these inconsistencies need to be addressed to ensure statewide recycling education initiatives are successful.

### 3.8.1 The importance of education in reducing contamination in municipal recycling

A number of submitters and witnesses stated that education reinforcing the importance of recycling, as well as information about what is and what is not recyclable, is important to ensure low levels of contamination in municipal recycling. Rose Read, CEO of the National Waste and Recycling Industry Council told the Committee that:

Contamination, household and commercial—this comes back to education, consistent messaging and also councils, especially households but also businesses educating their customers, their householders, their residents and their businesses about what is in and what is out, and also being a little bit tough on them too and really sending home the message that that is not acceptable.<sup>239</sup>

This view that education is key to reducing contamination in municipal recycling was shared by many witnesses and submitters. For example:

- 'Money spent on education for the community is better than money spent on machinery to do essentially the same thing.'<sup>240</sup>
- 'I would agree that the community do need to be better educated about what goes into the bins. We still have councils telling us that they are experiencing people putting nappies into recycling bins, believing they are recyclable when clearly they are not.'<sup>241</sup>

Other witnesses told the Committee that there is a willingness to improve separation of products into separate bins, however, there needs to be an education campaign about what can go in them. Mary-Ann Brown, Mayor of Southern Grampians Shire Council said:

So I think there is a great desire by the community to do it, and it is not a big effort, but they need to know what they need to do. It needs to be easy and quite clear what they are doing, and that is where I think the education part is. I am not sure that legislating

<sup>239</sup> Read, *Transcript of evidence*, p. 6.

<sup>240</sup> Mr Ben McLean, Strategic Projects Manager, Australian Paper, Public hearing, Melbourne, 10 May 2019, *Transcript of evidence*, p. 12.

<sup>241</sup> Li, *Transcript of evidence*, p. 8.

actually is helpful in that space. I think it is really about educating people and making it easy for them to do it.<sup>242</sup>

While education for recycling is considered important in reducing contamination, there are key issues that are preventing the implementation of effective recycling education. They include:

- fragmented and inconsistent education about municipal recycling, with the lack of a statewide education campaign
- different recycling practices and capabilities between council areas.

### 3.8.2 Fragmented and inconsistent municipal recycling education

The Committee heard that while education for recycling was important in reducing contamination, part of the problem was that recycling education has been undertaken by a number of agencies in Victoria. This may have resulted in fragmented and inconsistent information. Tim Rowe from Wellington Shire Council expressed this view in evidence to the Committee:

We believe that at the moment there is a somewhat uncoordinated approach which has resulted in fragmented or confused messaging, which has undermined correct disposal habits at the community level. Branding, messaging and bin colouring standards across council regions all differ at the moment, and this has an impact on community understanding of the recycling process.<sup>243</sup>

The MAV stated in its submission that Sustainability Victoria and the seven waste and resource recovery groups have responsibility for delivering education. They said that local councils also deliver recycling education services.<sup>244</sup>

According to Sustainability Victoria's *Victorian Waste Education Strategy*, Sustainability Victoria, the waste and resource recovery groups and local government have the following responsibilities in relation to waste education.

<sup>242</sup> Cr Mary-Ann Brown, Mayor, Southern Grampians Shire, Public hearing, Dunkeld, 19 September 2019, *Transcript of evidence*, p. 5.

<sup>243</sup> Rowe, *Transcript of evidence*, p. 4.

<sup>244</sup> Municipal Association of Victoria, *Submission 651*, p. 8.

**Table 3.2 Key stakeholders and their roles in education about municipal recycling**

Stakeholder	Role in waste education
<b>Sustainability Victoria</b>	<ul style="list-style-type: none"> <li>Responsible for statewide waste and resource recovery education campaigns and programs</li> <li>Develops and leads the coordination, delivery and reporting of the waste education strategy</li> <li>Delivers waste related statewide campaigns on topics such as reducing littering behaviour and avoiding food waste</li> <li>Manages the ResourceSmart Schools initiative</li> <li>Delivers business efficiency programs</li> </ul>
<b>Waste and resource recovery groups</b>	<ul style="list-style-type: none"> <li>Help deliver waste education strategy activities at the regional and metropolitan level in consultation with SV</li> <li>Work with SV, local government, businesses and communities to help deliver statewide waste and resource recovery education programs and ensure they meet the needs of their region</li> <li>Identify household, business and community education needs to support the implementation of new infrastructure or services in line with statewide strategies and priorities</li> <li>Work with SV to provide regional input into statewide strategies as well as program design, delivery and evaluation</li> </ul>
<b>Local government</b>	<ul style="list-style-type: none"> <li>Engages with local communities on new waste and resource recovery infrastructure and services</li> <li>Influences communities, local business and industry (supported by other tiers of government) to maximise resource recovery rates and reduce waste to landfill</li> <li>Implements and provides waste services and programs</li> <li>Designs and delivers waste and resource recovery education programs</li> <li>Direct interface with community collecting rates for the provision of waste and resource recovery services</li> <li>Contracts or manages the collection of household waste</li> <li>Local government is also the first point of call for many local residents and has the power to take enforcement action for litter and illegal dumping of household waste under the Environment Protection Act</li> </ul>

Source: adapted from Sustainability Victoria, *Victorian Waste Education Strategy*, Melbourne, 2016, p. 7.

A number of other organisations, both government and non-government, also deliver waste education programs and services.<sup>245</sup>

The Committee notes that Sustainability Victoria is responsible for the statewide coordination of waste education. The Committee recognises too that the seven waste and resource recovery groups and local councils are better placed to deliver messages that are applicable to the residents in their regions and local municipalities.

<sup>245</sup> According to Sustainability Victoria's *Victorian Waste Education Strategy*, these are: the Department of Environment, Land, Water and Planning, the Environment Protection Authority Victoria, the Department of Education and Training, the waste and resource recovery industry, industry associations, the Australian Packaging Covenant, Tyre Stewardship Australia and other industry-led programs, schools, community groups, non-government organisations and other government agencies, training providers, TAFEs and universities, charities and op shops, social enterprises, researchers and environment groups, committees of management and health services. See, Sustainability Victoria, *Victorian Waste Education Strategy*, Melbourne, August 2016, pp. 7-8.

However, the evidence received from a number of witnesses, particularly local councils, suggests there is a desire for a more coordinated and less fractured approach to recycling education. Many of these stakeholders advocated for a statewide recycling education campaign. Because the education about recycling is fractured and inconsistent, the Committee was told that a The MAV noted this issue in its submission to the Inquiry:

In our view, the complete absence of highly visible statewide waste education campaigns has almost certainly been a key contributing factor to the relatively high rates of contamination in our kerbside recycling and to the public's low level of understanding and appreciation of recycling and sustainable consumption.<sup>246</sup>

Tim Rowe from Wellington Shire Council also held the view that a statewide education campaign was necessary:

There appears to be a gap in statewide education campaigns and a lack of statewide response for the emerging issues in waste, recycling and resource management. The State Government must ensure that it uses a broad range of tools and communication methods to engage members of the community that are not presently engaged in the waste management dialogue.<sup>247</sup>

**FINDING 15:** That a statewide education campaign would be beneficial for reducing contamination in municipal recycling and increasing recycling overall.

### 3.8.3 Difficulties with inconsistent municipal recycling practices and capabilities

One of the key challenges to implementing a statewide education campaign is the differences in recycling practices and capabilities across Victoria's regions and municipalities.

Inconsistent recycling practices and capabilities across Victoria's councils were addressed by the Victorian Auditor-General's Office, in its report *Recovering and Reprocessing Resources from Waste*. The report noted:

Waste disposal and recycling services differ among councils. These differences can act as a barrier to efficiently and effectively educating the community on what they can recycle. These include:

- recyclable materials—these differ between councils depending on who they have a contract with, for example, some councils have contracts that allow them to separate soft plastics for recycling, but others consider soft plastics a contaminant
- bin lid colours—there is an Australian Standard for bin lid colour but not all councils follow this

<sup>246</sup> Municipal Association of Victoria, *Submission 651*, p. 8.

<sup>247</sup> Rowe, *Transcript of evidence*, p. 5.

- food organics recycling—19 councils allow residents to put food scraps in their green waste bin, while the others do not
- compostable bags—some councils allow residents to put their food waste in compostable bags before they place them in green organic bins—this is due to the ability of their commercial composters to reprocess these bags.<sup>248</sup>

Lyll Bond, Manager of Environment and Emergency at Corangamite Shire Council told the Committee that different recycling practices and capabilities in his region made education campaigns difficult:

As a region and a regional waste group, we try and run education across multiple councils, but every council has some variation—a different bin lid or something else, or they might be doing a glass trial—so it is really hard to have one size fits all. A different processor might take a different material or not accept glass so they have an extra bin...<sup>249</sup>

**FINDING 16:** That a statewide recycling education campaign will not be as effective without a statewide standardisation of municipal recycling practices and capabilities.

### 3.8.4 Implementing a statewide municipal recycling education campaign

In considering a model for a statewide education campaign, a number of witnesses advocated for a campaign similar to other successful Government initiatives. For example, Mary-Anne Brown, Mayor of Southern Grampians Shire Council said that a recycling campaign should be based on the Cancer Council of Victoria's Quit campaign:

If you liken it to the Quit campaign, there were some carrots and sticks. I think that is the type of approach we need here, because we are talking about significant behaviour changes that we want to become just normal practice.<sup>250</sup>

Fiona Weigall, General Manager of Assets and Environment at East Gippsland Shire Council suggested a campaign similar to public health and road safety campaigns:

If we think back in terms of the investment that went into campaigns around 'Life. Be In It' or wearing seatbelts, we believe this is the time for similar investment in public education around waste.<sup>251</sup>

<sup>248</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 82.

<sup>249</sup> Mr Lyll Bond, Manager Environment and Emergency, Corangamite Shire Council, Public hearing, Dunkeld, 19 September 2019, *Transcript of evidence*, p. 21.

<sup>250</sup> Brown, *Transcript of evidence*, p. 2.

<sup>251</sup> Weigall, *Transcript of evidence*, p. 18.

The MAV in their submission noted the success of the ‘every drop counts’ campaign, which it says resulted in significant awareness, understanding, and behavioural change in the Victorian community.<sup>252</sup> The MAV also noted that the campaign was accompanied by legislative instruments and programs to support its success.<sup>253</sup>

The Committee recognises the success of other public awareness and education campaigns such as those developed by the TAC, which has achieved significant success in changing public behaviour through its ongoing campaigns targeting speeding and drink driving. Part of the success of these campaigns can be attributed to the frequency of these advertisements and the length of time the message has been promoted.<sup>254</sup>

Similarly, workplace health and safety campaigns, such as those run by WorkSafe, can also achieve long-term public behaviour change through targeted, long term, mass-media campaigns.<sup>255</sup> The applicability of the TAC and WorkSafe style campaigns to a long-term recycling campaign was mentioned by Dr Gillian Sparkes, Commissioner for Environmental Sustainability, who said at a public hearing ‘I believe that we should be committing to long-term systemic statewide community education for kerbside around better separation in the same way we do TAC and WorkCover ongoing, to drive the behaviours we need.’<sup>256</sup>

At the time of writing, Sustainability Victoria is preparing a statewide recycling education campaign. Mr Krpan from Sustainability Victoria told the Committee that the campaign will focus on promotion of recycling and sorting practices to reduce contamination in municipal recycling. Mr Krpan outlined the program, which will include TV advertising:

The government has committed this \$3 million. It is predominantly focusing on encouraging recycling to continue but also on reducing contamination, which is effectively an education campaign. It is the first large-scale above the line, in the sense that it will be underpinned by a broad publicity campaign and TV advertising, et cetera. And we will work closely. We have already worked with 100 people from local government to design the campaign. We have got good evidence and social research that will support it and it will try and demystify some of those common questions.<sup>257</sup>

The Committee supports relevant statewide education campaign, including the focus on supporting a reduction in contamination in municipal recycling and its broad target audience.

<sup>252</sup> Municipal Association of Victoria, *Submission 651*, p. 9.

<sup>253</sup> *Ibid.*

<sup>254</sup> Monash University Accident Research Centre, *Evaluation of Transport Accident Commission road safety television advertising: Report No. 52*, September 1993, p. vi.

<sup>255</sup> Sharon Newnam and Carlyn Muir, Monash Injury Research Institute, *Effectiveness of prevention-focused, workplace health and safety campaigns: Research report 128-0615-R01*, report for WorkSafe, June 2015, pp. 28-30.

<sup>256</sup> Dr Gillian Sparkes, Commissioner, Office of the Commissioner for Environmental Sustainability, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 33.

<sup>257</sup> Krpan, *Transcript of evidence*, p.12.

The Committee is concerned, however, that the funding allocated to the campaign may be insufficient to ensure a prolonged campaign that reaches a mass audience. A campaign that does not receive sufficient funding would not have the impact of other public education campaigns mentioned by witnesses including the 'Quit Campaign', 'Life be in it' and 'every drop counts'.

This view was expressed by the Australian Industry Group in their submission, who believed an education campaign needed to be prolonged to ensure the message reaches every section of the community:

We also feel it unlikely that a \$3m plan will suffice to provide adequate support. The value is in prolonged advice and ensuring every section of the community understands its role and the benefits of conforming. It will need to be on-going and will provide value for money for the Government.<sup>258</sup>

The Committee believes the Government's municipal recycling campaign should receive additional funding to ensure that it is able to promote and influence recycling practices for many years to come.

**RECOMMENDATION 14:** That the Victorian Government provide additional funding to its statewide recycling education campaign to achieve additional public take up of municipal recycling and ensure correct recycling practice.

**RECOMMENDATION 15:** That the Victorian Government ensure the statewide recycling education campaign is ongoing. Such a campaign should be similar to continuing public education campaigns such as those by the Transport Accident Commission and WorkSafe, which have achieved widespread public acceptance and influenced behavioural change.

### 3.8.5 Municipal waste avoidance education

In addition to education to promote municipal recycling and educating Victorians on recycling practices, the Committee is mindful that waste avoidance education is also important.

Avoiding the creation of waste is preferable to recycling resources. Sustainability Victoria notes this issue in its *Victorian Waste Education Strategy*: 'Waste avoidance and waste minimisation are the preferred options in the waste management hierarchy. They also present the toughest challenge for society.'<sup>259</sup>

<sup>258</sup> Australian Industry Group, *Submission 589*, p. 6.

<sup>259</sup> Sustainability Victoria, *Victorian Waste Education Strategy*, p. 14.

Sustainability Victoria's focus for municipal waste avoidance education is food waste. The *Victorian Waste Education Strategy* says that it is estimated that Victorians waste around \$40 per week on unused food and drink. The Strategy suggests implementing actions to 'inform the community how to minimise food waste through smarter consumer choices and efficient methods of dealing with food'.<sup>260</sup>

The Committee supports the efforts of Sustainability Victoria in educating Victorians about waste avoidance, particularly in relation to food waste avoidance.

Waste avoidance will be discussed further in Chapter 4 of this report.

**RECOMMENDATION 16:** That any statewide municipal recycling education campaign emphasises the importance of waste avoidance.

### 3.9 Standardising statewide municipal recycling practices and capabilities

The Committee examined two key issues regarding standardisation of recycling practices and capabilities. They are:

- Standardisation of recycling capabilities so that all councils in Victoria have access to the infrastructure to allow them to recycle the same materials.
- Standardisation of recycling practices so that all Victorians follow the same approach to recycling. This includes:
  - what can and cannot be recycled
  - the best way to prepare materials for recycling, such as washing or removing lids.

#### Standardisation of municipal recycling capability

The Committee acknowledges the difficulties associated with the standardisation of recycling practices and capabilities across the state, particularly in relation to infrastructure. Infrastructure for recyclable materials will be discussed in detail in Chapter 5.

The difficulties in standardising recycling infrastructure across Victoria was mentioned by Tim Rowe from Wellington Shire Council. He said that the costs of building recycling infrastructure in regional areas so that it matched the capabilities of metropolitan Melbourne would be 'extremely high'.<sup>261</sup>

<sup>260</sup> Ibid.

<sup>261</sup> Rowe, *Transcript of evidence*, p. 4.

The MAV, in their submission advocated two approaches to standardisation of collection services. They are:

- standardisation of bin lid colours (this will be discussed in section 3.9.1)
- standardisation of items able to be collected in each bin.<sup>262</sup>

The MAV also acknowledged that standardisation of statewide municipal recycling capabilities may be difficult: ‘Standardisation of the items able to be collected in each bin is a potentially more complex problem as it is largely dependent on the infrastructure at each MRF.’<sup>263</sup> They advocated that any standardisation of capabilities across the state should be a minimum standard. This would allow councils to innovate beyond the minimum standard to introduce schemes such as a separate glass bin.<sup>264</sup>

The Committee agrees that the Government should investigate and implement a minimum standard of municipal recycling capability that can be put in place across the whole of Victoria.

**RECOMMENDATION 17:** That the Victorian Government introduce a minimum statewide standard of municipal recycling capability across Victoria’s local government areas to facilitate a statewide recycling education program that includes information about correct recycling practices.

### Standardisation of municipal recycling practices

Sustainability Victoria has prepared a best-practice guideline on recycling practices as part of its *Optimising Kerbside Collection Systems* report from 2017. The report provides extensive guidelines about what can and cannot be recycled as well as how to prepare materials for recycling.<sup>265</sup> However, the report notes that the guidelines may not be applicable to all councils across Victoria due to ‘differences in local contexts, including technology, markets for recovered materials and existing contracts’.<sup>266</sup>

**FINDING 17:** The promotion of uniform recycling practices across the state is essential for the successful implementation of a statewide education campaign.

<sup>262</sup> Municipal Association of Victoria, *Submission 651*, p. 26.

<sup>263</sup> Ibid.

<sup>264</sup> Ibid.

<sup>265</sup> Sustainability Victoria, *Optimising Kerbside Collection Systems: A framework for greater consistency in kerbside recycling*, Melbourne, March 2017, pp. 19-27.

<sup>266</sup> Ibid., p. 18.

### 3.9.1 Bin lid standardisation

Bin lids in Victoria and across Australia are different colours to denote what kind of waste can be put in them. However, as noted by the MAV and others in evidence to the Inquiry, there is inconsistency in the colours and the types of waste that can be put in the bins. For example, landfill bins may have a red lid in one council area and a dark green lid in another.

To help achieve conformity in bin lid colours, Standards Australia developed standard AS 4123.7-2006, *Mobile waste containers – colours, markings and designation requirements* to establish standard bin lid colours for different types of waste. They are:

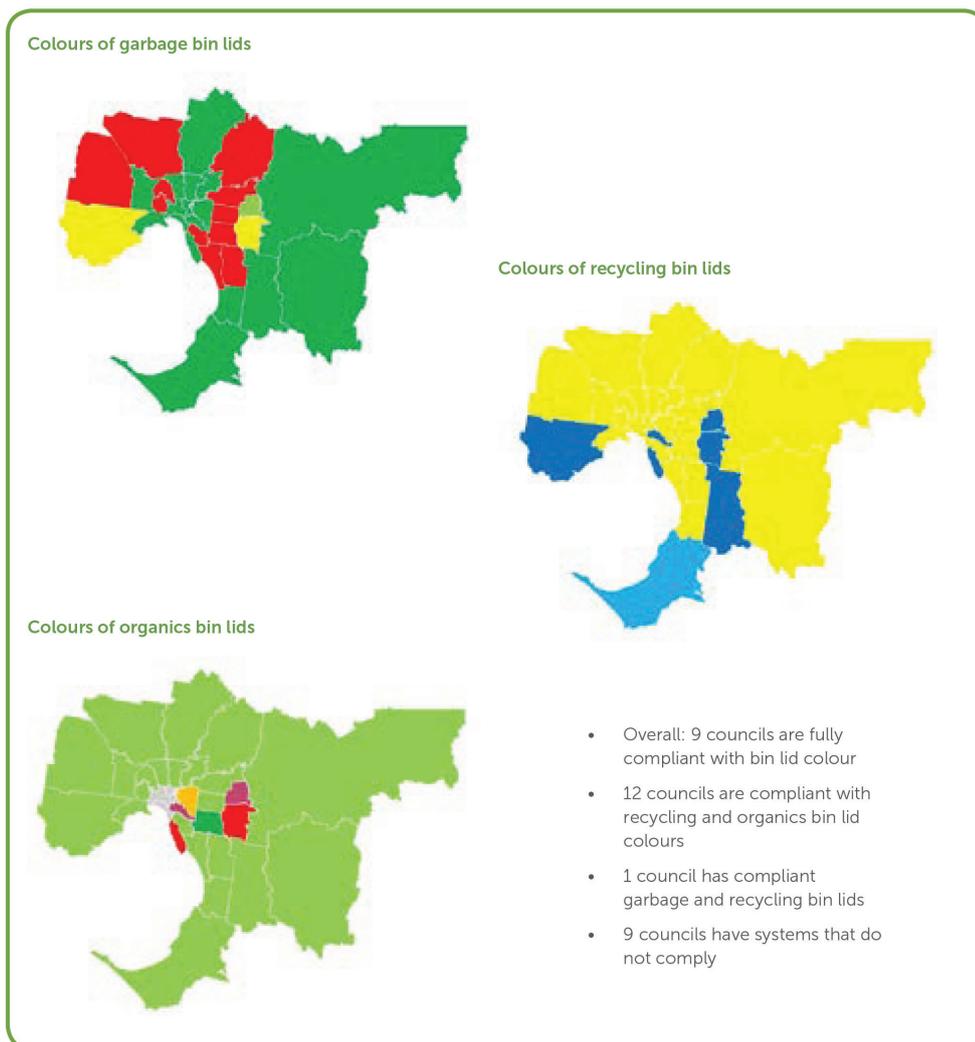
- red lid for landfill
- yellow lid for recycling
- light green lid for organics.

The Standards Australia bin lid policy is followed by many, but not all, councils in Victoria. The Metropolitan Waste and Resource Recovery Group, in its *Bin Standardisation Guide*, said that just 30 per cent of metropolitan councils are fully compliant with the guide and that 60 per cent of metropolitan councils are compliant with their recycling and organic bins.<sup>267</sup> The Metropolitan Waste and Resource Recovery Group provided a map outlining the compliance of metropolitan council compliance with the standard:

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<sup>267</sup> Metropolitan Waste and Resource Recovery Group, *Bin Standardisation Guide*, February 2017, p. 12.

**Figure 3.2** Bin lid colours in use across metropolitan Melbourne—as at December 2016



Source: Metropolitan Waste and Resource Recovery Group, *Bin Standardisation Guide*, 2017, p. 12.

The Committee believes standardisation of bin lid colours is a straightforward way to help reduce confusion about municipal recycling. Standardised bin lid colours across Victoria will facilitate a statewide education campaign to let residents know which bin to deposit their recycling, landfill and organic waste.

Mr Rob Millard, CEO of the Metropolitan Waste and Resource Recovery Group said that some metropolitan councils were updating their bin lid colours to the Australian Standard gradually as their municipal waste collection contracts were due for renewal. This allowed them to absorb the cost of changing the bins over the life of the contract.<sup>268</sup>

<sup>268</sup> Rob Millard, CEO, Metropolitan Waste and Resource Recovery Group, Public hearing, Melbourne, 24 June 2019, *Transcript of evidence*, p. 5.

However, the Victorian Auditor-General's Office noted in its report *Recovering and Reprocessing Resources from Waste* that Sustainability Victoria had determined that it could cost \$14 million to standardise bin colours across all Victorian councils.<sup>269</sup> The report went on to say that standardisation of bin lid colours: 'is one measure that may provide a foundation for responsible agencies to develop and run more efficient and effective statewide education campaigns with consistent messages to help residents maximise their recycling efforts.'<sup>270</sup>

The Committee notes that some councils in Victoria may have plans to change their bin lid colours to the Australian Standard when updating their waste collection contracts. However, it is important that bin lid colours are standardised across Victoria more urgently in order to facilitate a statewide education campaign. The Committee recommends that funding be made available to ensure all Victorian councils are compliant with the Standards Australia policy on bin lid colours as soon as possible.

**RECOMMENDATION 18:** That the Victorian Government provide funding to ensure all local councils are compliant with the Standards Australia policy on bin lid colours within 12 months.

### 3.10 Auditing of recovery rates

The Committee heard from Bingo Industries, a commercial waste collection and recycling company that dealt with commercial and industrial waste and commercial and industrial waste. They noted in their submission that they believed some operators in Victoria's waste and resource recovery industry do not recycle as much of the waste they receive as they claim.<sup>271</sup> Geoff Hill, Chief Executive of Bingo Industries in Victoria said that there were two factors that led to them doubting the recovery rates claimed by other bodies in the sector:

The first part is that the recovered material is only a small part of the total waste stream. There is a lot of material that goes off the radar and is stored on a non-permanent site that is not tracked; it is not reported.<sup>272</sup> ...As we have seen with SKM there are a lot of unknown warehouses with untold tonnes of unreported waste.<sup>273</sup>

The second point raised by Mr Hill related to the absence of a mandatory auditing process in Victoria to ensure that companies were recovering the amount of waste they claimed:

<sup>269</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 83.

<sup>270</sup> Ibid.

<sup>271</sup> BINGO Industries, *Submission 663*, p. 3.

<sup>272</sup> Mr Geoff Hill, Chief Executive Victoria, Bingo Industries, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 25.

<sup>273</sup> Ibid.

The second point is that people are meeting their clients needs knowing there is no ability to check. So if the customer says, 'I need an x per cent recovery rate', it is normally what they are told.<sup>274</sup>

Bingo Industries noted in their submission that they engage a third-party auditor to verify the recovery rates of the waste they receive.<sup>275</sup> Mr Hill said that he believed Bingo Industries was the only waste and resource recovery company in Victoria that undertook such a process, but it was more common in New South Wales.<sup>276</sup>

Bingo Industries provided to the Committee a copy of their *2018 Sustainability Report* as an attachment to their submission. The report outlined the process by which they independently audit their recovery rates:

Bingo again commissioned Arcadis to undertake an independent verification of resource recovery rates at our Auburn, Minto and St Mary's recycling facilities for the FY2018 financial year. Having reviewed all relevant data including weighbridge data (in and out), product codes, records indicating destination facilities for all outbound material, and third party receipts to confirm receipt by recyclers, Arcadis was satisfied that the datasets for each site were adequately complete and represented an accurate reflection of performance for the year.<sup>277</sup>

The issue of auditing and verification of recycling rates was also discussed by Gayle Sloan, CEO of the Waste Management and Resource Recovery Association of Australia. She said that the introduction of requirements for the provision of data in the industry and enforcement provisions may create a more level playing field:

I think Victoria is at a really important precipice, with the EPA Act review and the regs. If you get that right, you start to have that sort of level playing field—that accountability, the data and all those things that you guys are clearly missing, to be fair. You have got MRFs, SKM and others who have not been licensed, who have not got weighbridges, who do not have any enforcement around data. The powers and ability to enforce that has been really difficult in Victoria.<sup>278</sup>

Mandatory reporting of recovery rates was also mentioned by Infrastructure Victoria, who said that the Auditor-General had identified a lack of data collection as a problem in the industry. Infrastructure Victoria said that they were investigating the practice in Wales whereby some reporting of the fate of waste materials is mandatory.<sup>279</sup> The investigation is part of Infrastructure Victoria's advice to the recycling and resource recovery infrastructure in Victoria.

<sup>274</sup> Ibid., p. 26.

<sup>275</sup> BINGO Industries, *Submission 663*, p. 3.

<sup>276</sup> Hill, *Transcript of evidence*, p. 26.

<sup>277</sup> BINGO Industries, *Submission 663a*, p. 16.

<sup>278</sup> Sloan, *Transcript of evidence*, p. 16.

<sup>279</sup> Ms Elissa McNamara, Project Director, Recycling and Resource Recovery Advice, Infrastructure Victoria, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 42.

An auditing system for the verification of resource recovery rates would ensure that waste and resource recovery companies are more transparent and accountable for the waste they collect. The Committee believes there is scope for an independent auditing system to act as a deterrent for the storage or stockpiling of waste at multiple sites, as was the case with SKM Recycling, which was noted in Chapter 2.

**RECOMMENDATION 19:** That the Victorian Government implement a requirement for a third party auditor for Victorian waste and resource companies to ensure verification of resource recovery rates.

## 3.11 Municipal waste as an essential service

In August 2019, the Minister for Energy, Environment and Climate change wrote to the Essential Services Commission to request that the Commission provide advice on how the Government can address issues of competition, resilience, service quality and greater transparency in the waste and resource recovery sector.<sup>280</sup>

Part of the advice requested by the Minister was also to consider whether waste should be regulated as an essential service under the *Essential Services Commission Act 2001*.

### 3.11.1 What is an essential service?

Essential services in Victoria may refer to core services regulated by the Essential Services Commission under the *Essential Services Commission Act 2001*, or they may be services under the *Essential Services Act 1958*, which are protected against interruption or dislocation such as unregulated strike action.<sup>281</sup>

They may generally be those services provided by the Government which could endanger safety or public health without their provision. They may also be, in the case of services regulated by the Essential Services Commission, services for which it is in the long term interests of Victorians to regulate. For example, essential services, as defined by the *Essential Services Commission Act 2001* are:

A service (including the supply of goods) provided by—

- the electricity industry;
- the gas industry;
- the ports industry;
- the grain handling industry;
- the rail industry;

<sup>280</sup> Robin Scott MP, *Terms of reference: Waste and resource recovery services review 2019*, August 2019, p. 1.

<sup>281</sup> *Essential Services Act 1958* (Vic) s 11.

- the water industry;
- the non-cash payment transaction industry;
- the commercial passenger vehicle industry in relation to applicable unbooked services within the meaning of Division 1A of Part 6 of the Commercial Passenger Vehicle Industry Act 2017...<sup>282</sup>

### 3.11.2 The Essential Services Commission's inquiry

The Victorian Essential Services Commission was asked in August 2019 to review Victoria's waste and resource recovery sector. As well as considering whether waste and resource recovery should be regulated as an essential service under the *Essential Services Commission Act 2001*, it will also consider whether there is another regulatory mechanism for improving the efficiency, innovation and long term viability of the market.<sup>283</sup>

The review will also look at:

- community and business expectations in relation to the quality, reliability of waste and resource recovery services, and the need for providers to comply with environmental and safety regulations;
- the structure and contractual arrangements of the supply chain from collection, sorting, storage, processing through to disposal, including allocation of risk across the supply chain;
- concentration of the recycling industry and any barriers to market-led investment at different points in the supply chain, incentives for long-term investment, and the financial viability of the sector;
- whether there are information asymmetries, market power or other sector attributes undermining the effective operation of a competitive market; and
- opportunities to improve transparency of cost/price information to councils and communities.<sup>284</sup>

### 3.11.3 The implications of waste as an essential service

Should the Essential Services Commission recommend that waste be made an essential service that is regulated by the Commission, under the *Essential Services Commission Act*, the Commission would be required to have regard for the following matters in relation to the waste and resource recovery market:

- efficiency in the industry and incentives for long term investment;
- the financial viability of the industry;

<sup>282</sup> *Essential Services Commission Act 2001* (Vic) s 3.

<sup>283</sup> Robin Scott MP, *Terms of reference*, p. 1.

<sup>284</sup> *Ibid.*

- the degree of, and scope for, competition within the industry, including countervailing market power and information asymmetries;
- the relevant health, safety, environmental and social legislation applying to the industry;
- the benefits and costs of regulation (including externalities and the gains from competition and efficiency) for—
- consumers and users of products or services (including low income and vulnerable consumers);
- regulated entities;
- consistency in regulation between States and on a national basis.<sup>285</sup>

### 3.11.4 Views of stakeholders

A number of stakeholders supported regulating Victoria's waste and resource recovery industry as an essential service. This included Sue Vittori from the Anti-Toxic Waste Alliance:

We call on the government to recognise waste management as an essential service—it clearly is—and direct and invest in it accordingly.<sup>286</sup>

Similarly, Lee Smith, Manager of Strategic Projects, Waste and Recycling from Veolia also said he thought waste and recycling should be an essential service:

... the Government cannot avoid having some responsibility for waste and recycling. Waste is an essential service. There are public health and safety implications if it is not properly managed.<sup>287</sup>

Mr Genever, from Sustainability Victoria noted the similarities between other industries that had been made an essential service and the waste and resource recovery sector, as well as the benefits of a strongly regulated waste and resource recovery industry:

Like in any market, particularly a market like this, we often get compared to the energy and the water sectors that are heavily regulated under the ESC—and we know that the Essential Services Commission is preparing some advice to government at the moment. We are talking about an industry that has 1200 businesses all operating in a free market, so certainly there is absolutely scope for the state to look at the right settings to make sure that the safety of our communities is being protected and that we are maximising recovery of those materials. But equally we want to make sure that that innovation is there and that industry has the opportunity to provide that innovation to local government and to the community.<sup>288</sup>

<sup>285</sup> *Essential Services Commission Act 2001* (Vic) ss 8A(1)(a-g).

<sup>286</sup> Ms Sue Vittori, Chair, Anti-Toxic Waste Alliance Public hearing, Melbourne, 6 August 2019, *Transcript of evidence*, p. 7.

<sup>287</sup> Lee Smith, Manager, Strategic Projects, Waste and Recycling, Veolia, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 31.

<sup>288</sup> Genever, *Transcript of evidence*, pp. 22-3.

The Committee notes that the Essential Services Commission is yet deliver its findings on its review into whether the waste and resource recovery industry should be regulated as an essential service. However, the Committee believes it is important to offer its view. The evidence received by the Committee about the importance of regulation in the industry suggests that further measures should be taken to ensure the industry is regulated in a way that benefits all Victorians.

The Committee has been concerned about the fragmentation in governance in the waste and recycling sector and believes that strengthening the governance in the sector is vital.

**FINDING 18:** The Committee finds that there is a strong case for the declaration of waste and resource recovery services an essential service under the *Essential Services Commission Act 2001*.

**RECOMMENDATION 20:** That the Government, when considering the advice from the Essential Services Commission about the applicability of waste and resource recovery as an essential service, take into account the Committee's view that it should be made an essential service.

## 3.12 A container deposit scheme

Container deposit schemes (CDS) are schemes whereby consumers are able to take containers to collection points (sometimes in the form of a reverse vending machine) and deposit their containers in exchange for a refund.

The Committee heard that container deposit schemes may act as a method to reduce contamination in kerbside recycling by diverting some glass material away from kerbside bins to CDS collection points.

### 3.12.1 Container deposit schemes in Australia

Container deposit schemes have operated in Australia for some time. South Australia in particular has had a scheme since 1977. More recently, other states have followed South Australia's lead. The Northern Territory has had a scheme since 2012, and NSW introduced a scheme in December 2017. This has been followed by the ACT and Queensland.<sup>289</sup> Western Australia has announced that it will introduce a scheme in early 2020,<sup>290</sup> and Tasmania has also announced it will introduce a scheme by 2022.<sup>291</sup>

<sup>289</sup> Independent Pricing and Regulatory Tribunal of NSW, *Final Report: NSW Container Deposit Scheme - Monitoring the impacts on container beverage prices and competition*, December 2018, p. 18.

<sup>290</sup> Ibid.

<sup>291</sup> Tasmanian Department of Primary Industries, Parks, Water and Environment, *Container Refund Scheme*, 2019, <<https://dpiipwe.tas.gov.au/environmental-management/container-refund-scheme>> accessed 14 November 2019.

The Committee understands Victoria is the only state or territory in Australia that has not introduced a container deposit scheme and has not announced plans to do so.

The Committee travelled to New South Wales to investigate the operation of the NSW Container Deposit Scheme, known as 'Return and Earn'. Because the majority of evidence received by the Committee about the operation of these schemes relates to the New South Wales experience, much of this section will focus on the NSW CDS.

The Committee is grateful to the NSW Department of Planning, Industry and Environment's container deposit scheme team, and to Tomra Cleanaway, the network operator of the NSW CDS.

### 3.12.2 Overview of the NSW Government's Return and Earn scheme

#### Motivation

The NSW return and earn scheme was developed to reduce litter.<sup>292</sup> Beverage containers were a common type of litter in NSW and made up a large proportion of total litter.<sup>293</sup> By offering a financial incentive to collect containers it was hoped that beverage container litter would be reduced.<sup>294</sup>

#### Eligible containers

The NSW Return and Earn scheme works by encouraging consumers to return used containers to collection points for a 10 cent refund for each container. Consumers may only take eligible containers to the collection points. Most drink containers between 150ml and three litres are eligible. This includes containers made from:

- glass
- plastic
- aluminium and steel
- carton drink containers.

There are a number of drink containers that are ineligible for the scheme. The Committee understands it is possible to expand the list of eligible containers, however, eligible containers are presently limited to items which are more likely to end up as litter. As such, items that are more commonly consumed at home such as wine and spirit bottles, are not eligible.<sup>295</sup>

<sup>292</sup> NSW Environment Protection Authority, *Container Deposit Scheme Return and Earn Action Tool Kit*, p. 2.

<sup>293</sup> Ibid.

<sup>294</sup> Independent Pricing and Regulatory Tribunal of NSW, *Final Report*, p. 12.

<sup>295</sup> Ibid., p. 13. Other ineligible containers include: Plain milk (or milk substitute) containers, flavoured milk containers of one litre or more, pure fruit or vegetable juice containers of one litre or more, wine and spirit glass bottles, casks (plastic bladders in boxes) for wine or water of one litre or more, sachets for wine of 250ml or more, containers for cordials and concentrated fruit/vegetable juices, registered health tonics. See, NSW Environment Protection Authority, *Know what you can Return and Earn*, media release, 10 January 2018.

## Collection points and sorting

There are several types of collection points. The most common type is a reverse vending machine. Reverse vending machines allow people to insert empty containers and the machine provides a refund of 10c per item to the user.<sup>296</sup> There are currently 325 reverse vending machines in NSW.<sup>297</sup> Other collection points include ‘over-the-counter’ collection points, usually at participating shops, of which there are over 300.<sup>298</sup> Finally there are automated collection depots, of which there are 25,<sup>299</sup> for larger deposits of containers.<sup>300</sup>

In NSW, 80 per cent of the volume of returned containers comes from reverse vending machines.<sup>301</sup> The items from the reverse vending machines are collected when the machine is full. There is currently an average of 2,200 reverse vending machine clearances per day. Items from the other collection points average approximately 150 clearances and deliveries per week.<sup>302</sup>

The organisation that collects the items is known in NSW as the network operator. The network operator in NSW is a company called TOMRA Cleanaway.<sup>303</sup> TOMRA Cleanaway are also the collection point operators, and take on responsibility for supplying and operating the network of reverse vending machines as well as administering the collection points.<sup>304</sup>

Once collected, the containers are taken to a sorting facility where they are sorted into clean streams of plastic, aluminium, glass and paper. The bundled items are sold to recyclers to be made into new products.

## Financial arrangements for the scheme

The suppliers of drink containers fund the scheme. The scheme operates on the principle of ‘first supplier’ which means that the company that first supplies the container into the NSW market is responsible for contributing the cost to the scheme. This includes NSW drinks manufacturers, wholesalers and retailers.<sup>305</sup> The suppliers are charged 10 cents for every container, as well as other fees including administration fees

<sup>296</sup> Tomra, *Reverse Vending 101: A beginner's guide*, 2017, <<https://newsroom.tomra.com/reverse-vending-101-a-beginners-guide>> accessed 14 November 2019.

<sup>297</sup> Tomra Cleanaway, *NSW CDS: "Return and Earn" Legislative Council Standing Committee on Environment and Planning*, presentation to the Committee, Eastern Creek, 10 October 2019, p. 14.

<sup>298</sup> Ibid.

<sup>299</sup> Ibid.

<sup>300</sup> NSW Government, *Where to return your containers for a refund*, 2017, <<https://www.nsw.gov.au/news-and-events/news/where-to-return-your-containers-for-a-refund>> accessed 14 November 2019.

<sup>301</sup> Tomra Cleanaway, *NSW CDS: "Return and Earn" Legislative Council Standing Committee on Environment and Planning*, p. 15.

<sup>302</sup> NSW Government, *Where to return your containers for a refund*.

<sup>303</sup> TOMRA Cleanaway is a business formed by the partnership of Reverse Vending Machine supplier and operator, and Cleanaway is a waste services company.

<sup>304</sup> Tomra Cleanaway, *NSW CDS: "Return and Earn" Legislative Council Standing Committee on Environment and Planning*, p. 15.

<sup>305</sup> Independent Pricing and Regulatory Tribunal of NSW, *Final Report*, p. 20.

and scheme compliance fees.<sup>306</sup> To make up for these costs, the drinks suppliers may charge more for the drinks they sell.

The fees from the drinks suppliers are collected by an organisation known as the scheme coordinator. The scheme coordinator that has been established by the NSW Government is called Exchange for Change.<sup>307</sup>

At the reverse vending machines, the network operator pays for the initial 10 cent payment to citizens for each eligible container. The network operator is then refunded by the scheme coordinator the 10 cents for each container that goes through the scheme, plus associated administration and handling fees.<sup>308</sup> The network coordinator is also entitled to the funds from the plastic, aluminium and cartons it sells to recyclers.

The Independent Pricing and Regulatory Tribunal of New South Wales said that the average retail increase per container due to the CDS at October 2018 was 10.1 cents for non-alcoholic drinks, and 5.1 cents for alcoholic drinks.<sup>309</sup>

### **Arrangements for eligible containers collected in kerbside recycling**

Eligible containers are still able to be put into municipal co-mingled recycling. These materials are collected as usual at kerbside. Less eligible containers end up in kerbside recycling because some have been taken to CDS collection points.<sup>310</sup> Those that do go to MRFs are still worth 10 cents each.<sup>311</sup> The scheme coordinator pays MRF operators 10 cents for each container they have, but MRFs do not receive the administration and handling fees that the network operator does. The MRFs share the refunds from the scheme with the councils whose municipality they collect the containers in. The sharing arrangements are reached via agreements known as 'council protocols' or 'refund sharing agreements'.<sup>312</sup> The MRFs also collect the funds from selling containers to recyclers as usual.

An overview of the material and financial flows is outlined in Figure 3.3.

<sup>306</sup> Ibid.

<sup>307</sup> Ibid., p. 13.

<sup>308</sup> Ibid., p. 17.

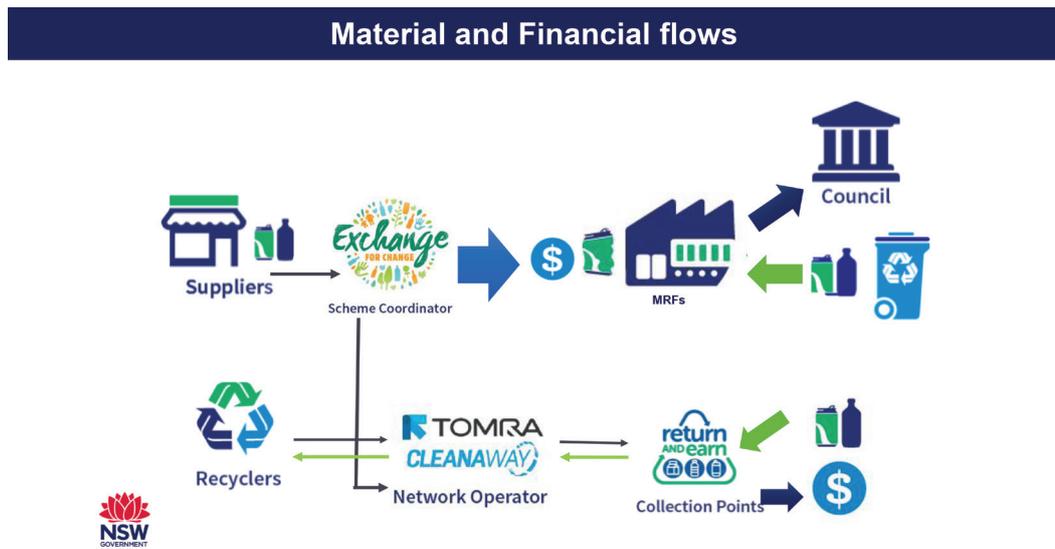
<sup>309</sup> Ibid., p. 32.

<sup>310</sup> NSW Government, *NSW Container Deposit Scheme: Frequently asked questions*, October 2019, p. 2.

<sup>311</sup> Independent Pricing and Regulatory Tribunal of NSW, *Final Report*, p. 10.

<sup>312</sup> NSW Government, *NSW Container Deposit Scheme*, p. 2.

Figure 3.3 Material and Financial Flows for the NSW Return and Earn Scheme



Source: NSW Department of Primary Industries and Environment.

### Outcomes of the NSW Return and Earn scheme

The NSW Return and Earn scheme has been in operation since 1 December 2017. There have been significant achievements in relation to litter reduction, the volume of containers collected, and public take up of the scheme. There have also been fundraising benefits to community charities.

### Litter reduction

In relation to the purpose the scheme was designed for, litter reduction, the scheme has had some success. The NSW Government says there has been a 57 per cent reduction in the volume by weight of eligible drink container litter since November 2017.<sup>313</sup>

### Volume of containers collected

At the time of writing the scheme had collected over 2.5 billion containers.<sup>314</sup> This volume has had an impact on litter reduction as well as broader drink container recycling in NSW. According to the NSW Government, the recovery rate of containers at kerbside was estimated to be 33 per cent. Following the scheme's introduction, the recovery rate of containers including both kerbside recycling and CDS collection points, in the first half of 2019 is 69 per cent.<sup>315</sup>

<sup>313</sup> NSW Department of Planning, Industry and Environment, *Return and Earn, Over 2.4 billion reasons to celebrate*, Presentation to the Committee, 10 October 2019, p. 2.

<sup>314</sup> NSW Government, *Return and Earn, News*, <<https://returnandearn.org.au/news>> accessed 23 October 2019.

<sup>315</sup> NSW Government, *NSW Container Deposit Scheme*, p. 2.

### Public take up

There has been significant public take up of the NSW scheme. According to the NSW Government:

- 1 in 2 adults in NSW have used the scheme
- 85 per cent of NSW adults support the scheme.<sup>316</sup>

### Fundraising

The NSW Return and Earn scheme involves a component whereby citizens are able to nominate their refunds to be passed onto a nominated charity at reverse vending machines. According to a factsheet provided by the NSW Government, \$440,000 has been raised for community organisations so far.<sup>317</sup>

### Availability in regional areas

The NSW Return and Earn scheme was designed to ensure collection points were available in regional areas. The network operator is obliged to meet access targets in its contract that include statewide access.<sup>318</sup>

**FINDING 19:** That any proposed container deposit scheme should include widely accessible collection points, including in regional Victoria, for example in supermarkets and at petrol stations.

**FINDING 20:** That container deposit schemes in other jurisdictions have substantially contributed to litter reduction.

### 3.12.3 Decreased contamination

One of the key benefits of container deposit schemes is that the scheme is able to achieve very low contamination rates in the products it collects. This is because the different materials are separated at the source and are not co-mingled. The eligible items are also required to be empty to be accepted.

At reverse vending machines in NSW, glass containers are required to be put into a separate opening in the machine to the other products. This ensures that the main contaminant, glass, does not mix with the other containers. The non-glass containers, including plastic, aluminium and cartons may be inserted into the same opening of the reverse vending machine. These materials are co-mingled together and are separated at a sorting facility by the network operator.

<sup>316</sup> NSW Department of Planning, *Return and Earn, Over 2.4 billion reasons to celebrate*, p. 2.

<sup>317</sup> NSW Environment Protection Authority, *Container Deposit Scheme Return and Earn Action Tool Kit*, p. 4.

<sup>318</sup> NSW Government, *NSW Container Deposit Scheme*, p. 3.

The Committee was told that the clean streams of material able to be produced by the CDS are more valuable.<sup>319</sup> The products are able to be used in higher use products such as glass and plastic bottles.<sup>320</sup>

### 3.12.4 Overall glass recycling rates

In NSW, the CDS has increased the overall volume of containers that were recycled, and diverted some containers from landfill. As noted earlier, the overall rate of container recycling has risen from 33 per cent to 69 per cent.<sup>321</sup>

The Committee was told however, that there are doubts that a CDS scheme could completely replace kerbside recycling as the primary method of recycling. Mr Gary Combes from glass manufacturer Owens-Illinois said that he had concerns about the operation of a CDS scheme in conjunction with kerbside recycling, particularly for glass. He said that in his view, the cultural acceptance and convenience of kerbside recycling would mean that not all glass would be taken to a CDS collection point by consumers:

Within our Brisbane operation we take all the CDL glass at the moment, and it is less than 40 per cent of the total glass that we get through the system still. So 60 per cent is still going through kerbside. It is our view that the cultural acceptance of the convenience of kerbside will always be a barrier to getting glass through CDL systems up to the 80 or 90 per cent level that is flagged within the argument.<sup>322</sup>

He said that while a clean stream of glass was created from the CDS, the issue of glass in co-mingled recycling was still problematic:

You have got a whole heap of glass still coming through the kerbside system, but they have not addressed the commingling issue: quality, not getting good outcomes, no solutions. They still have to address the commingling issue. This provides an opportunity to actually get a more enhanced outcome by actually focusing on the real issue, which is recycling as opposed to litter prevention.<sup>323</sup>

Mr Combes advocated for a separate glass bin as a solution to reducing contamination in municipal recycling that is more convenient and has more acceptance from residents.

Elissa McNamara from Infrastructure Victoria, also made the point that a CDS scheme will not be able to capture all of the recyclable material it is intended for:

The other thing to be considered is, as I said, even if we make them accept quite a lot of materials, they are never going to capture 100 per cent of those materials in the

<sup>319</sup> Ibid., p. 2.

<sup>320</sup> Ibid.

<sup>321</sup> Ibid., p. 3.

<sup>322</sup> Combes, *Transcript of evidence*, p. 2.

<sup>323</sup> Ibid.

economy. So they cannot do everything, which means we still need to do something with kerbside reform and public litter bins and whatever.<sup>324</sup>

Other stakeholders told the Committee that a CDS was not a standalone answer to ensuring that all recyclable items from municipal waste are recycled. Claire Dunn, Manager of Environment and Regulatory Services at the MAV told the Committee:

We would not, again, put a CDS as a standalone this-will-fix-everything solution. There still needs to be market development for pull-through demand for recycled content. What really does appeal around the CDS for us is that it is around the polluter-pays principle, and attaching a cost to an item actually is also around educating the community around the value of resource recovery, providing a financial incentive to dispose of that material appropriately.<sup>325</sup>

As discussed in section 3.5, any potential introduction of a CDS should not be considered in isolation to the introduction of a separate kerbside glass bin.

### The impact of a CDS on MRF operators

Materials recovery facilities operators are able to collect 10 cents for each eligible container they receive through kerbside recycling. The price of 10 cents per container is far above the price MRF operators would receive for containers in the current commodity market, particularly because the material recovered by MRF operators through co-mingled recycling may have higher contamination rates. As noted in the Victorian Government's submission, the price for glass per tonne at the start of 2019 is below \$0.<sup>326</sup>

The NSW Government argued that the CDS has shielded MRF operators from some of the market downturns following the introduction of China's National Sword policy:

The processing refunds received have provided a much-needed revenue stream for MRFs that would otherwise have suffered financially following the introduction of the China's National Sword Policy. The processing refunds have also helped to minimise the impact of the China Sword policy on council waste charges on rate payers.<sup>327</sup>

The Committee agrees that a container deposit scheme may provide some scope to protect MRF operators from market fluctuations and downturns in commodity prices.

### 3.12.5 Markets for products of the scheme

The Committee was told that because material from CDS are separated at source, the materials are less contaminated and more valuable. In their submission to the Inquiry, reverse vending machine manufacturer and operator TOMRA, said that CDS materials

<sup>324</sup> McNamara, *Transcript of evidence*, p. 50.

<sup>325</sup> Dunn, *Transcript of evidence*, p. 9.

<sup>326</sup> Government of Victoria, *Submission 699*, p. 16.

<sup>327</sup> NSW Government, *NSW Container Deposit Scheme*, p. 3.

were higher quality and that the reliable clean streams of material encouraged the development of domestic infrastructure to recycle the materials generated:

In many cases the best way of achieving clean feedstocks is via source separation, reducing the need for substantial additional sorting and guaranteeing low levels of contamination. This is why CDS material streams are recycled to a far greater extent and quality than kerbside streams. There are numerous examples overseas – e.g. Germany, Sweden, Norway – in which new reprocessing infrastructure has followed the introduction of CDS as result of the reliable supply of clean materials they generate.<sup>328</sup>

In NSW, the materials from the scheme have increased demand ‘in commodity markets both domestically and internationally’ because of the low contamination rates. A NSW factsheet about the scheme notes that plastic and glass are able to be recycled back into high use items. For example:

- A significant proportion of the PET plastic containers are sold into the Australian recycling market and are processed into high-quality food-grade PET resin that can be used for remanufacturing PET plastic bottles and other products in Australia.
- A significant portion of glass from the CDS is reprocessed domestically in NSW and South Australia to produce new glass bottles and glass packaging products.<sup>329</sup>

### 3.12.6 The views of stakeholders regarding a container deposit scheme

The introduction of a CDS was an issue that was mentioned consistently by Inquiry stakeholders as an initiative that could improve Victoria’s waste and resource recovery system.

An analysis of submissions to the Inquiry found that the majority supported the introduction of a container deposit scheme in Victoria.

Many major stakeholders to the inquiry also supported the introduction of a container deposit scheme in Victoria, including:

- the MAV<sup>330</sup>
- the National Waste and Recycling Industry Council<sup>331</sup>
- the Victorian Local Governance Association<sup>332</sup>
- the Australian Institute of Packaging.<sup>333</sup>

<sup>328</sup> TOMRA Collection Solutions, *Submission 682*, p. 7.

<sup>329</sup> NSW Government, *NSW Container Deposit Scheme*, p. 2.

<sup>330</sup> Municipal Association of Victoria, *Submission 651*, p. 18..

<sup>331</sup> National Waste and Recycling Industry Council, *Submission 491*, p. 6.

<sup>332</sup> Victorian Local Governance Association, *Submission 521*, p. 8.

<sup>333</sup> Keith Chessell, Sustainable Packaging Design, Australian Institute of Packaging, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 43.

The Committee acknowledges the high level of public support for a CDS and notes that several key stakeholders are in favour of the introduction of a CDS.

### 3.12.7 Costing estimate from the Victorian Parliamentary Budget Office

The Parliamentary Budget Office undertook a costing of a Container Deposit Scheme for Victoria. The costing was undertaken for a model where the cost of the scheme is borne by drinks suppliers and the refund for each container was fixed at 10 cents. An external scheme operator would run the scheme and revenue from unclaimed deposits would go into a fund managed by EPA.<sup>334</sup>

The operating expenses for the scheme for the 2019-20 budget and forward estimates are estimated at \$9 million. However, overall, it was estimated that the scheme would increase the state's net budget position on the basis of the revenue from unclaimed container deposits going to the EPA.<sup>335</sup> The costing provided the following breakdown of the expected budget impact:

This policy would be expected to increase the state's budget net position by –

- \$244.5 million over the 2019-20 budget and forward estimates, this reflects:
  - an increase in revenue of \$253.5 million due to uncollected deposits from beverage containers not being returned
  - partially offset by an increase in operating expenses of \$9.0 million due to providing funding to the EPA to manage the scheme.
- \$551.5 million over the period 2019-20 to 2029-30, this reflects:
  - an increase in revenue of \$574.5 million due to uncollected deposits from beverage containers not being returned
  - partially offset by an increase in operating expenses of \$23.0 million due to providing funding to the EPA to manage the scheme.

This cost estimate is sensitive to changes in the estimated number of:

- beverage containers produced
- containers returned
- unclaimed deposits.<sup>336</sup>

<sup>334</sup> Parliamentary Budget Office, *Container deposit scheme: Published policy costings*, 8 August 2019, <<https://sway.office.com/DxrzrVoRfijEcgKa>> accessed 14 November 2019.

<sup>335</sup> Ibid.

<sup>336</sup> Ibid.

**RECOMMENDATION 21:** That the Victorian Government consider the introduction of a container deposit scheme to supplement improved municipal kerbside recycling services, including conducting a cost-benefit analysis and consideration of impacts on consumers and the environment.

### 3.13 E-waste

The Victorian Government implemented a ban on e-waste in landfill on 1 July 2019. E-waste is any item with a plug, battery or power cord.<sup>337</sup> This covers a range of electronic items including phones, whitegoods and toys. According to Sustainability Victoria, the ban has been implemented because:

- E-waste may contain hazardous materials that can leach into soil in landfills and the take a long time to break down.
- E-waste contains valuable materials such as metals that can be re-used.
- It will reduce the amount of waste sent to landfill.<sup>338</sup>

E-waste items are now required to be dropped off at council recycling and transfer sites, or at the premises of businesses participating in the scheme, which include some Officeworks outlets.<sup>339</sup>

#### E-waste disposal infrastructure

The Government has provided \$16.5 million to upgrade e-waste collection and storage facilities statewide and deliver an education campaign to support the scheme's implementation. Of that funding, \$15 million was allocated to providing an upgraded infrastructure network to manage increased volume of e-waste.<sup>340</sup> A total of 122 e-waste collection facilities are due to be completed by 1 July 2021.<sup>341</sup> Mr Krpan told the Committee that the infrastructure program was the largest in Sustainability Victoria's history, and involved facilities across 60 councils.<sup>342</sup>

Mr Genever noted that the e-waste infrastructure network being established as part of the e-waste ban is in addition to other drop-off points for e-waste already in operation in Victoria. These existing sites, which are tied to other programs such as the National

<sup>337</sup> Sustainability Victoria, *Campaigns, E-waste*, 2019, <<https://www.sustainability.vic.gov.au/Campaigns/eWaste>> accessed 14 November 2019.

<sup>338</sup> Sustainability Victoria, *Campaigns, Why recycle e-waste?*, 2019, <<https://www.sustainability.vic.gov.au/Campaigns/eWaste/Why-recycle-ewaste>> accessed 14 November 2019.

<sup>339</sup> Sustainability Victoria, *Campaigns, Where to take your e-waste*, 2019, <<https://maps.sustainability.vic.gov.au/e-waste>> accessed 14 November 2019.

<sup>340</sup> Sustainability Victoria, *Campaigns, The Victorian e-waste ban*, 2019, <<https://www.sustainability.vic.gov.au/Campaigns/eWaste/The-Victorian-Ewaste-Ban>> accessed 14 November 2019.

<sup>341</sup> Government of Victoria, *Submission 699*, p. 30.

<sup>342</sup> Krpan, *Transcript of evidence*, p. 17.

Television and Computer Recycling Scheme and MobileMuster. Mr Genever said that taking into account all e-waste sites, 98 per cent of Victorians will have access to a disposal point within a 20-minute drive from their house.<sup>343</sup>

### E-waste ban education campaign

The e-waste ban was supported by a large-scale education campaign by Sustainability Victoria. This includes a video, social media resources, posters, and advertising.<sup>344</sup>

East Gippsland Shire Council believed funding for the program was insufficient. Fiona Weigall, General Manager of Assets and Environment said that her Council invested their own funding to market the campaign because they thought Sustainability Victoria's campaign did not have sufficient community reach:

For example, in the recent changes—the banning of e-waste—council actually invested in their own marketing and community education campaign because we believed that the campaign that was being run by the state did not have enough reach into our community. So that was an additional cost that we had to bear to make sure that we actually got that community understanding and take-up of that initiative.<sup>345</sup>

Similarly, the Auditor-General's report, *Recovering and Reprocessing Resources from Waste*, noted that the allocated budget for the campaign was 25 per cent less than the figure that was estimated would be needed by Sustainability Victoria in its own *Managing e-waste in Victoria Policy Impact Assessment* report from 2017.<sup>346</sup>

The Committee believes these issues underline the need for Government waste education campaigns to be adequately funded.

### 3.13.1 Markets for e-waste material

Sustainability Victoria told the Committee that once e-waste materials arrived at collection points, the waste is collected together to be sold in bulk. This made e-waste a more valuable commodity:

The reason we are consolidating and aggregating, other than safety, is in order to make them more lucrative or, if you like, to have them as commodities that can be traded. There is value in the products and materials in e-waste...<sup>347</sup>

However, some doubts were raised about the value of some e-waste. Matthew Peake, from the Gippsland Waste and Resource Recovery Group noted some items of e-waste may be made of less valuable materials and would be hard to sell and recycle:

<sup>343</sup> Genever, *Transcript of evidence*, p. 18.

<sup>344</sup> Sustainability Victoria, *Campaigns, E-waste campaign resources*, 2019, <<https://www.sustainability.vic.gov.au/Government/Campaign-resources/Ewaste-campaign-resources>> accessed 14 November 2019.

<sup>345</sup> Weigall, *Transcript of evidence*, pp. 18-19.

<sup>346</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, pp. 87-9.

<sup>347</sup> Krpan, *Transcript of evidence*, p. 17.

Unfortunately a lot of those materials are probably, in terms of their intrinsic value, very low value products. A hairdryer or an electric toothbrush and those sorts of things are not something that is going to have particular value. In fact it probably has cost in terms of pulling it apart and dismantling it.<sup>348</sup>

Similarly, Neil Trotter, Mayor of Corangamite Shire Council said that he was worried there was not sufficient demand for e-waste products:

We have built two facilities with government assistance, but they are filling up rapidly, and there is no real market for a lot of that stuff. The market is very, very small at the moment. For us, it is going to be expensive. We are looking probably at a proposal of having warehouses full of e-waste with no viable market.<sup>349</sup>

Ms White from DELWP told the Committee at a public hearing that there were markets for e-waste materials, however, that often the demand may be from overseas markets:

You mentioned that they are stored, but there are markets that will take these materials, be able to disassociate the recoverable parts of them and then be able to process them further. Many of those markets are export markets, but provided that the high-value material is collected and then transported, the value of those materials can be realised.<sup>350</sup>

However, Mr Krpan from Sustainability Victoria told the Committee that Sustainability Victoria have been working with the resource recovery industry to ensure e-waste materials are recycled and refined in Victoria:

We do have a number of recyclers and interest in the pipeline of new innovations and recyclers in things like PV recycling or indeed recycling of some of those other components—TV screens, for instance, and computer screens. One of Australia's only battery recyclers is in Victoria.<sup>351</sup>

The Committee anticipates that the Government will continue to work with industry to ensure there will be sufficient markets for materials collected as part of the e-waste ban. In particular, the Committee would urge the Victorian Government to avoid cases of stockpiling due to poor market conditions as has been seen with other recyclable products such as glass.

### 3.13.2 Solar panels (solar PV)

The Committee heard that recycling solar panels, in this case photovoltaic solar panels or PV, was particularly difficult. Sustainability Victoria provided information in response to a question on notice, that there were currently no solar PV recycling facilities in Victoria.<sup>352</sup>

<sup>348</sup> Peake, *Transcript of evidence*, p. 43.

<sup>349</sup> Cr Neil Trotter, Mayor, Corangamite Shire Council, Public hearing, Dunkeld, 19 September 2019, p. 17.

<sup>350</sup> White, *Transcript of evidence*, p. 7.

<sup>351</sup> Krpan, *Transcript of evidence*, p. 17.

<sup>352</sup> Sustainability Victoria, Inquiry into Recycling and Waste Management hearing, response to questions on notice received 11 November 2019, p. 3.

The response to the question on notice said ‘only a small number of PV panels are entering the waste stream and the low volumes are part of the reason that large scale investment in PV recycling is yet to emerge’.<sup>353</sup>

The response went on to say that Sustainability Victoria is leading a national program to investigate product stewardship options for solar PV recycling in Australia. Such a scheme would ensure that responsibility for the ‘end-of-life management’ is shared ‘across the supply chain’ rather than just with the consumer.<sup>354</sup> Mr Genever expanded on the work being done by Sustainability Victoria in this area at a public hearing and noted that they were being tackling the issue before it became a more widespread problem:

... traditionally we—and by ‘we’ I mean the whole sector, not just Sustainability Victoria—have a tendency of waiting for a problem to be upon us before we start looking at solutions. We have been very proactive, and Victoria has been very proactive, in lobbying the Commonwealth Government on this issue as a result of work we did a couple of years ago to model likely e-waste generation in the next 20 years, and that is where the alarm bells started ringing for us in terms of that exponential growth in solar panels.<sup>355</sup>

A product stewardship scheme for solar PV was also mentioned by Michael Strickland from WM Waste Management Services. He told the Committee an extra cost borne by the consumer to help towards the disposal of the product may be helpful:

It seems to me that an extended producer responsibility-type scheme for solar panels would be a really obvious thing to do with solar panels, so that when you buy a new solar panel you pay an extra 20 bucks that goes towards recycling the old one, just like with TVs and computers. A scheme like that for solar panels would be really timely. Then when they construct them they will make them so they can recycle them better too, if they know they have to take them back.<sup>356</sup>

**FINDING 21:** The Committee is concerned about the lack of capacity in Victoria to adequately recycle or dispose of solar PV systems and supports the Government’s efforts to establish a product stewardship scheme for solar PV.

**RECOMMENDATION 22:** That the Victorian Government monitor disposal rates of solar PV systems and support the establishment of domestic solar PV system recyclers, and advocate for a product stewardship scheme.

<sup>353</sup> Ibid.

<sup>354</sup> Ibid.

<sup>355</sup> Mr Matt Genever, Director Resource Recovery, Sustainability Victoria, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 25.

<sup>356</sup> Michael Strickland, Project manager, WM Waste Management Services, Public hearing, Melbourne, 25 June 2019, *Transcript of evidence*, p. 42.

## 3.14 Planning considerations for the collection of municipal waste

### 3.14.1 Multi-unit developments

The Committee heard there were difficulties relating to collection services in multi-unit developments (MUDs), which are developments where more than one building is built on a single lot. They may include units, townhouses or apartments.<sup>357</sup> The difficulties relating to multi-unit developments are primarily to do with space for bins and for access for collection services.

The Auditor-General, in the report *Recovering and Reprocessing Resources from Waste* noted that for most MUDs, council kerbside waste collection was not available. This was due to:

- insufficient kerbside space to present the bins for all MUD residents (for example, smaller MUDs such as townhouses with narrow street frontage)
- the waste collection infrastructure needed to manage a large multistorey building not being compatible with the collection equipment owned and operated by a council
- councils avoiding entry to private property to collect waste because they consider the liability risk too high.<sup>358</sup>

Because of this, many MUDs engage private operators to collect their waste.<sup>359</sup>

Joseph Agostino from Yarra City Council said that more can be done to ensure design guidelines for MUDs were improved so that they could access council kerbside services, including access to FOGO services:

To save space, there is very little access for council vehicles. What happens in the end is that they need to get a special vehicle, and rather than moving their waste once a week, they are doing it daily, and that is just purely to save space. We cannot access those, so we have to very much be influencing the design to allow us to have the best possible waste services.<sup>360</sup>

Sustainability Victoria has produced a guidance document called *Waste Management and Recycling in Multi-Unit Developments*. The document is to assist architects, developers, planners and waste management officers to ensure appropriate landfill, recycling and organic waste facilities in MUDs.<sup>361</sup>

<sup>357</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 12.

<sup>358</sup> *Ibid.*, p. 45.

<sup>359</sup> *Ibid.*

<sup>360</sup> Mr Joseph Agostino, Yarra City Council, Public hearing, Melbourne, 22 October 2019 *Transcript of evidence*, p. 23.

<sup>361</sup> Sustainability Victoria, *Waste Management and Recycling in Multi-unit Developments: Better Practice Guide*, 2019, p. 6..

The Department of Environment, Land, Water and Planning has also addressed waste management in its *Better Apartments Design Standards* from 2016. The design standards require that there are areas for the collection of landfill waste, recycling and, where appropriate, the onsite management of food waste through composting.<sup>362</sup> These standards have been incorporated into the planning scheme, and are required to be followed for MUDs built after 2016.<sup>363</sup>

As noted in section 3.5.2, Yarra City Council has been conducting a FOGO and glass bin trial, including in areas with MUDs. The Council noted some success in engaging with and educating those in multi-unit developments about its multi-bin system. The City of Yarra said that it had focused on education, particularly with the building managers of the units. The education was reinforced by a refusal to collect bins if the waste was not correctly sorted:

There are 32 multi-unit development sites within our trial area, and that is about 350 units. It is a challenge to get a system that can work for inner-city, peri-urban and regional, undoubtedly. So we have put a fair bit of work into this, and to simplify it we have had to do a fair bit of education with those sites, particularly with the managers of those sites—so the owners corp or the manager of that area—a lot of education but then enforcement, and by enforcement I mean leaving bins when they are contaminated. That has taken us in a very short period from high rates of contamination to low rates of contamination...<sup>364</sup>

Another council, the City of Port Phillip, told the Committee that it planned to introduce a glass bin collection system. Part of its proposed solution to collection issues is to consider the introduction of communal glass collection bins in high density areas to deal with concerns about space.<sup>365</sup>

The Committee commends the work done by Sustainability Victoria and DELWP in ensuring that new MUDs include appropriate areas for waste storage and collection. The Committee also notes the important work of Yarra City council in trialling the use of additional bins in high density areas. The Committee believes it is important that such trials are successful given the increasing density of Victoria's metropolitan areas.

**RECOMMENDATION 23:** That further work be undertaken by the Department of Environment, Land, Water and Planning to improve the capacity for multi-unit developments to collect, sort and recycle household waste, including, but not limited to, improvements in the planning process to facilitate this.

<sup>362</sup> Department of Environment, Land, Water and Planning, *Better Apartments Design Standards: New apartment design standards for Victoria*, 2016, p. 38.

<sup>363</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 46.

<sup>364</sup> Leivers, *Transcript of evidence*, p. 22.

<sup>365</sup> Gross, *Transcript of evidence*, p. 6.



# 4 Waste avoidance

Waste avoidance sits at the top of the waste hierarchy as the most preferable option for resource use. There are clear environmental benefits in decreasing the waste that we produce, alongside social and financial benefits of lessening the burden on the existing resource and recovery system.

However, the proportion of waste in Victoria continues to increase. Predicted population growth is estimated to generate 60 per cent more waste over the next 30 years.<sup>366</sup> In light of recent events leading to materials that could have been recycled being sent to landfill, the pressure on our existing waste disposal system has been further exacerbated.

One central theme of submissions to the Inquiry was the need to reduce the waste that we produce and to find better ways to reuse and recycle the products that we purchase. Some of the methods of doing this that were discussed included transitioning to a circular economy; reducing or banning single use plastics; implementing effective product stewardship and providing statewide education around waste avoidance.

A report by the Victorian Auditor-General stated that while existing government policy documents mention waste avoidance, there is no direct strategy aimed at decreasing waste production. As a result, government agencies often do not consider avoidance as a first priority in waste management.<sup>367</sup>

The figure below demonstrates the various stages of the waste hierarchy.

**Figure 4.1** The waste hierarchy



<sup>366</sup> Department of the Environment, *Turning waste into energy: join the discussion*, p. 6.

<sup>367</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 12.

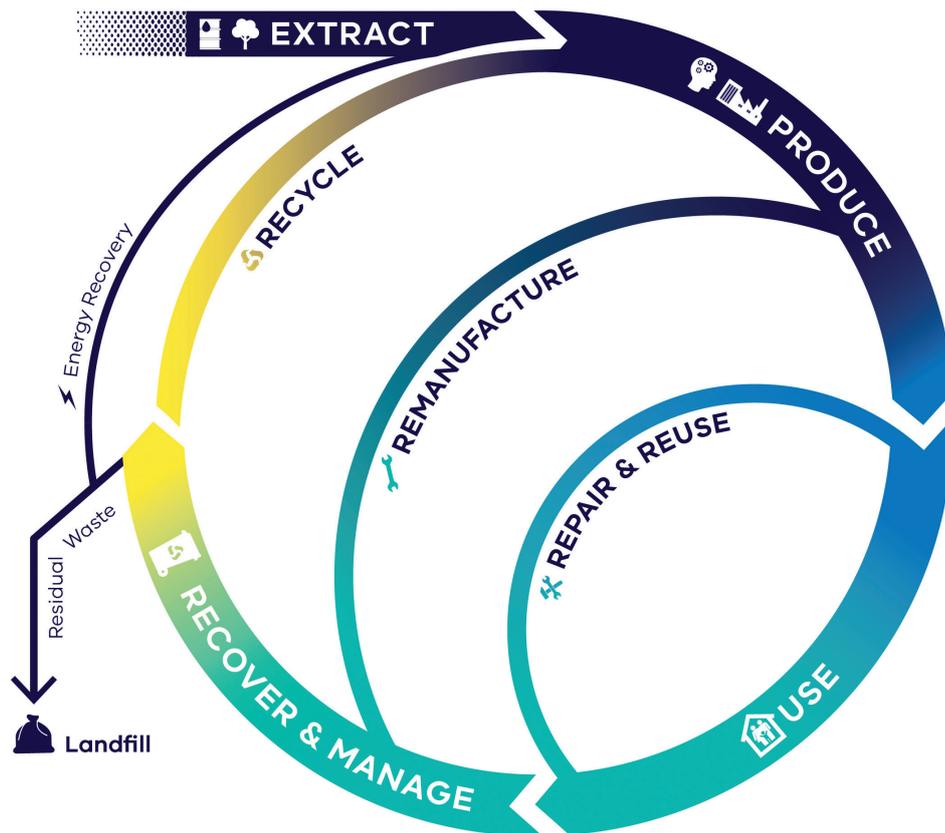
## 4.1 A circular economy

As reflected in the 2018 National Waste Policy, there is currently a global shift from traditional modes of waste management and resource recovery towards a circular economy model. A circular economy seeks to get as much use out of materials as possible by emphasising the repair, reuse and recycling of products. It aims to move away from ‘use and dispose’ ways of thinking in order to minimise what goes to landfill, and to maximise the productivity and economic value of the resources we use. Within a circular economy, materials are viewed as valuable resources that continue to have different forms of value over their lifespan.

One element of a circular economy is development of ‘closed loop’ systems. This means that products can be broken up at the end of their life cycle for reuse in new products. This reduces the need to extract new virgin resources.

The figure below demonstrates the different stages of material extraction and use in a circular economy.

Figure 4.2 A circular economy



Source: Department of Environment, Land, Water and Planning, *A circular economy for Victoria*, 2019, <<https://www.environment.vic.gov.au/sustainability/circulareconomy>> accessed 4 October 2019.

Many submitters to the Inquiry supported a transition from the current 'linear' approach to a circular economy.<sup>368</sup> Environment Victoria's submission stated that it would provide an opportunity to stimulate new industries, and early action would give local manufacturers and other businesses a strong competitive advantage.<sup>369</sup> Dr Nicholas Aberle from Environment Victoria elaborated on this at a public hearing:

... the motivation for the EU for shifting to a circular economy is actually because they are heavily dependent on importing raw materials ...

By moving towards a circular economy, that money actually stays within the European Union and creates more local jobs because rather than paying other countries who are producing raw materials to send stuff over, you basically start producing the raw materials yourself through the circular economy from what is already flowing within the material system.<sup>370</sup>

Further, Dr Aberle provided discussed how a circular economy could provide broader environmental outcomes, including decreasing greenhouse gas emissions:

Shifting to a circular economy is about not just material efficiency but also providing significant opportunities to cut greenhouse gas emissions, and that is certainly something that we need to do here in Victoria. The EU's circular economy package as a whole is estimated to save around somewhere between 450 million and 600 million tonnes of CO<sub>2</sub> every year, which is equivalent to over 1 per cent of global emissions, which is also equivalent to all of Australia's emissions. From the European economy as a whole, by shifting to a more circular economy they are effectively wiping out all of Australia's emissions, so that obviously means that we here in Australia could make similar inroads.<sup>371</sup>

The necessity of achieving a significant reduction in greenhouse gas emissions in the context of a global climate emergency was emphasised by a number of submitters to the Inquiry.<sup>372</sup> For example, the MAV stated:

Any response to the current crisis in Victoria's recycling and waste management system must also consider the potential greenhouse emissions and opportunities to minimise emissions from waste and recycling management. A solution that does not consider the climate emergency, does not provide a coherent, efficient or environmentally responsible approach.<sup>373</sup>

<sup>368</sup> See, for example, Joey Remenyi, *Submission 19*, p. 1; Mildura Rural City Council, *Submission 9*, p. 1; Jackie Yowell, *Submission 362*, p. 1; Kelly, *Submission 370*, p. 2; Law Institute of Victoria, *Submission 690*, p. 4.

<sup>369</sup> Environment Victoria, *Submission 523*, p. 1.

<sup>370</sup> Aberle, *Transcript of evidence*, p. 17.

<sup>371</sup> *Ibid.*, p. 15.

<sup>372</sup> Janet Russell, *Submission 350*, p. 2; Australians for Refunds on Cans and Bottles, *Submission 402*, p. 2; Darebin City Council, *Submission 527*, p. 1.

<sup>373</sup> Municipal Association of Victoria, *Submission 651*, pp. 13-4.

It is clear that widespread behavioural change will be needed to support government policy and leadership in this area. The Australian Industrial Ecology Network stated in their submission that demand is the essential prerequisite for a circular economy.<sup>374</sup> They specified in their submission that a core focus must be on emphasising the ongoing value of materials, which will also rely on further markets for reuse and redevelopment.<sup>375</sup> Another submission suggested establishing a circular economy 'centre of excellence' in order to help the industry and community transition from a linear model.<sup>376</sup>

A circular economy necessarily impacts every element of waste and resource management and the Government's position in this area will dictate what particular policy actions will be taken across the resource recovery system as a whole. A circular economy policy and action plan for Victoria is currently in development and is scheduled to be released by the end of 2019.<sup>377</sup> At a public hearing, John Bradley, Secretary of DELWP provided an overview of the development of the circular economy policy and its scope:

We have been progressing the development of the circular economy policy through conducting a series of workshops, including in September of this year, focused on draft priorities in the circular economy policy. We have heard from more than 500 Victorian businesses, councils, community groups and industry representatives about their thoughts and ideas on policy options. Their feedback has been carefully considered as we develop the final policy. The policy is intended to identify fundamental and long-term improvements to how we use resources throughout the Victorian economy, how to manage waste by a growing population, and it will outline a suite of reforms that will reduce waste in the first place and substantially improve our recycling system.

... the circular economy policy focuses on four key objectives: to reduce the amount of raw materials we need for production and construction, improve design and increase use of recycled materials; to design products that last longer and can be more easily repaired, re-used and recycled at the end of their lives; to adopt business models that need less materials through sharing products between multiple users, supplying products as a service and digitising where possible; and to recover and manage waste in ways that increases its value as a resource for recycling.<sup>378</sup>

In addition, the *National Waste Policy 2018*, which was agreed by the Australian Government and state and territory governments, centres on the adoption of circular economy principles.<sup>379</sup>

<sup>374</sup> Australian Industrial Ecology Network, *Submission 480*, p. 6.

<sup>375</sup> *Ibid.*, p. 4.

<sup>376</sup> Kerlin, *Submission 395*, p. 1.

<sup>377</sup> Department of Environment, *A circular economy for Victoria*.

<sup>378</sup> Bradley, *Transcript of evidence*, p. 2.

<sup>379</sup> Commonwealth of Australia, *2018 National Waste Policy: less waste more resources*.

Some submitters were concerned about the time frames around release of this policy. Dr Aberle discussed at a public hearing how the shift towards circular economy principles was a major step that should result in transformational policy, which may not be able to be achieved as fully if the policy development stage was rushed.<sup>380</sup>

The discussion in this Chapter on methods to avoid or reduce waste production is in light of the expected transition to a circular economy. A renewed focus on establishing strong markets for recycled materials in light of a circular economy policy is discussed in Chapter 7.

## 4.2 Single use plastics

Single use plastics have a broad range of uses, including for product packaging, food preparation and storage, and medical equipment. These plastics have varying qualities, and while some can be reused, repurposed or recycled, others end up in landfill or as litter. Ross Headifen from Plastic Free Victoria provided an example of the scale of the environmental impact of plastics in relation to a study undertaken alongside their regular beach patrols:

Mr HEADIFEN: Just briefly, we have been doing a survey on a particular beach in Port Melbourne for coming up on four years. The first two years we pegged off a length of beach and we surveyed it every day, counting every bit of plastic that came in on the high-tide line—that is where most of the plastic is coming from. We broke it down into about 20 different categories: cups, bottles, labels, straws, coffee cups, bits of plastic big, bits of plastic small. We have tabulated that data and then plotted it against time of year, so all through the winter, all through the summer and spring, versus the weather. We recorded the weather every 10 minutes. We recorded how much of an onshore wind we had one day versus an offshore wind. We know that onshore winds blow stuff onshore and offshore winds blow it onto another beach somewhere.

... The worst day we got was—we were surveying 35 metres of this beach. We do not have time anymore. But in that one 35 metres we got 14 000 pieces of plastic off that beach—in 35 metres.

The CHAIR: Over what period of time?

Mr HEADIFEN: Twenty-four hours.<sup>381</sup>

The Committee received a large amount of evidence on single use plastics, primarily around the need to enforce stricter requirements to minimise or prevent their production.

Single use plastics encompass plastic packaging, which is discussed further at 4.3.2 below. This section deals with single use plastics more broadly.

<sup>380</sup> Aberle, *Transcript of evidence*, pp. 14-5.

<sup>381</sup> Ross Headifen, Plastic Free Victoria, Public hearing, Melbourne, 8 October 2019, *Transcript of evidence*, p. 41.

## 4.2.1 Government action

A ban on single use plastic bags came into effect in Victoria on 1 November 2019. The bags that are banned are ones with handles, with a thickness of 35 microns or less, regardless of whether the plastic is biodegradable, degradable or compostable. The ban is being enforced by the EPA.<sup>382</sup>

Some stakeholders alleged that the Victorian Government had failed in providing adequate communication to retailers and the community in the lead-up to the ban taking effect. Frankston City Council provided the following in its submission:

Council supports the Victorian Government's decision to ban lightweight (single-use) plastic shopping bags in Victoria from November 2019. However, there has been few communications about the ban and little promotion of the 'Vic Bag Ban' website, which contains information and resources to help retailers and consumers prepare for it. This website does not appear in searches when you search online for 'plastic bag ban' or 'Vic Bag Ban'. There is therefore a risk that retailers and the general community won't be aware of the ban and what it involves, which would; a) compromise compliance with the ban, and b) result in retailers wasting money on purchasing bags that will not be permitted once the ban is introduced.<sup>383</sup>

Other submitters have stated that the ban does not go far enough and should be broadened to include all single-use plastics.

The Victorian Government also stated in its submission that it is developing a wide-ranging plastic pollution reduction plan. The plan will prioritise reduction of other types of plastic pollution such as food and beverage packaging and helium balloons.<sup>384</sup> This is expected to be released before the end of 2019.

Local governments have provided evidence to the Inquiry on many successful and innovative initiatives in their regions aimed at reducing plastic consumption. For example, Darebin City Council passed a resolution in June 2017 on eliminating single use plastics and has since worked to remove them from its facilities and events.<sup>385</sup> These initiatives help to increase community awareness around the importance of decreasing plastic use where possible.

## 4.2.2 Banning use

While a large number of submitters to the Inquiry advocated for a ban on all single use plastics, this would not be straightforward. Certain industries rely on single use plastics for medical or research purposes. Without adequate viable alternatives, it would be highly problematic to impose a blanket ban on these items.

<sup>382</sup> Government of Victoria, *Submission 699*, p. 29.

<sup>383</sup> Frankston City Council, *Submission 700*, pp. 6-7.

<sup>384</sup> Government of Victoria, *Submission 699*, p. 29.

<sup>385</sup> Darebin City Council, *Submission 527*, p. 5.

Some replacement products for plastic items may have higher costs throughout their lifecycle, such as in terms of energy and water for production.<sup>386</sup> This could potentially overshadow the environmental benefits of removing the single use plastic item, if the replacement product is not adequately reused. Mr Chessell provided an example of this in relation to single use plastic bags and green bags:

All I was saying was that if you look at the whole environmental footprint of one of those green bags, it is more environmentally friendly for a green bag if you use it more than 52 times, not if you only use it three or four times—heavyweight Coles and Woolworths bags that you are paying 15 cents for.

... But the green bags, if used and re-used ... I would agree, that replaces the litter-type issues of the other bags.<sup>387</sup>

Single use plastics also help to avoid other types of waste. Aldi contended in a letter to the Committee that studies have demonstrated that shrink-wrapping continental cucumbers can extend their shelf life for up to 14 days, helping to prevent excess food waste.<sup>388</sup> Mr Chessell provided an example of this on a consumer level:

Why have I got to buy a bag of six apples? Because you sit there and you go, 'I don't want that one, I don't want that one and I don't want that one', and they end up getting bruised and they end up being thrown away. You buy a bag of six apples, you will take them home and they have got a little spot on it. It will still taste the same.<sup>389</sup>

The Australian Institute of Packaging emphasised that focus should be directed towards identifying and managing problematic plastics rather than applying a blanket ban.<sup>390</sup>

Another recommendation was to extend the ban on single use plastic bags to other particular items that could be easily phased out, such as products that have a variety of alternatives for ready use.<sup>391</sup> This is an approach that has recently been pursued elsewhere. In July 2019 the South Australian Government announced its intention to become the first Australian jurisdiction to ban certain other single use plastic items, including straws and cutlery.<sup>392</sup> Noting that the plastic bag ban has recently come into force in Victoria, this experience could help to inform future policies that expand the scope of bans on plastics.

However, Rose Read, the Chief Executive Officer of the National Waste and Recycling Industry Council stated that Government leadership was required to set standards for industry on these issues:

<sup>386</sup> Chessell, *Transcript of evidence*, p. 47.

<sup>387</sup> *Ibid.*, p. 50.

<sup>388</sup> Daniel Baker, Corporate Responsibility Director, ALDI Stores, correspondence, 18 October 2019, p. 1.

<sup>389</sup> Chessell, *Transcript of evidence*, p. 49.

<sup>390</sup> Keith Chessell, Australia Institute of Packaging, correspondence, 2 October 2019, pp. 4-5.

<sup>391</sup> Deborah Cleaves, *Submission 55*, p. 1.

<sup>392</sup> Luke Henriques-Gomes, "Leading the country": South Australia to ban plastic cutlery, straws and stirrers', *The Guardian*, 6 July 2019, <<https://www.theguardian.com/australia-news/2019/jul/06/leading-the-country-south-australia-to-ban-plastic-cutlery-straws-and-stirrers>> accessed 31 October 2019.

You can say, 'If you don't achieve this within a certain time, we will ban it'. And 2025 is probably a bit too long. A 2022 start—we need to start seeing that conversation happening. There are so many things that we could do, and having the political will is what is lacking. The technology and the innovation, the potential private investment and so on—they are all there. It is really about it being a priority for us.<sup>393</sup>

### 4.2.3 Minimising use

The Committee received a variety of suggestions for minimising single use plastics. Some of these included:

- Introducing disincentives for the use of virgin plastics, such as a tax<sup>394</sup>
- Introduction of an 'advance disposal fee' for problematic or hard-to-recycle materials, including mixed plastics<sup>395</sup>
- Supporting expansion of council-led plastic-free places, such as in libraries and other facilities. This has been implemented by Bayside City Council<sup>396</sup>
- Mandatory minimum recycled content requirements for plastics<sup>397</sup>
- Providing incentives for retailers or other businesses that achieve zero waste targets.<sup>398</sup>

Rose Read provided an example of how certain plastics could be minimised in line with product stewardship principles:

The national government, say with the microbeads process, worked with the manufacturers and said, 'Okay, you need to get microbeads out of these products by X time; otherwise we'll regulate'. They need to do this with the packaging companies. They need to say to them, 'For HDPE and PET products you need to hit a certain recycled content level', and they can negotiate that with the manufacturers because there is some sensible things about all of that; you need it for health and safety and other products. If you say, 'Okay, 70 per cent recycled content in these containers by X'. And if those companies do not achieve that, then the federal government could put in a regulation which says, 'If you're not going to achieve that target, you need to contribute X cents per item that goes into a fund that covers the cost to recover it, collect it and recycle it'. Then that could underwrite a rise and fall contract for a materials site—for the councils, for instance. If the market is good, then the price for councils is better. If the market is bad, your councils have to pay more.<sup>399</sup>

Ross Headifen from Plastic Free Victoria discussed the potential for introducing disincentives for single use items:

<sup>393</sup> Read, *Transcript of evidence*, p. 18.

<sup>394</sup> Headifen, *Transcript of evidence*, p. 35.

<sup>395</sup> Environment Victoria, *Submission 523*, p. 3.

<sup>396</sup> Sophie Paterson, *Submission 11*, p. 3.

<sup>397</sup> Peter Stafford, *Submission 101*, p. 1.

<sup>398</sup> Naomi Taig, *Submission 175*, p. 1.

<sup>399</sup> Read, *Transcript of evidence*, p. 18.

Why do we use disposable coffee cups? Because they are cheap and easy to make. But if there was a 50-cent surcharge on a disposable cup of coffee, we would see everybody bringing their keep cups.<sup>400</sup>

The REDcycle program is a voluntary product stewardship scheme for soft plastics. The initiative works in conjunction with some major supermarkets and other retailers to collect soft plastics, such as plastic packaging. These are then processed and repurposed into a variety of products by a third-party manufacturer, including outdoor furniture and bollards.<sup>401</sup> However, correspondence from ALDI Stores stated that they had been unable to join the program as 'the market for customer mixed soft plastic recycle is at maximum capacity'.<sup>402</sup>

Keith Chessell from the Australian Institute of Packaging described how government procurement policies in conjunction with programs such as REDcycle could help to expand markets that are currently relatively limited:

So the REDcycle program, through a company called Replas, produced a whole range of bollards, seats and furniture. So when you go to refurnish parkland, instead of buying a timber bench, you buy a plastic bench, which will last 50 years longer than a timber bench. It will not white-ant, but it may cost another 10 per cent more than a timber bench. That is the sort of funding to say to councils, because if we had councils and State Government buying that material, the market would be huge and this would just stimulate investment to say, 'We can supply that, because that's all you're going to buy'.<sup>403</sup>

This correlates with evidence that the Committee has heard about limited markets for products using recycled materials and is discussed further in Chapter 7.

There are growing community expectations for businesses to provide sustainable options for consumers. This is a key step in gaining broader behavioural change. However, Lincoln Wymer, a board member for MGA Independent Retailers discussed the impact of these expectations on smaller retailers and how they can often be difficult to meet:

... we are looking at using recycled trays for our meat. Now they are 7 cents compared to 1 cent, so that just adds costs to small business when we do not have the volume of a Coles and Woolies to be able to buy that stuff by the shipping container load.<sup>404</sup>

Mr Kovits, the President of the MGA Liquor Committee stated that if there were a legislated requirement to use certain products, such as a minimum recycled content requirement, the increase in production of these items would bring the cost down for smaller businesses.<sup>405</sup>

<sup>400</sup> Headifen, *Transcript of evidence*, p. 35.

<sup>401</sup> REDcycle Pty Ltd, *FAQs*, 2017, <<https://www.redcycle.net.au/faqs>> accessed 21 October 2019.

<sup>402</sup> Baker, correspondence, p. 2.

<sup>403</sup> Chessell, *Transcript of evidence*, p. 47.

<sup>404</sup> Mr Lincoln Wymer, Board Member, MGA Independent Retailers, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 54.

<sup>405</sup> George Kovits, President, MGA Liquor Committee, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 56.

Mr Wymer also discussed a push from consumers to bring in reusable containers to counter the need for excess packaging or needless plastics:

We have got some people in our towns who are very keen to use re-usable containers, but we have had to knock that on the head because the health officer locally said, 'Don't do it'. We are up against two mindsets. I am as keen as to get plastic out of the business, but it is a bit difficult to deal with it at the moment and try to find that healthy balance.<sup>406</sup>

**FINDING 22:** Reducing consumption of single use plastics will require a multi-faceted response across the waste and resource recovery sector. This should be taken into consideration in the Victorian Government's plastic pollution reduction plan.

**RECOMMENDATION 24:** That the Victorian Government require major supermarkets to reduce their use of single use plastics as a strategy for extending the shelf life of fresh fruit and vegetables, and to publicly report on these measures. Such arrangements may include, but not be limited to, consumers bringing their own containers to stores to purchase deli products and/or the reintroduction of washable and reusable milk bottles.

### 4.3 Product stewardship

Product stewardship, also known as extended producer responsibility, relates to the shared responsibility of manufacturers, retailers and consumers in relation to the impact of products on the environment, public safety and human health. It aims to ensure that everyone involved in the making and use of a product share the burden of what happens to it.

The Australian Government has enshrined a framework for managing product stewardship through the *Product Stewardship Act 2011* (Cth) ('Product Stewardship Act'), a commitment made in the 2009 National Waste Policy. The National Waste Policy has most recently been updated in 2018, and encourages the design of products made to last, using recoverable materials and minimising excess waste.<sup>407</sup>

The Australian Government is currently undertaking a review of the Product Stewardship Act and is expected to report before the end of 2019.<sup>408</sup> In its submission, the Victorian Government confirmed that its waste portfolio will consider the findings when they are released.<sup>409</sup>

<sup>406</sup> Wymer, *Transcript of evidence*, p. 53.

<sup>407</sup> Commonwealth of Australia, *2018 National Waste Policy: less waste more resources*, p. 11.

<sup>408</sup> Australian Department of the Environment and Energy, *Review of the Product Stewardship Act 2011, including the National Television and Computer Recycling Scheme - consultation*, 2019, <<http://www.environment.gov.au/protection/waste-resource-recovery/product-stewardship/consultation-review-ps-act-incl-ntcrs>> accessed 30 October 2019.

<sup>409</sup> Government of Victoria, *Submission 699*, p. 28.

The Act establishes mandatory, voluntary and co-regulatory forms of product stewardship.

<b>Mandatory</b>	Manufacturers and producers have a legal obligation to take actions in relation to declared schemes. Actions could include preventing the use of certain materials in products, complying with requirements for labelling and packaging and other requirements relating to reuse or disposal. Importantly, since the Act's passage, no fully mandatory schemes have been established.
<b>Voluntary</b>	Industry-driven schemes that can additionally seek accreditation from the Australian Government. Voluntary schemes are the most common and include MobileMuster, the official recycling program for the mobile phone industry.
<b>Co-regulatory</b>	A combination of government regulation on minimum outcomes for particular products and industry discretion in how those outcomes are achieved. One example is the National Television and Computer Recycling Scheme.

In Victoria, approaches to product stewardship are relatively ad hoc. The Victorian Government stated in its submission to the Inquiry that national schemes are the most effective due to the cross-border nature of commercial activities.<sup>410</sup> However, some initiatives do occur. Sustainability Victoria has undertaken product stewardship partnerships for computers (ByteBack), batteries (BatteryBack), paint (PaintBack) and compact fluorescent lights (FlashBack).<sup>411</sup>

The Committee received a breadth of evidence on the importance of effective and meaningful product stewardship in the waste management system.

However, many organisations and individuals believed the current system is inadequate and has not prevented materials that are of a low quality or difficult to recycle from flooding Australian markets. The Boomerang Alliance considered that 'While the legislation has good intentions, it clearly has not worked to reduce plastic waste and improve its recycling'.<sup>412</sup> The MAV stated that:

Our current waste and resource recovery system provides little or no incentive for designers, manufacturers, importers, distributors and consumers of products to take responsibility for the environmental impacts of products throughout their lifecycle, from design to disposal. Instead, for most municipal waste and resource recovery services, ratepayers bear the cost regardless of their individual consumption choices. This is neither fair nor efficient, and certainly does not accord with the polluter-pays principle. Product stewardship schemes can and do offer a better alternative.<sup>413</sup>

<sup>410</sup> Ibid.

<sup>411</sup> Environment Protection Authority Victoria, *Product stewardship*, 2019, <<https://www.epa.vic.gov.au/your-environment/waste/product-stewardship>> accessed 30 October 2019.

<sup>412</sup> Boomerang Alliance, *Submission 424*, p. 23.

<sup>413</sup> Municipal Association of Victoria, *Submission 657*, pp. 19-20.

As noted, no mandatory schemes have been established in the eight years since the Act was introduced. Russell Zimmerman, the Executive Director of the Australian Retailers Association provided an example of why leadership from government is crucial in establishing mandatory schemes:

Let us call it the Harvey Norman: in relation to getting that TV set in, there is a problem. And the problem is pretty simple. If Harvey Norman bring it in and say, 'Well, we want it in [more sustainable] packaging', and let us say Betta electrical do not and you have got two stores there and the two identical TV sets are coming in and one is costing you more, the logics of commerce tell you that the retailer that is paying higher for the packaging will also have to sell it for a higher retail price. Therefore you have got a competitive problem. Unfortunately there are 25 million consumers out there who all want to buy it for the cheapest price. And that is what you have got to balance up with these things: consumers want it cheap or for the least amount of cost.<sup>414</sup>

The MAV contended that the Victorian Government should advocate for expansion of the Act by the Australian Government. It considered that there is a need for mandatory schemes for 'all products that generate waste'.<sup>415</sup> These recommendations were supported by a number of submitters to the Inquiry. Gayle Sloan, the CEO of Waste Management and Resource Recovery Association of Australia suggested a staged approach to implementation of mandatory measures:

If we start to look at genuine product stewardship schemes, they do not have to start straight up with, 'They're going to begin today'.

They could look at the European model of two years notice—the regulations are put in place and you have two years to make it effective; if you do not, then we mandate it. We could go that way. But I think after the [National Environment Protection Measure] for packaging has been in place since 2008, we have all got to acknowledge it is not working. It is not effective. We have still got too much stuff on our shelves—I will be kind—that is not genuinely recyclable and is not made from recycled materials.<sup>416</sup>

Environment Victoria contended that where federal legislation or collaborative national efforts fell short, Victoria should be proactive in setting more ambitious targets and policies.<sup>417</sup>

Submitters to the Inquiry had a number of further recommendations for strengthening product stewardship. These included:

- Introduction of 'advance disposal fees' for materials that are difficult to recycle<sup>418</sup>
- Provision of incentives for product stewardship initiatives, or tax breaks for manufacturers that use recycled content and packaging<sup>419</sup>

<sup>414</sup> Russell Zimmerman, Executive Director, Australian Retailers Association, Public hearing, Melbourne, 8 October 2019, *Transcript of evidence*, pp. 29-30.

<sup>415</sup> Municipal Association of Victoria, *Submission 651*, pp. 23-4.

<sup>416</sup> Sloan, *Transcript of evidence*, p. 16.

<sup>417</sup> Environment Victoria, *Submission 523*, p. 5.

<sup>418</sup> *Ibid.*, p. 3.

<sup>419</sup> Municipal Association of Victoria, *Submission 651*, p. 20.

- Introduction of a ‘polluter pays’ principle, where the costs of any pollution is paid by the person that created it<sup>420</sup>
- Setting gradually increasing targets for captured materials that can be repurposed.<sup>421</sup>

At a public hearing, Marc Lichtenstein, Joint Chief Executive Officer of Close the Loop provided evidence on a successful product stewardship scheme that they are involved in—Cartridges 4 Planet Ark. This is a voluntary scheme where the original equipment manufacturers have partnered with Close the Loop and environmental organisation Planet Ark to establish a ‘takeback’ system for used printer cartridges. Cartridges are collected from drop off points at participating retailers and returned to the manufacturer for recycling or reuse. Mr Lichtenstein described the value in this system:

We currently run a free program in terms of the take-back, but we are remunerated by the regional equipment manufacturers, because we are handling the cartridges on their behalf. A cartridge has a value in the market. If it is in the hands of a third party, it can be refilled and resold. So there is a value for us too. We are the trusted partner of the OEM and we do with the cartridge as they instruct us, but they are also happy with the solution: that there is a sustainable environmental solution for the residual toner rather than going to waste to energy or landfill, which is a lot of the competition essentially.

... That is where the stewardship program works, because it has got a value. If there was no value at the end, the question then is, ‘Who is paying for this?’<sup>422</sup>

One recommendation made in submissions was that product stewardship schemes should be fast tracked for key products that have an urgent or significantly detrimental social or environmental impact. For example, one submission suggested stewardship schemes for hazardous products such as polystyrene and microfibers.<sup>423</sup> Peter Allan, the Director of Sustainable Resource Use, provided some further key industries for consideration:

Product stewardship arrangements for electronics, newspaper, paint, lighting and tyres have been game changers, but they have taken 10 years to develop and we urgently need arrangements for some key products. The first two are clothing and motor vehicles. Clothing sees 400 000 tonnes reach end of life annually, and it has a recycling rate under 1 per cent, yet we have a range of brand owners keen to be more sustainable. We lack government interest and leadership on this. We have over 800 000 vehicles deregistered annually, but we recover no glass, no plastic, no rubber and no textiles from this. Through steel shredding we have a recycling rate of cars of 65 per cent, but the Netherlands achieve 97 per cent by basic arrangements to capture these materials.<sup>424</sup>

<sup>420</sup> Law Institute of Victoria, *Submission 690*, p. 3.

<sup>421</sup> Allan, *Transcript of evidence*, p. 5.

<sup>422</sup> Marc Lichtenstein, Joint Chief Executive Officer, Close the Loop, Public hearing, Melbourne, 3 October 2019, *Transcript of evidence*, p. 15.

<sup>423</sup> Drennan, *Submission 425*, p. 6.

<sup>424</sup> Allan, *Transcript of evidence*, p. 2.

Aside from municipal recycling, hard rubbish often goes undiscussed in terms of the broader waste and resource management system. Regarding products such as furniture, cars, bicycles and clothing, there are few clear pathways for these materials.

At a public hearing, Elisabeth van Rosendaal from Zero Waste Victoria provided an example of the potential for taking leadership in a core industry in relation to fashion waste:

The majority of garments that are consumed per year end up straight in landfill. On average, we [fill] about 2.5 MCGs nationally are filled with fashion waste. This not only has a huge negative impact on the environment but is also a loss to our economy, because these are resources that could either be re-used through different business models or repurposed and remanufactured, but currently we only have a very small capacity to recycle it, which results in downcycling and downgrading the quality of the material. There are no real regulations or innovative infrastructure around being able to separate different types of quality of fabrics, and often different types of fabrics from lower-grade fashion waste can have toxic elements in them. They sort of end up getting mixed in with perhaps higher-grade quality fabrics. There are some really amazing innovative business models, from not for profits to for profits, that are being generated and helping to reduce fashion waste. There is a large amount of infrastructure and access to these types of resources across the whole board around fashion waste. So, yes, it is really about having access and support for these different types of organisations that are trying to compete and have access to a market that is not having to be held responsible for the waste that it is producing or for the true cost of where these resources are coming from either.<sup>425</sup>

Mr Allan stated that there was scope for Victoria to become a regional leader in end-of-life product management in these key areas.<sup>426</sup> The potential for this kind of infrastructure as part of a future resource recovery industry is discussed further in Chapter 5 of this report.

There is growing industry awareness around the importance of sustainability in design and consumer support for socially and environmentally conscious products. This is a key time to revisit meaningful product stewardship. Mr Allan discussed this idea at a public hearing:

So, for example, on clothing we have Country Road and DJs and Wesfarmers all putting their hand up saying, 'Yes, we want to be involved in this; we want to be active in achieving a more sustainable outcome', and that is reflected globally, but we need government at the table.<sup>427</sup>

In terms of establishing markets for recycled materials and providing incentives to manufacturers to use recycled materials in their products, this is discussed further in Chapter 7.

<sup>425</sup> Elisabeth van Rosendaal, Zero Waste Victoria, Public hearing, Melbourne, 8 October 2019, *Transcript of evidence*, p. 5.

<sup>426</sup> Allan, *Transcript of evidence*, p. 1.

<sup>427</sup> *Ibid.*, p. 2.

**FINDING 23:** The Commonwealth Government’s ongoing review of the *Product Stewardship Act 2011* (Cth) provides an important opportunity to ensure that the regime is strengthened so that manufacturers are responsible for their products throughout their full life cycle.

**RECOMMENDATION 25:** That the Victorian Government advocate to the Commonwealth Government for an enhanced national product stewardship scheme incorporating additional material streams, and establish defined pathways for durable goods.

### 4.3.1 Product obsolescence

Product obsolescence concerns the lifespan of products. While it is important to ensure that effective product stewardship mechanisms are in place to reuse and recycle products after the end of their life-cycle, it is also important to ensure that consumers are not purchasing more than they need, or more often than they need to. Products should be made to last and be able to be repaired and reused. This ensures we are maximising the use of resources and reduces pressure on the waste and resource recovery system.

The Committee heard some evidence during the Inquiry on ‘planned obsolescence’, where companies design products to break down quickly. Peter Allan, the Director of Sustainable Resource Use stated at a public hearing that certain items that should be built to last, such as bicycles and clothing, are rapidly becoming single use items.<sup>428</sup>

As discussed above, the 2018 National Waste Policy supports improving products through designing them to last. In essence, the less that is made and purchased, the less excess products that will need to be dealt with.

A number of submissions to the Inquiry supported combating built-in product obsolescence. Environment Victoria stated that by ‘designing products so they last longer, can be repaired easily and can be upgraded easily’ we can effectively reduce our production of waste.<sup>429</sup>

Paul McKenzie, General Manager of Regulatory and Community Services at Campaspe Shire Council discussed the self-perpetuating cycle of production of poor-quality products:

It is just that we see this every day—things being built to get through just to the end of their warranty periods, and it is a throwaway society and we are back for a new one. It is the \$100 Aldi TV. Then you see them stacked at the transfer station or on the truck and

<sup>428</sup> Ibid., p. 9.

<sup>429</sup> Environment Victoria, *Submission 523*, p. 2.

you go, 'This is a really big issue'. You used to be able to keep a telly for 20 years; now you would be lucky to keep it for four or five.<sup>430</sup>

Mr McKenzie advocated for the introduction of extended warranty requirements for products in order to place more onus on manufacturers to construct products made to last.<sup>431</sup>

While consumer guarantees are covered under Australian consumer law, the Victorian Government could play an advocacy role to the Commonwealth Government for action on this issue.

**FINDING 24:** Built-in product obsolescence exacerbates existing strains on the waste and resource recovery sector and obstructs the principles of waste avoidance and a circular economy.

**RECOMMENDATION 26:** That the Victorian Government work with the Commonwealth Government to consider the introduction of extended warranty requirements for products in order to promote principles of repair and reuse rather than use and disposal.

**FINDING 25:** The Committee recognises the work and successes of repair cafes and supports the introduction of further initiatives across the state that extend the life of products.

### 4.3.2 Packaging

As discussed, certain types of plastic packaging are very difficult to recycle or reuse. According to the Boomerang Alliance, only around 32 per cent of plastic packaging was recycled in Australia in 2017-18, and only 14 per cent was recycled in Australia.<sup>432</sup>

Australia has a co-regulatory product stewardship scheme for packaging, the Australian Packaging Covenant. This was introduced in 1999 as a collaboration between industry and the Commonwealth and state and territory governments. It now operates in a co-regulatory framework in conjunction with the *National Environment Protection (Used Packaging Materials) Measure 2011* (Cth). The Measure sets out the following national environment protection goal:

The goal of the Measure is to reduce environmental degradation arising from the disposal of used packaging and conserve virgin materials through the encouragement of waste avoidance and the re-use and recycling of used packaging materials by

<sup>430</sup> McKenzie, *Transcript of evidence*, p. 36.

<sup>431</sup> *Ibid.*

<sup>432</sup> Boomerang Alliance, *Submission 424*, p. 3.

supporting and complementing the voluntary strategies in the Covenant and by assisting the assessment of the performance of the Covenant.<sup>433</sup>

The Covenant aims to increase recovery and recycling or reuse of consumer packaging and promote innovation in sustainable packaging. It applies to businesses that are consumers of packaging or packaged products with an annual turnover of \$5 million or more.<sup>434</sup>

Submitters to the Inquiry were broadly supportive of the Covenant and its role in steering the national conversation on responsibilities of manufacturers to ensure minimal impact of their products' packaging on the environment. However, some submitters were sceptical about the Covenant's overall efficacy.

Jeff Angel, Director of Boomerang Alliance stated at a public hearing that the Covenant should be upgraded to a mandatory scheme in order to ensure accountability, transparency and enforceability within the packaging industry.<sup>435</sup> This was also supported by the MAV, who recommended in their submission that the Victorian Government should work with all Australian governments to review the existing model and seek to introduce mandatory requirements across the whole consumer packaging chain. It stated that 'the effectiveness of [the Australian Packaging Covenant Organisation] is compromised by the ease with which industry players can opt not to participate and do so without penalty'.<sup>436</sup>

The phase out of virgin materials in packaging, to be replaced by recycled materials, was also advocated in submissions.<sup>437</sup>

Another concern relates to whether the Covenant is as widely known and accepted as it needs to be in the current context. Lee Smith, Manager of Strategic Projects, Waste and Recycling at Veolia discussed produced ways of thinking around packaging design at a public hearing:

A couple of years ago I and another consultant were engaged by Australian Packaging Covenant at the time to deliver designing for recyclability workshops for packaging designers. I was astounded that lots of packaging designers—it may not be the case today; this was about five years ago—were not really aware of where the material that they were designing ended up. Lots of them had the idea I think that there was a big room somewhere that it all went into and somebody looked at the number, and if they had the right number on it, then it was recyclable. They did not really understand that a lot of the choices about, 'What happens to that item?' are determined by the technologies that are used at the other end.<sup>438</sup>

<sup>433</sup> National Environment Protection (Used Packaging Materials) Measure 2011 (Cth) s 6.

<sup>434</sup> Australian Packaging Covenant Organisation, *What is 'The Covenant'?*, 2019, <<https://www.packagingcovenant.org.au/who-we-are/what-is-the-covenant>> accessed 31 October 2019.

<sup>435</sup> Angel, *Transcript of evidence*, p. 45.

<sup>436</sup> Municipal Association of Victoria, *Submission 651*, p. 20.

<sup>437</sup> Ibid.

<sup>438</sup> Smith, *Transcript of evidence*, p. 38.

Australia's 2025 National Packaging Targets were announced on 26 September 2018 by the federal Minister for the Environment, Melissa Price. The targets are:

- (1) 100% of all Australia's packaging will be reusable, recyclable or compostable by 2025 or earlier
- (2) 70% of Australia's plastic packaging will be recycled or composted by 2025
- (3) 30% average recycled content will be included across all packaging by 2025
- (4) Problematic and unnecessary single-use plastic packaging will be phased out through design, innovation or introduction of alternatives.<sup>439</sup>

**FINDING 26:** The Committee supports the 2025 National Packaging Targets.

The National Packaging Targets are significant and will require coordination between all levels of government, manufacturers, retailers and other industry stakeholders to effectively implement. The Australian Packaging Covenant Organisation is responsible for ensuring widespread delivery of the targets and has established a Collective Action Group which is undertaking wide research and analysis in order to inform broader approaches to implementation of the targets.<sup>440</sup>

The National Packaging Targets were supported by submitters. Boomerang Alliance stated that if they were mandatorily applied 'then it will be the major first stage of implementing the circular economy, transferring more packaging to composting or recycling facilities than would otherwise end up in landfill'.<sup>441</sup>

Mr Allan gave a picture of what would need to occur for these targets to be achieved:

Currently we have a plastic recycling rate of less than 10 per cent and a packaging recycling rate of, I think, about 28 per cent. The target is for plastic packaging to reach 70 per cent by 2025. Now, if we are going to achieve that and at the same time take the half of the plastics that get recycled overseas back onshore, we are talking a 400 to 500 per cent increase in plastics recycling infrastructure. Now, that is achievable, but it is going to require some pretty strong signals from government to say, 'This is what we need.'<sup>442</sup>

The Victorian Government's *Recycling Industry Strategic Plan* sets an action for the Victorian Government to work with the Commonwealth Government to improve sustainable packaging, including to:

<sup>439</sup> Australian Packaging Covenant Organisation, *Australia's 2025 National Packaging Targets*, 2019, <<https://www.packagingcovenant.org.au/who-we-are/australias-2025-national-packaging-targets>> accessed 15 November 2019.

<sup>440</sup> Australian Packaging Covenant Organisation, 'Leading industry & government representatives announced as part of Collective Action Group to drive 2025 National Packaging Targets', <<https://www.packagingcovenant.org.au/news/leading-industry-government-representatives-announced-as-part-of-collective-action-group-to-drive-2025-national-packaging-targets>> accessed 1 October 2019.

<sup>441</sup> Boomerang Alliance, *Submission 424*, p. 4.

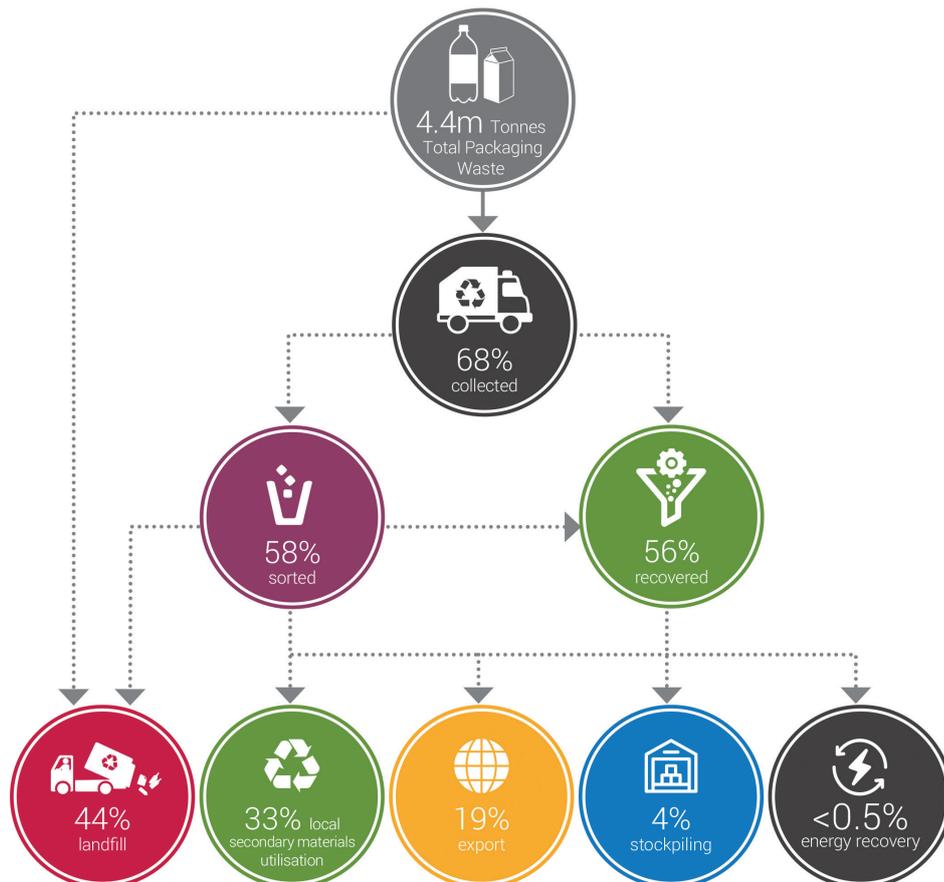
<sup>442</sup> Allan, *Transcript of evidence*, p. 3.

- increase the use of recycled and recyclable content in products and packaging
- create national standards for products and materials containing recycled content in order to allow these to compete commercially with virgin materials
- undertake proactive measures to ensure that foreign markets for Australian recycled materials and goods are accessible and grow over time.<sup>443</sup>

The first action in particular corresponds with the National Packaging Targets. However, it is unclear how the Victorian Government will effectively implement the targets by 2025. In a June 2019 implementation update there was no further information on progress on any actions relating to packaging.

The Australian Packaging Organisation commissioned an analysis of material flows by the University of Technology's Institute of Sustainable Futures, which was released in February 2019. The report analysed data on packaging currently being collected, sorted, recovered and recycled at the end of its useful life. The figure below shows the fate of packaging waste within Australia for 2017–18.

**Figure 4.3** Fate of packaging waste within the Australian waste system



Source: Florin, B Madden and N, APCO Source: *Packaging Material Flow Analysis 2018*, report prepared by Institute for Sustainable Futures, University of Technology Sydney, report for Australian Packaging Covenant Organisation, February 2019, p. 6.

<sup>443</sup> Department of Environment, Land, Water and Planning, *Recycling Industry Strategic Plan*, Victorian Government, Melbourne, 2018, p. 26.

As displayed, across Australia, approximately 33 per cent of packaging waste is recycled or repurposed. This demonstrates how bold industry and consumer behavioural change will need to be in order to achieve the National Packaging Targets.

As discussed, extended producer responsibility necessarily imposes obligations on manufacturers. The Committee heard evidence during the Inquiry on the difficulty for many small businesses and manufacturers, who may want to make sustainable choices but are restricted by the confusing and complex nature of packaging options and the higher costs of purchasing sustainable packaging.<sup>444</sup> In order for the above targets to be achieved across the board, more assistance will need to be provided to help industry, and smaller manufacturers in particular, transition to new practices. This could potentially be achieved through widespread use of the PREP (Packaging Recyclability Evaluation Portal) tool discussed at 4.3.3.

Excess packaging of food products was raised by many individuals and organisations engaging with the Inquiry. Stan Krpan, the CEO of Sustainability Victoria described the difficulty in taking action in this area:

Indeed the packaging of some foods, while it might irk us—and I am not an expert in terms of what the proportions might be—is actually done to preserve them for longer and it is done to avoid food waste, either in transit or in consumption. So it is a double-edged sword. You are solving one problem, which is the food waste, but on the other hand you are creating an additional one with the soft plastics, which are much more difficult to recycle.<sup>445</sup>

The Committee also heard evidence around certain problematic materials in packaging. Zero Waste Victoria provided polystyrene as one such problematic material and recommended that it be phased out of packaging altogether.<sup>446</sup> They further contended that helium balloons should be banned from sale in Victoria if intended for release into the environment, noting that this is a littering offence in Queensland under the *Waste Reduction and Recycling Act 2011* (Qld).<sup>447</sup>

Boomerang Alliance stated that composite or ‘multilayer’ plastic packaging, which consists of flexible and rigid plastics with differing chemical properties being combined, is particularly difficult for recycling purposes. They recommended the implementation of regulation requiring both domestic and imported packaging to be composted or recycled, with penalties for non-compliance.<sup>448</sup>

An additional issue lies in the imposition of packaging requirements on imported goods. The Committee heard evidence around how manufacturers will apply different packaging standards depending on where the product is being sent to:

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<sup>444</sup> Chessell, correspondence, p. 2.

<sup>445</sup> Krpan, *Transcript of evidence*, pp. 10-1.

<sup>446</sup> Zero Waste Victoria, *Submission 631*, p. 11.

<sup>447</sup> *Ibid.*

<sup>448</sup> Boomerang Alliance, *Submission 424*, p. 3.

I would point out to you that Australia generally has some problems. If I was to buy an LG TV from overseas, it would come in in a polystyrene foam pack. If I buy the same TV set and I am in Europe, it will not come in polystyrene foam; it will come in an egg-type cardboard carton, and any fillers in it will be a cornstarch filler. So not only do you have problems directly here with plastics, but you need to look beyond where the Federal Government is concerned. There need to be some very strict regulations about how we import things.<sup>449</sup>

Gayle Sloan stated that major retailers could play a role in stipulating the kinds of packaging that should be used for products that they stock:

I think one of the challenges that Coles and Woolworths and others, and Aldi, have is that obviously they are the recipients of packaging. They could arguably specify more clearly the packaging types that they want on their shelves, and a really good example of where I have seen that work is Coles, who are very, very good at specifying 100 per cent Australian recycled material in their water bottles. And they do do it; they are made by Visy, they have had them on their shelves for years and there is actually a 'Recycled 100 per cent' label on that. So they can actually start setting parameters about what they want to stock, which will feed through the supply chain.<sup>450</sup>

The Australian Institute of Packaging stated in correspondence to the Committee that partial responsibility for single use, disposable packaging in consumer goods can be attributed to a consumer demand for convenience.<sup>451</sup> This theme has been prevalent throughout submissions to the Inquiry and reflects the need for a statewide education campaign around waste avoidance. One submitter described their self-awareness around this 'use and dispose' culture:

As a consumer myself, I'm aware of all the mistakes I make. I buy prepackaged food, because it's convenient. I fill my landfill bin with single use plastic, because it's convenient and out of sight. I am a consumer with bad habits and I hate myself for this.<sup>452</sup>

Zero Waste Victoria recommended exercising caution when looking at alternative packaging options, including in relation to more sustainable single use options, in order to foster a more sustainable reuse culture:

When looking for solutions to reduce single-use plastic, it may sound good in theory to replace single-use plastic with recyclable or compostable packaging. However, this would be associated with significant land use to grow the needed materials, and is only solving one problem, by replacing it with another. Single-use plastics should be replaced with a culture of reuse, rather than alternative disposable products.<sup>453</sup>

<sup>449</sup> Zimmerman, *Transcript of evidence*, p. 25.

<sup>450</sup> Sloan, *Transcript of evidence*, p. 20.

<sup>451</sup> Chessell, correspondence, p. 2.

<sup>452</sup> Dario Bulfone, *Submission 42*, p. 1.

<sup>453</sup> Zero Waste Victoria, *Submission 631*, p. 10.

Fostering a market that minimises the use of virgin plastics, supports the use of products containing recycled materials and demystifies recycling will assist consumers to more easily make sustainable choices.

**RECOMMENDATION 27:** That the Victorian Government works with the Commonwealth Government to make the Australian Packaging Covenant a mandatory product stewardship scheme.

**RECOMMENDATION 28:** That the Victorian Government works with the Commonwealth Government to introduce import requirements for products to contain packaging that is recyclable and/or contains recycled materials.

**RECOMMENDATION 29:** That the Victorian Government work with industry to ensure manufacturers can meet their responsibilities in relation to the National Packaging Targets, including the reduction of virgin plastics.

### Biodegradable/compostable packaging

There has been a push in recent years to replace certain single use plastics with biodegradable or compostable alternatives, such as for takeaway food and coffee cups. A large number of submissions suggested that Government could play a greater leadership role in mandating that a percentage or proportion of packaging should be biodegradable.<sup>454</sup>

However, issues have been raised throughout the Inquiry around this switch to what is perceived as a more eco-friendly packaging option. The evidence presented suggests there is a broad lack of consumer awareness around the processes behind degradable, biodegradable and compostable packaging. Dr Aberle from Environment Victoria highlighted this complexity for consumers in trying to make sustainable choices:

I think there is a real lack of clarity around what these words mean, for most people. It sort of comes back to my point about labelling earlier—that I think having and enforcing some kind of clarity and consistency about what words can be used when and what they mean would be a big step forward.<sup>455</sup>

Zero Waste Victoria alleged in its submission that degradable, biodegradable and oxo-degradable plastics break into small pieces of plastic which can cause significant environmental damage.<sup>456</sup> However, Ross Headifen from Plastic Free Victoria explained at a public hearing how biodegradable products break down when certain conditions are met:

<sup>454</sup> See, for example, Chereyne Colby, *Submission 151*, p. 1; Naomi Davis, *Submission 188*, p. 1; Julie Ward, *Submission 337*, p. 1; Kate Forster, *Submission 70*, p. 1.

<sup>455</sup> Aberle, *Transcript of evidence*, p. 19.

<sup>456</sup> Zero Waste Victoria, *Submission 631*, pp. 10-1.

I will give you an example of a product. Almost every company that ships something in Australia puts it on pallet and shrink-wraps it. That product has a life of journey A to B. It may be across town or it may be interstate, but it is a short-term use. You end up with this basketball size of soft plastic waste that is going to go to landfill for the most part. We are able to add an organic additive into the raw plastic which allows the bacteria to be attracted to it. They see that as food and they start eating their way through the plastic, and in the process of eating the food they cleave the long polymer molecules down to shorter molecules, and they can eat them too. So over a period of five or 10 years, depending on the thickness, the temperature and the rainfall, that plastic will get eaten away by bacteria.<sup>457</sup>

There is also significant scope for ‘greenwashing’, where manufacturers will market their packaging as more environmentally friendly without it necessarily being so or without providing clear information about the materials.

However, the Committee also heard of considerable innovation in this area. Mr Chessell described one company that had developed a closed-loop compostable packaging system:

BioPak have set up a closed-loop with a number of the restaurants and they supply them certified compostable cutlery, plates, cups, and that all goes with the food waste that comes from those foodservice outlets into the one bin and a composter has agreed to handle all that. They have got about 233 outlets I think at last count—I could be wrong on that—that are taking compostable packaging and compostable food organics and getting that composter to turn it back into resaleable compostable material. Composters want food organics; that is the best material. So they are prepared to take the problematic—not problematic but compostable—packaging in with that because they want the good-value, high-value food organics when they are composting that.<sup>458</sup>

As discussed in Chapter 3, there are further issues around the use of biodegradable bags in municipal food and organics collections and the complexity this adds to processing organic waste.

**RECOMMENDATION 30:** That the Victorian Government play a key role in clarifying packaging claims to ensure they are not misleading through its statewide education initiatives.

### 4.3.3 Labelling

The Committee heard two main concerns regarding product labelling. One relates to communication to consumers of what to recycle, such as which products can be placed into kerbside recycling bins and which cannot. The other concern regards communication to consumers of whether a product is made using recycled content.

<sup>457</sup> Headifen, *Transcript of evidence*, pp. 31-2.

<sup>458</sup> Chessell, *Transcript of evidence*, pp. 47-8.

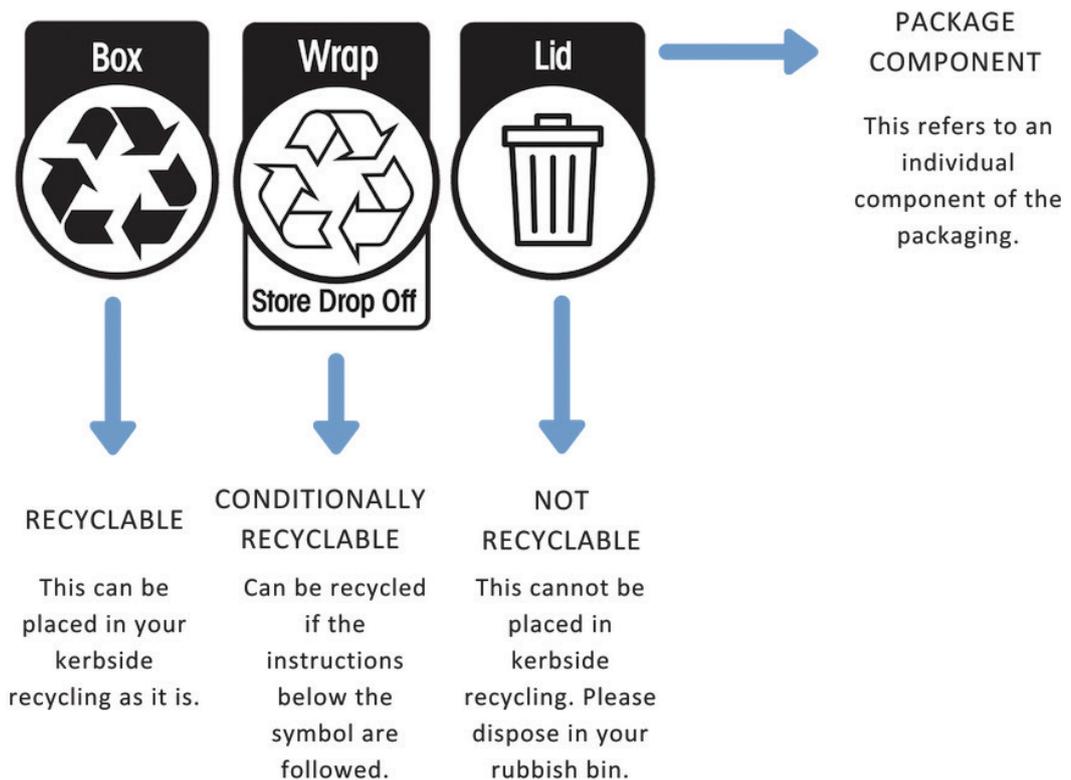
Both issues are important as consumers need to know how to support products using recyclable materials, as well as how to correctly deal with those products after use.

In its submission to the Inquiry, Zero Waste Victoria stated that the community is often ‘confused and disillusioned with regards to what can be, and what is actually recycled’.<sup>459</sup> Lee Smith, Manager of Strategic Projects, Waste and Recycling at Veolia highlighted the unclear nature of current recycling labelling:

I mean, how many people actually look at an item and go, ‘What is that number? Yes, it’s a number 3. Let me check my council guide. Number 3 isn’t allowed, so I won’t recycle that’. No-one does.<sup>460</sup>

The Australasian Recycling Label was launched on 26 September 2018. The label was developed in conjunction with industry stakeholders and is intended to replace the multiple existing labels used by manufacturers to communicate to consumers how to recycle their products. The system explains how to correctly dispose of each element of the packaging. An example is included below.

Figure 4.4 Example of the Australasian Recycling Label



Source: Planet Ark, *Australasian Recycling Label*, 2018, <<https://planetark.org/recyclinglabel>> accessed 1 October 2019.

459 Zero Waste Victoria, *Submission 631*, p. 1.

460 Smith, *Transcript of evidence*, p. 37.

Accompanying the Australasian Recycling Label is a tool called 'PREP' (Packaging Recyclability Evaluation Portal). PREP is an online tool that allows manufacturers to assess the recyclability of individual components of their product packaging. Keith Chessell from the Australian Institute of Packaging discussed the benefits of this tool for manufacturers and how it could help them make more sustainable decisions with regard to the materials they use in their products:

It is a tool there that helps, which has never been available before to know what material is recyclable. It was a guess. I have worked in it for 15, 20 years, and I would spend a lot of time with the recycler saying, 'If I go to a polypropylene bottle, will it be recyclable?'. 'I can't tell you'.<sup>461</sup>

The Victorian Government discussed recycled content labelling in its 2018 *Recycling Industry Strategic Plan*, stating that it:

has the potential to encourage shared responsibility among producers and consumers, encourage producers to use more recycled content in packaging, and provide better information to consumers to inform purchasing decisions.<sup>462</sup>

The MAV recommended that use of the Australasian Recycling Label be required for all packaging sold in Australia.<sup>463</sup> This recommendation was supported by a number of other submitters to the Inquiry.<sup>464</sup> However, two submitters stated that the label sometimes contradicted information provided by local recycling facilities due to the differences in processing infrastructure.<sup>465</sup> These labelling tools can only be effective if all Victorian municipalities have relatively standardised recyclables processing. This issue is discussed in more detail in Chapter 3.

The Committee considers that widespread use of the Australasian Recycling Label will help to avoid consumer confusion around recycling and reduce kerbside contamination rates. It will also aid consumers in actively supporting products that use recyclable packaging.

In evidence to the Committee, Sustainability Victoria stated that this label would ideally also incorporate information on whether the product contains recycled content.<sup>466</sup> This would help consumers to support products that contain recycled materials.

**RECOMMENDATION 31:** That the Victorian Government support widespread adoption of the Australasian Recycling Label in Victoria, including provision of assistance to smaller manufacturers to help them adjust.

<sup>461</sup> Chessell, *Transcript of evidence*.

<sup>462</sup> Department of Environment, *Recycling Industry Strategic Plan*, p. 59.

<sup>463</sup> Municipal Association of Victoria, *Submission 651*, p. 8.

<sup>464</sup> Mount Alexander Shire Council, *Submission 478*; Planet Ark, *Submission 608*; Moreland City Council, *Submission 496*; Jaime Clowes, *Submission 459*; Brad Byrne, *Submission 529*; Australian Nursing and Midwifery Federation, *Submission 641*, p. 4.

<sup>465</sup> Drennan, *Submission 425*, p. 3; Zero Waste Victoria, *Submission 631*, p. 7.

<sup>466</sup> Krpan, *Transcript of evidence*, p. 12.



# 5 Waste and resource recovery infrastructure

## 5.1 An overview of waste and resource recovery infrastructure in Victoria

Victoria's waste and resource recovery infrastructure includes the facilities and pieces of equipment needed to collect, sort and re-process recyclable materials into new products. For those materials that cannot be recovered, there is disposal infrastructure, primarily landfill, to ensure it does not impact on the environment and public health.

According to Sustainability Victoria's SWRRIP there are more than 630 major pieces of infrastructure, owned and managed by both the private and public sector. The system processed over 12.8 million tonnes of material in 2015-16.<sup>467</sup>

The SWRRIP outlines four major groups of waste and recycling infrastructure in Victoria. They are:

- collection infrastructure
- recovery facilities
- reprocessing facilities
- disposal infrastructure (landfills).

An overview of each type of infrastructure with information from Sustainability Victoria's SWRRIP is provided in Tables 5.1 to 5.4.

### 5.1.1 Collection infrastructure

Collection infrastructure refers to the equipment that is required to collect Victoria's landfill, recycling and organic waste. It includes municipal kerbside bins and trucks for councils that operate waste collection services.<sup>468</sup>

An overview of Victoria's collection services, as outlined in the SWRRIP, is provided below in Table 5.1.

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<sup>467</sup> Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, p. 128.

<sup>468</sup> *Ibid.*, p. 132.

**Table 5.1** Collection services

Function	Service	Detail
To collect materials at the source and transport to facilities for sorting, consolidation or disposal.	Kerbside landfill	Residual waste that cannot be recycled. Weekly collection is most common. Offered by all local councils in Victoria. 1,160,000 tonnes collected in 2015-16.
	Kerbside co-mingled	Co-mingled glass, metals, plastic and paper/cardboard. Fortnightly collection is most common. Offered by all local councils in Victoria. 590,000 tonnes collected in 2015-16.
	Kerbside FOGO	Combined food and garden organic materials. Weekly collection is the most common. Offered by 11 of the 79 local councils in Victoria (as at 30 June 2017). Estimated 7,000 tonnes collected in 2015-16.
	Kerbside garden organics	Garden organic materials. Fortnightly collection is most common. Offered by 50 of 79 local councils in Victoria. 382,000 tonnes collected in 2015-16.
	Hard Waste	Solid waste that is not accepted or does not fit into landfill bins (such as furniture). Offered by 42 of 79 local councils in Victoria. 94,000 tonnes collected in 2015-16.
	Drop off facilities	Materials accepted vary greatly depending on the site and can include glass, steel, plastics, paper, cardboard, e-waste, chemicals, garden organics and residual waste. Important in rural areas where access to kerbside services may be limited. 154,000 tonnes collected in 2015-16.

Source: Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, Melbourne, 2018, p. 131.

## 5.1.2 Recovery facilities

Recovery facilities are pieces of infrastructure for the dropping off, sorting and separation of recyclable material into clean streams. Recovery facility infrastructure includes sheds, bins or unloading bays for drop-off centres, as well as more complex machinery such as materials recovery facilities.

An overview of Victoria's recovery facilities, as outlined in the SWRRIP, is provided in Table 5.2.

Table 5.2 Recovery facilities in Victoria

Function	Service provided	Materials accepted	Infrastructure	Ownership
<b>Drop-off centres</b>				
Unload of materials. Point source separation. Aggregation for transfer.	Aggregation point for households not serviced by kerbside collection. May sit at front of landfill.	Materials accepted depend on facility.	Small trailers or material-specific bins.	Usually council owned.
<b>Resource recovery centres (also called transfer stations)</b>				
Unload of materials. Point source separation and sorting. Aggregation and consolidation for transfer. Consolidating kerbside collected material for bulk haul (increasing trend). Some resale to public.	Predominantly for aggregating and sorting goods and materials unable to be collected through kerbside collections. Some removal of contamination from individual streams may occur, mainly through manual sorting. Aggregated and consolidated materials are transported to other facilities for further sorting, reprocessing or disposal.	Wide range of materials depending on the facility.	Range of bins, storage containers, hard stand, banded and covered areas, compactors and sheds depending on the materials accepted.	Usually council owned.
<b>Bulk haul consolidation centres</b>				
Consolidation of kerbside collected materials for bulk haul transfer.	Consolidating kerbside collected materials to reduce transport costs to the appropriate facilities for sorting or disposal. Some removal of contamination from individual streams may occur, mainly through manual sorting.	Kerbside collected comingled recyclables, garden organics, combined FOGO and residual waste.	Unloading bays, sheds and hard stand.	Usually private, often owned by kerbside collection service provider and/or MRF operators.
<b>Specific material recovery centres</b>				
Unload of specific material streams. Sorting and some separation of components. Aggregation and consolidation for transfer. Some resale to public.	Market-driven aggregation of materials usually either valuable to the generator or operator or not collected by kerbside collections. Predominantly located in larger towns and metropolitan areas, often catering to the non-municipal sector. Serve an important role in providing feedstocks to reprocessors. May include some removal, often manual, of contaminants and separation into individual components. May include a retail shop.	Most facilities will only accept certain types of materials. For example, scrap metal yards or C&D materials or paper and cardboard. They generally do not accept residual waste.	Depends on the materials accepted and will include a range of bins, storage containers, hard stand, banded and covered areas, compactors and sheds.	Nearly exclusively owned by the private sector, sometimes by the reprocessor.
<b>Materials recovery facilities</b>				
Sorting. Aggregation and consolidation for transfer.	Sorting mixed streams into their constituent materials, and removing contaminants for aggregation and consolidation for transport to reprocessing facilities, export or appropriate disposal. Provide a critical role in providing feedstock for reprocessing. May include resale centres.	Currently primarily kerbside collected comingled streams. Some facilities also cater for mixed streams of materials from commercial and industrial and commercial and demolition activities.	Usually a range of mechanical processes to separate materials using characteristics such as weight, size, magnetism and optical density. Also includes compactors, balers, hard stand and sheds.	Nearly exclusively privately owned.

Source: Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, Melbourne, 2018, p. 131

## Reprocessing facilities

Reprocessing facilities are the pieces of infrastructure that convert materials into new products. They include facilities such as paper manufacturers that recycle paper, plastic producers that use recyclable plastic to make bollards and outdoor furniture, as well as facilities that compost FOGO waste.<sup>469</sup>

An overview of the reprocessing facilities in Victoria in 2015–16, as outlined in the SWRRIP, is included below.

**Table 5.3** Reprocessing facilities in Victoria and estimated tonnes managed, 2015–16

Feedstock	Tonnes (estimated)	Total number of facilities	Region	Number of facilities in region
Food organics	103,000	3	Goulburn Valley	2
			Grampians Central West	1
Garden organics	429,000	11	Barwon South West	1
			Goulburn Valley	1
			Grampians Central West	4
			Loddon Mallee	1
			Metropolitan	4
Combined food and garden organics (FOGO)	Not available	6	Barwon South West	3
			Goulburn Valley	1
			Metropolitan	2
Wood/ timber	204,000	10	Barwon South West	2
			Gippsland	3
			Goulburn Valley	3
			Metropolitan	1
			North East	1
Mixed/other organics	300,000	24	Barwon South West	6
			Gippsland	4
			Goulburn Valley	7
			Loddon Mallee	3
			North East	4
Paper and cardboard	1,551,000	8	Gippsland	1
			Metropolitan	6
			North East	1
Glass	173,000	2	Metropolitan	2

<sup>469</sup> Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, 2018, pp. 140-142.

Feedstock	Tonnes (estimated)	Total number of facilities	Region	Number of facilities in region
Plastics	149,000	24	Barwon South West	1
			Goulburn Valley	3
			Grampians Central West	1
			Loddon Mallee	2
			Metropolitan	17
Tyres and rubber	Not available	2	Metropolitan	2
Metals	1,425,000	7	Barwon South West	2
			Metropolitan	5
Aggregates masonry and soils	4,093,000	51	Barwon South West	5
			Gippsland	13
			Goulburn Valley	3
			Grampians Central West	4
			Loddon Mallee	2
			Metropolitan	22
			North East	2
Textiles	2,000	3	Barwon South West	2
			Metropolitan	1
E-waste	Not available	7	Barwon South West	1
			Grampians Central West	1
			Metropolitan	5
Energy from waste (using a variety of feedstocks)	Not available	9	Gippsland	2
			Goulburn Valley	1
			Grampians Central West	2
			Metropolitan	2
			North East	2

Source: Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, Melbourne, 2018, pp. 140-142.

### 5.1.3 Disposal infrastructure (landfills)

Landfills are generally pits that are divided into cells where waste material is deposited. They are intended as an option of last resort for waste that cannot be recycled.<sup>470</sup>

Sustainability Victoria, in the SWRRIP, notes that there are different types of landfill in Victoria. They are outlined in the table below.

<sup>470</sup> Cleanaway, *What is a landfill?*, 2019, <<https://www.cleanaway.com.au/sustainable-future/what-is-landfill>> accessed 30 October 2019.

**Table 5.4** Types of landfills in Victoria

Type of landfill	General description
Solid inert	<p>Can accept solid inert waste, such as soils and composite building materials, largely from the construction and demolition sector, which does not readily decompose and therefore generates low levels of landfill gas, odour and leachate.</p> <p>May be licensed to accept some hazardous but inert materials that pose manageable risk, such as low-level contaminated soil (Category C prescribed industrial waste) and asbestos contained in accordance with regulations.</p>
Putrescible	<p>Accept a range of non-hazardous materials, including food and garden organics.</p> <p>Organic materials decompose, generating landfill gas, odour and landfill leachate which is managed by significant infrastructure.</p> <p>May be licensed to accept contaminated soils which are Category C (low-level) prescribed industrial waste and asbestos (in accordance with regulations).</p>
Prescribed industrial waste	Accepts a range of materials including putrescible materials and Category B prescribed industrial waste.
Landfills exempt from licensing	<p>Sites which are occupied by a municipal council and serve less than 5,000 people.</p> <p>Accept a range of wastes including putrescible and solid inert as per the landfill waste management policy, the Environment Protection (Scheduled Premises and Exemptions) Regulations 2007 and the Environment Protection Act.</p>
Private (own waste)	<p>Privately owned sites that only receive waste that consists of substances owned by the owner of the site.</p> <p>These sites are not approved to accept waste from external sources and are not sequenced in the Regional Implementation Plan infrastructure schedules.</p> <p>The SWRRIP does not consider these landfills as part of Victoria's waste and resource recovery system.</p>

Source: Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, Melbourne, 2018, p. 144.

## 5.2 Regional waste and resource recovery infrastructure

Victoria's waste and resource recovery infrastructure operates on a 'hub and spoke' model. This involves the transport of waste to hubs that manage or recover the waste.<sup>471</sup>

### 5.2.1 High transport costs

The Committee heard that in regional areas there are less facilities to receive and process waste due to lower population density. As a result, waste needs to be transported longer distances in order to be processed. Sustainability Victoria noted these difficulties in the SWRRIP:

Limited local or regional infrastructure to handle individual material streams or streams that require specialist technologies may require materials to travel larger distances or even pass through multiple facilities. This can increase the proportion of transport costs in the overall recovery cost.<sup>472</sup>

<sup>471</sup> Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, p. 21.

<sup>472</sup> *Ibid.*, p. 44.

The Committee heard from Warrnambool City Council, who outlined in their submission the economic and environmental costs of transporting waste in regional areas to the nearest processing facility:

The “tyranny of distance” factor must be considered in planning and development of waste management systems and recycling. Not only does this impact on fuel costs which are passed onto communities through waste management charges, it is inefficient and environmentally detrimental.<sup>473</sup>

This issue may be exacerbated by increasing geographic concentration of facilities, particularly MRFs. The SWRRIP notes that the larger economies of scale that are required to run large MRFs has resulted in competition for feedstocks between regional and larger metropolitan MRFs.<sup>474</sup> The SWRRIP notes that ‘several smaller regional MRFs have closed in favour of transporting materials to larger facilities’.<sup>475</sup> The report provides an example of this trend:

For example, the kerbside collected commingled materials from Mildura are consolidated at Mildura and transported over 500 km for sorting in Metropolitan Melbourne.<sup>476</sup>

The Committee understands that waste and resource recovery facilities are necessarily located in hubs around the state. The SWRRIP states that waste and resource recovery hubs have features which make them suitable to host waste infrastructure. This may include:

- access to transport networks;
- proximity to complementary industries that provide markets
- appropriate buffer zones to minimise community impacts.

Well-located hubs will facilitate aggregation and consolidation and attract investment in resource recovery infrastructure.<sup>477</sup>

The SWRRIP identifies several waste and resource recovery hubs ‘of state importance’ in regional Victoria. They are located in:

- Camperdown
- Sale
- Shepparton
- Patho

<sup>473</sup> Warrnambool City Council, *Submission 412*, p. 2.

<sup>474</sup> Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, p. 138.

<sup>475</sup> *Ibid.*

<sup>476</sup> *Ibid.*

<sup>477</sup> *Ibid.*, p. 64.

- Bacchus Marsh
- Eaglehawk
- Mildura.

While there are waste and resource recovery hubs in regional Victoria, the Committee notes that ‘hubs of state importance’ in regional Victoria are dispersed thinly throughout the state and that transport costs for some councils and commercial operators to reach them are high.

Mr Genever from Sustainability Victoria told the Committee at a public hearing that the Government supported the development of more regional hubs. Mr Genever gave the example of a timber recycling hub at Benalla as a model that could be replicated with a possible plastic recycling hub in regional Victoria:

I think one of the opportunities that we are keen on continuing to look at through current and future funding is whether there are opportunities to establish regional hubs. So certainly this idea of regional areas trucking waste into Melbourne into larger facilities where that volume can be processed is completely fine, and that is really up to the market to decide what is most effective, but I think we have seen in the past regional Victoria playing a really key role. The vast majority of our timber recycling—so recycled timber back into timber—happens around the Benalla and Wangaratta area. That has really been on the back of three businesses that have invested in that area. So we would like to see more models like that opening up. I think that is something we are going to look at over the next few years: where we can establish things like plastics recycling hubs and key recycling hubs in regional areas to drive better outcomes for regional councils.<sup>478</sup>

## 5.2.2 Government investment in regional Victorian waste and resource recovery infrastructure

Some councils said that Government assistance to promote the availability of local waste and resource recovery infrastructure in regional Victoria may be necessary. Geoff Rollinson from Gannawarra Shire Council said that he believed that regional Victorians had a right to adequate waste services, and that Government assistance may be required to ensure regional waste infrastructure is viable:

So I would like to see in their policy development some sort of scalability that acknowledges rural Victoria and the smaller communities that I believe have a right to have proper waste services and have the ability to recycle, the ability to actually participate as responsible citizens and the small councils in the same boat. I know that they lean towards a business case being required for everything if you are going to get some level of funding, but quite often as far as rural councils go the business case just does not stack up. It does not stack up and it will not stack up, because you do not have the population and you do not have the volume, so therefore what happens?<sup>479</sup>

<sup>478</sup> Genever, *Transcript of evidence*, pp. 24-5.

<sup>479</sup> Rollinson, *Transcript of evidence*, p. 12.

Robert Gibson from Moyne Shire Council also believed Government assistance in regional areas may be necessary to encourage more local waste and resource recovery infrastructure:

If there is an opportunity for longer term, bigger picture investment, it is probably around trying to come up with those government-industry-sector partnerships that facilitate the investment in rural areas to encourage that material to be processed locally and then shipped off in its separated, more compact format. It makes everything a bit more viable from a transport perspective at least.<sup>480</sup>

Matt Genever said that Sustainability Victoria recognised the challenges of investment in infrastructure in regional Victoria. He said that to address this, the Government had targeted regional Victorian infrastructure for funding as part of the Resource Recovery Infrastructure Fund:

Certainly we recognise the unique challenges in regional Victoria, particularly things like the tyranny of distance and aggregating the types of volumes that are needed to make some of those collections attractive. What we try and do essentially is share the load and spread as much of our funding across regional Victoria as we can. If I cast my mind back to round 1 of the Resource Recovery Infrastructure Fund, in 2017 that was 100 per cent targeted at regional businesses and regional growth. Similarly with the e-waste funding for those collection points, more than 80 per cent of that funding flowed through into regional sites. So we are absolutely conscious of the need to invest in regional areas.<sup>481</sup>

**FINDING 27:** The Committee recognises the efforts of Sustainability Victoria and the waste and resource recovery groups to encourage investment in more local infrastructure in regional Victoria.

**RECOMMENDATION 32:** The Committee recommends the Victorian Government provide further support to develop more regional waste and resource recovery businesses, a reduction of transport costs and local processing of recyclable materials to support regional employment.

### 5.3 Materials recovery facilities

Materials recovery facilities are a key component of Victoria's waste and resource recovery infrastructure network, particularly in relation to municipal recycling. Over 600,000 tonnes of municipal recycling pass through MRFs per year.<sup>482</sup>

<sup>480</sup> Gibson, *Transcript of evidence*, p. 27.

<sup>481</sup> Genever, *Transcript of evidence*, p. 24.

<sup>482</sup> Krpan, *Transcript of evidence*, p. 15.

As noted in Chapter 2, the Committee found that Victoria had an overreliance on one municipal recycling company and the business model of relying on export markets for managing Victoria's recyclables makes Victoria vulnerable to further fluctuations in international markets.

Infrastructure Victoria, in its *Recycling and resource recovery infrastructure evidence base report*, also noted this problem. It said that:

China National Sword shone a spotlight on the fact that a number of Victoria's major MRF operators were operating as recovery businesses rather than actual recyclers.<sup>483</sup>

Rose Read from the National Waste and Recycling Industry Council raised the issue that some MRF operators had been focused on processing and separating large quantities of recyclable materials to be sold to the Chinese market and that this material was processed with less regard for keeping contamination levels low. As a result, the industry's capability to process less contaminated material may have atrophied:

Because we had the ability to export a lot of materials to China at a fairly simple level of sorting and baling, the industry has not developed secondary processing as much as possible, because there was a ready market offshore to take this material. All they had to do was sort and separate into different bales and material types and go to the market. The market said, 'No, we don't want that quality anymore. We want it up here'. So we have to get our quality up, but we also have to get that quality up and look at being more resilient and independent as well in building the ability to make our own products and developing more products and, for people who are putting products on the market, making sure they have got more recycled content.<sup>484</sup>

The University of Melbourne's Centre for Market Design has been working with Infrastructure Victoria to analyse Victoria's waste and resource recovery system. Its report, *Opportunities to Improve Infrastructure Investment in the Victorian Waste Economy*, also noted that an overreliance on exports of materials may have impacted the ability of MRFs to sort material at a level that meets more recent contamination guidelines:

There also appears to be a structural problem in the waste processing and recycling sector that stems from reliance on overseas countries for waste sorting and processing capacity. The Victorian-based MRFs are experiencing difficulties in sorting mixed paper or cardboard, or recovered plastic packaging streams, to the new Chinese contamination thresholds. Local MRFs are typically not able to produce a mixed paper stream that meets local fibre-based product manufacturers' sorting and contamination requirements. Large, reported increases in storing of sorted (but unsaleable) and unsorted Victorian kerbside recyclables, are symptoms of the underlying structural problems in the waste sector.<sup>485</sup>

<sup>483</sup> Infrastructure Victoria, *Recycling and resource recovery infrastructure: Evidence base report*, Infrastructure Victoria, 2019, p. 12.

<sup>484</sup> Read, *Transcript of evidence*, p. 8.

<sup>485</sup> University of Melbourne Centre for Market Design, *Opportunities to improve infrastructure investment in the Victorian waste economy*, September 2019, p. 31.

**FINDING 28:** The Committee believes that Victoria's overall materials recovery facility sorting quality needs to be improved to meet lower contamination thresholds.

### 5.3.1 Improving materials recovery facilities

Mr Krpan from Sustainability Victoria told the Committee that the ability of MRFs to meet lower contamination targets needed to be improved. This could be achieved through an upgrade in equipment:

We need to upgrade the equipment and technologies in our MRFs in order to separate material into clean, valuable streams as required by the manufacturing sector that would meet those quality standards and allow them to be converted into new products. Further investment is therefore needed to increase resource recovery capacity of MRFs and to create domestic markets for that material.<sup>486</sup>

The Committee heard however, that the issue of upgrading MRFs was complex. Simon Mackie, an operator of an MRF in Bendigo said that the capital cost of upgrading MRFs may not be viable in regional areas that deal with less volume:

I can buy technology to optically sort; I can. I am doing 11 000 tonnes in each of those two MRFs, so 22 000 tonnes in total. If I put in the optical sorting type stuff it is 3 or 4 million, minimum, but for the tonnes that I am doing it does not stack up.<sup>487</sup>

Cleanaway told the Committee they had recently invested a significant amount in a new MRF in Western Australia,<sup>488</sup> however, it still required a number of staff to operate it to ensure contamination levels were kept low:

And looking at the increase in the standards or the levels of contamination means that you cannot do everything with optical sorters and equipment. You need more people on site to manually go through whatever is left in terms of the contamination. So in our recycling facility in WA that is what has happened— more people were put on the line to literally go through and sort out what is still left.<sup>489</sup>

Ben McLean, Strategic Projects Manager at Australian Paper said that even with improved MRF sorting capabilities, poor markets for recyclable materials meant that investments in improved technology may not be commercially viable:

Certainly you can source separate, and then via the MRFs you can put them into the streams, but as you know, you need the market for the recycled product. So in order for that to operate, the cost of that supply chain needs to be effective. Putting too much energy or machinery or investment into the source separation adds a considerable

<sup>486</sup> Krpan, *Transcript of evidence*, p. 3.

<sup>487</sup> Mackie, *Transcript of evidence*, p. 13.

<sup>488</sup> Lintvelt, *Transcript of evidence*, p. 8.

<sup>489</sup> *Ibid.*, p. 6.

amount of cost, and when you do not have a market for the product, then the business model does not work.<sup>490</sup>

However, Rose Read mentioned that costs may be able to be reduced if there were less contaminated material coming into the MRFs as a result of better sorting at the source: 'But obviously if we can have cleaner materials coming in in the first place and cleaner streams, then that reduces the cost at the processing end'.<sup>491</sup>

The Committee hopes that the measures outlined in this report to improve the separation of waste at the source will assist with the efforts of MRF operators to reduce levels of contamination.

## 5.4 Victoria's future waste and resource recovery infrastructure needs

The Committee was interested in Victoria's future waste and resource recovery infrastructure needs. Some of the information it sought to discover included:

- What kind of waste and resource recovery infrastructure does Victoria need?
- Where in Victoria is it needed?
- When does it need to be built?

### 5.4.1 Infrastructure Victoria's report

Infrastructure Victoria has been asked by the Government to provide advice on recycling and resource recovery infrastructure in Victoria. The advice to the Government will include advice on secondary processing, as well as residual waste and advice on organics. Dr Jonathan Spear, Executive Director at Infrastructure Victoria said that in relation to infrastructure, the agency hoped to be able to 'give the government advice on what is the priority additional infrastructure that is needed, where is it located and when do we need it'.<sup>492</sup>

### 5.4.2 Infrastructure uncertainty and commercial investment

These questions of what waste and resource recovery infrastructure is needed, where and when it is needed, were not only of interest to the Committee but also of interest to industry groups wishing to invest in waste and resource recovery infrastructure. For example, the Victorian Waste Management Association, in their report, *The economic contribution of the Waste Management and Recycling Industry to the Victorian Economy*, said that the biggest issue identified by the association's members for

<sup>490</sup> McLean, *Transcript of evidence*, p. 12.

<sup>491</sup> Read, *Transcript of evidence*, p. 6.

<sup>492</sup> Spear, *Transcript of evidence*, pp. 47-8.

the industry was a 'Lack of clear strategic direction by Government of industry requirements that undermines investment certainty'.<sup>493</sup>

Similarly, Rose Read from the National Waste and Recycling Industry Council said:

... if there is no certainty or direction as to what the plan is within a five, 10 and 30-year horizon, it is very hard for companies to invest. There is private equity money out there that could invest in these activities.<sup>494</sup>

Ben McLean from Australian Paper outlined the need for government policy certainty about infrastructure services. He discussed the need for a government policy decision to facilitate a proposed energy from waste facility:

Can I also say that it is all about providing certainty for the business case relating to our manufacturing in Victoria for the long term. An investment in upgrading a paper machine is normally in the order of hundreds of millions of dollars, and in fact our recycling facility, our de-inking plant, was in the order of \$100 million. Investments of that nature need a 20 or 30-year view that the business case is going to be quite secure. With the energy markets the way they are, we do not have that certainty at the moment.<sup>495</sup>

The issue of energy from waste facilities will be discussed in detail in Chapter 6.

The Committee notes that it is the role of Sustainability Victoria and the state's waste and resource recovery groups to provide information about Victoria's future waste and resource recovery infrastructure needs. Sustainability Victoria's SWRRIP offers larger strategic directions for Victoria's waste and resource recovery infrastructure.

Victoria's seven waste and resource recovery groups are charged with providing more detailed information about their waste and resource infrastructure needs in their regional waste and resource recovery implementation plans.<sup>496</sup> These implementation plans include information, known as a required infrastructure schedule, which outlines the waste and resource recovery infrastructure they will need into the future.<sup>497</sup> These requirements are outlined in the Environment Protection Act.<sup>498</sup> Two requirements that should be in the schedule are:

- the type, general location and other requirements of new waste and resource recovery infrastructure, other than landfills
- the timeframe for when new waste and resource recovery infrastructure is needed.<sup>499</sup>

<sup>493</sup> Victorian Waste Management Association, *The Economic contribution of the Waste Management and Recycling Industry to the Victorian Economy*, 2019, p. 12.

<sup>494</sup> Read, *Transcript of evidence*, p. 7.

<sup>495</sup> McLean, *Transcript of evidence*, p. 6.

<sup>496</sup> Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, p. 35.

<sup>497</sup> Metropolitan Waste and Resource Recovery Group, *Metropolitan Waste and Resource Recovery Implementation Plan 2016*, September 2016, p. 43.

<sup>498</sup> *Environment Protection Act 1970* (Vic) s 50BB(1)(c).

<sup>499</sup> *Ibid.*

One such example of a required infrastructure schedule is included in the Metropolitan Waste and Resource Recovery Group's *Metropolitan Waste and Resource Recovery Implementation Plan 2016*. The required infrastructure schedule contains information about the infrastructure the group is planning to commission. The schedule includes information about the material streams that the waste group is seeking to manage, for example, paper and glass. However, information about the category of proposed infrastructure is not available.<sup>500</sup> In addition, of the 10 categories of infrastructure requirements outlined in the schedule, only two categories had a likely commencement date/need date of more than one year after the plan was published. Most timeframes in the schedule were listed as commencing in 2016, which is the year the plan was published.<sup>501</sup>

This is problematic given that the purpose of the plan is to set out the waste and resource recovery infrastructure needs for the greater Melbourne region over a 10-year period.<sup>502</sup> Further, the information outlined in the schedule may not provide the certainty sought from industry to make long term investment decisions.

The Metropolitan Waste and Resource Recovery Group's future recovery infrastructure schedule is included at Appendix 2.

The lack of information about future infrastructure information was also dealt with in the Auditor-General's *Recovering and Reprocessing Resources from Waste* report, which said:

Further risks for the sector exist given the inadequacy of waste infrastructure planning. Neither the SWRRIP nor MWRRIP provide a clear plan for future infrastructure. They do not specify the estimated cost, type or location of infrastructure needed to increase resource recovery rates now and into the future.<sup>503</sup>

The Committee believes it is important for the state's waste and resource recovery groups to communicate the information contained in their required infrastructure schedules more widely so that industry are well informed. In addition, the waste groups should ensure their required infrastructure schedules are sufficiently detailed and provide an outline of their infrastructure needs into the future.

**FINDING 29:** The state's waste and resource recovery groups have not communicated the information contained in their required waste and resource recovery infrastructure schedules effectively.

<sup>500</sup> Metropolitan Waste and Resource Recovery Group, *Metropolitan Waste and Resource Recovery Implementation Plan 2016*, pp. 44-5.

<sup>501</sup> Ibid.

<sup>502</sup> Ibid., p. 10.

<sup>503</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 65.

**RECOMMENDATION 33:** That the state’s waste and resource recovery groups should include more detailed information in their required infrastructure schedules and should provide a more detailed analysis of their infrastructure needs.

## 5.5 Product-specific processing facilities

As noted in Chapter 4, the Committee received evidence during the Inquiry around the scope for developing end-of-life processing plants for key products and materials. Peter Allan, the Director of Sustainable Resource Use described at a public hearing the potential in this area:

Firstly, the recycling sector is one of the world’s fastest growing, and we are letting thousands of quality jobs slip through our fingers. Overall we have a strong recycling sector in Victoria, with companies such as Alex Fraser, Sims, Visy and Aurora leading the way. However, from a position of global leadership we now find that Victoria is playing catch-up on many fronts. We are missing out on employment opportunities in managing end-of-life outcomes for cars, for clothes, for plastics and for batteries.<sup>504</sup>

A core concept of end-of-life plants is obtaining further value through repurposing and remanufacture of materials. This would be a significant benefit to a circular economy. Mr Allan provided an example in relation to clothing:

There is a great global trade in clothing, for clothing, but what we do not have is fibre-to-fibre recycling at the end of that. So at the end of that we just need to, as we do with every other product, have an ability to capture that resource and keep it in the system.

... We are falling behind in terms of the global fashion push for recycling, and that is what I am concerned about. We could and should have a closed integrated re-use and recycling facility here in Victoria, and we could. That German plant takes clothing from across Europe. It sorts to something like 250 different categories, so if you want fur-lined jackets or if you want English Premier League tops, they can give them to you. But then at the end of that, when it is worn out, it goes into recycling, and it is recycled back into the automotive industry or back into clothing or into sports flooring—anything. We need those facilities here.<sup>505</sup>

Mr Allan also stated that there was potential for significant economic and employment benefits in investment in this sector.

As part of its review, Infrastructure Victoria has been asked to examine secondary processing facilities, including across different product sectors and for different material types. It will also consider the sustainability of a secondary processing market in Victoria.<sup>506</sup>

<sup>504</sup> Peter Allan, Director, Sustainable Resource Use, Public hearing, Melbourne, 3 October 2019, *Transcript of evidence*, p. 1.

<sup>505</sup> *Ibid.*, p. 4.

<sup>506</sup> Victorian Government, *Terms of reference - Advice from Infrastructure Victoria on recycling and resource recovery infrastructure*, 2019, p. 2.

## 5.6 Landfill closure

As noted in Chapter 2, the number of landfills in Victoria has been falling steadily from over 160 in 2001–02 to 72 in 2017. According to the SWRRIP, this is due to:

- improved transport infrastructure, reducing cost of transport.
- increased cost of operating landfills associated with increased regulatory requirements for environmental performance of landfills and levies, leading to waste being transferred to larger regional facilities with greater efficiencies and lower costs due to economies of scale.
- local governments choosing to close landfills after assessing current and long term costs, benefits and risks associated with operating and rehabilitating landfills.<sup>507</sup>

The Committee notes the upcoming closure of landfills in the south east of Melbourne. The Metropolitan Waste and Resource Recovery Group has stated in its waste and resource recovery implementation plan that despite these landfill closures, it did not intend to commission any new landfills in the next 10 years.<sup>508</sup> To achieve this, it is boosting resource recovery infrastructure in the metropolitan area to reduce the amount sent to landfill.<sup>509</sup>

Rob Millard, CEO of the Metropolitan Waste and Resource Recovery Group, outlined the process the group has taken so far in the south east of Melbourne in relation to landfill closure:

So it was clear to the group in the plan that the area we needed to work with first, with looking at alternatives to landfill, was the south-east of Melbourne. So we have been developing a detailed business case with the 17 councils in the south-east to look at what technologies are available to treat the waste rather than landfill it. We have been working with those councils now for over 12 months, and we have presented the final south-east business case. Councils are now going through their council meetings to agree to go into a procurement phase. We have got a dozen councils so far, and we look like having about 14 to 15 councils that will go to market in August to start the procurement process, which will be a multi-staged procurement process, will go to an expression of interest and will ask industry, 'What have you done? Have you got experience?'. And then we will ask for outline tenders, more detailed tenders and final tenders, and that might be an 18-month process. Then we will look at providing one, two or potentially three facilities for the south-east of Melbourne to look at treating the waste rather than landfilling that waste.<sup>510</sup>

The group also told the Committee that as well as recovery options, they are considering energy from waste technology to replace the use of landfills in treating the

<sup>507</sup> Sustainability Victoria, *Statewide Waste and Resource Recovery Infrastructure Plan*, p. 145.

<sup>508</sup> Metropolitan Waste and Resource Recovery Group, *Metropolitan Waste and Resource Recovery Implementation Plan 2016*, p. 52.

<sup>509</sup> Ibid.

<sup>510</sup> Millard, *Transcript of evidence*, p. 3.

waste that cannot be recovered.<sup>511</sup> The Committee commends the Metropolitan Waste and Resource Recovery Group for taking the step to look at other ways of treating residual waste.

The Victorian Government is in the process of developing its circular economy policy, which will be discussed in detail in Chapter 4 of this report. The circular economy policy will outline the ways in which the Government will invest in Victoria's waste and resource recovery sector to ensure that as much as possible, all products in Victoria are able to be recycled, remanufactured or repaired.<sup>512</sup>

The circular economy policy will build on the work that is already underway to divert material from landfill, such as the consideration of municipal FOGO services and the removal of glass from co-mingled recycling bins. The Committee hopes these measures, along with the measures outlined in the circular economy policy will drastically reduce the amount of material Victoria sends to landfill.

The Committee notes that there will always be a percentage of waste that is not able to be recovered for re-use. Such waste is typically sent to landfill, however, the Committee believes energy from waste technology may be part of the solution to assist in the disposal of this material. Energy from waste is discussed in detail in Chapter 6.

The Committee believes there is an opportunity to wind down the use of landfill statewide through a legislated response on residual waste being sent to landfill.

John Bradley, Secretary of DELWP, said that the closure of landfills in Victoria was something to aspire to, and that it was increasingly common in European countries:

... certainly as an aspiration I think what we are seeing increasingly in European practice—including the Prime Minister of Netherlands, who was out recently—is that there is this principle that in a circular economy there is no such thing as waste. So it is certainly an aspiration. It should be the light on the hill.<sup>513</sup>

Nat Bryant from Suez, a company that is investigating the introduction of an energy from waste facility, said he believed there could be a ban on landfills in Victoria.<sup>514</sup> When asked whether such a policy should be underpinned by legislation mandating a circular economy policy, he believed it should be legislated:

It is my strongest belief that it should be underpinned. If we are heading in that direction, everyone should be getting on board and we should all go on that journey rather than opt in/opt out. If we are looking for that progression up the waste hierarchy, I think from the leaders within the country we need to be facilitating that and leading what best practice looks like.<sup>515</sup>

<sup>511</sup> Ibid. p.4.

<sup>512</sup> Department of Environment, Land, Water and Planning, *A circular economy for Victoria*, 2019, <<https://www.environment.vic.gov.au/sustainability/circulareconomy>> accessed 26 September 2019.

<sup>513</sup> Bradley, *Transcript of evidence*, p. 14.

<sup>514</sup> Nathaniel Bryant, State General Manager, Victoria, Suez Recycling and Recovery, Public hearing, Melbourne, 3 October 2019, *Transcript of evidence*, p. 23.

<sup>515</sup> Ibid.

The Committee agrees that legislative action is needed to cut down and end residual waste going to landfill. The Committee believes that a legislated target with an appropriate timeframe is important. Such a target would give industry, all levels of government, and the community adequate notice of the Government's intention to cease the consignment of residual waste to landfill, as well as provide a level of certainty to industry about the need to invest in resource recovery infrastructure.

**RECOMMENDATION 34:** That the Victorian Government set a target of zero municipal residual waste being sent to landfill in Victoria by 2030.

**RECOMMENDATION 35:** That all building projects be required to lodge a disposal plan for all building waste with a high requirement for minimal waste to landfill.

# 6 Energy from waste

One theme that has been prevalent throughout the Inquiry has been around energy from waste technology and its role in potential solutions to the recycling crisis. Victoria currently converts approximately four per cent of waste to energy, primarily by capturing methane gasses at landfill sites.<sup>517</sup> Some commentators consider that energy from waste technologies could play a greater role in the waste and resource recovery system.

As discussed in Chapter 4, a move towards a circular economy is forthcoming in Victoria. A renewed emphasis on waste avoidance and resource reuse and repurposing is central to such a transition. In this context, while waste policy should focus on these core principles, a small portion of residual waste will generally remain. Energy from waste has been proposed by a number of submitters as an alternative to landfill for this small proportion of remaining waste.

There are many methods for extracting energy from waste that provide different opportunities depending on the type of materials used as feedstock, waste volumes, and other contextual factors. An in-depth study of the various technologies could not be undertaken in the course of this Inquiry. This Chapter will instead broadly discuss some of the evidence presented to the Committee on the role that energy recovery could play in the future waste and resource management system in Victoria. This includes some of the benefits and challenges that may arise.

## 6.1 What is energy from waste?

Energy from waste, also referred to as ‘waste to energy’, describes processes of generating various forms of energy from waste materials.<sup>518</sup> Depending on the technology used, energy produced can include electricity, heat, gas or other fuels.

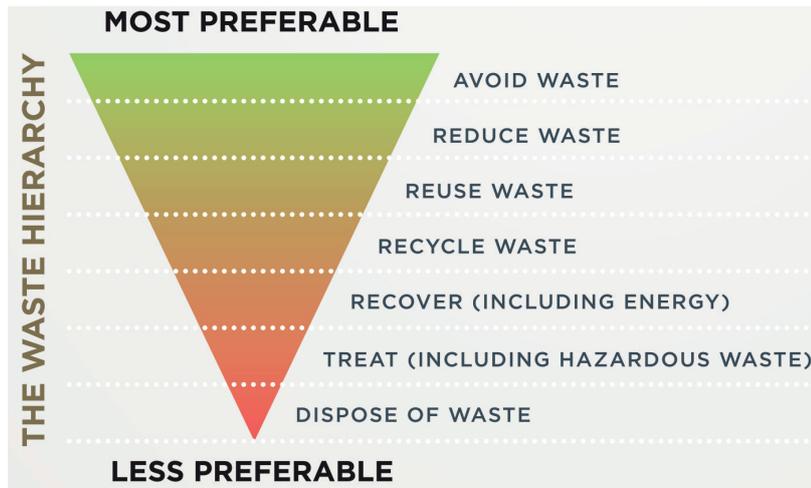
Energy from waste sits above disposal and treatment on the waste hierarchy, but below the avoidance, reduction, reuse and recycling of waste.

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<sup>517</sup> Department of the Environment, Land, Water and Planning, *Turning waste into energy: join the discussion*, Victorian Government, Melbourne, 2017, p. 7.

<sup>518</sup> *Ibid.*, p. 3.

Figure 6.1 The waste hierarchy



Source: Commonwealth of Australia, *2018 National Waste Policy: less waste more resources*, 2018, p. 9.

As discussed in Chapter 2, some materials, such as paper and metals, have a high recovery rate in Victoria. Other materials such as organic waste and low-quality plastics have a comparatively low recovery rate and often end up in landfill.<sup>519</sup>

The success of energy from waste in Victoria as part of a circular economy would depend upon its use being one of ‘last resort’, and as an alternative to landfill. This theme was discussed in detail in submissions and in evidence provided at public hearings.

### 6.1.1 Types of energy from waste

Waste conversion to energy can be broadly separated into ‘thermal’ and ‘biological’ processes. Some of the most common methods are outlined below.

Thermal processes include:

- pyrolysis—the chemical breakdown of waste at a high temperature and in a lowoxygen environment to produce oil and other outputs. This is also the first stage of gasification and combustion.
- gasification—waste is heated in a low-oxygen environment to generate a synthetic gas, which is then heated to drive steam turbines.
- incineration—waste is burned at high temperatures, and converted into gas, steam and ash. This is the most common form of energy from waste technology.

<sup>519</sup> Ibid., p. 8.

Biological processes include:

- anaerobic digestion—organic waste is broken down in a no-oxygen environment to produce biogas (a combination of methane and carbon dioxide). This process favours ‘wet’ organics such as agricultural waste over ‘dry organics’ such as timber.
- fermentation—organic waste with a high sugar content is converted to carbon dioxide and alcohol, creating liquid fuels such as ethanol.

In addition, mechanical biological treatment is a combination of processes which include a mechanical and a biological component. This could include the mechanical sorting or shredding of materials, and then biological composting or anaerobic digesting of the materials to create a fuel source.

At a public hearing, Lee Bell, a Senior Researcher for the International POPs Elimination Network, discussed some additional emerging technologies:

There is the technology known as gas-phase chemical reduction, which has been used in Australia previously for hazardous waste but is being developed to treat different forms of municipal residual waste in Canada, and there are also technologies that are being developed now that can convert residual waste to hydrogen energy as well.<sup>520</sup>

Depending on the technology, and the materials being used as feedstock, there will be different outputs and environmental impacts. Table 6.1 displays some of the main feedstocks, energy outputs and residual materials for the processes outlined above.

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<sup>520</sup> Lee Bell, Senior Researcher, International POPs Elimination Network, Public hearing, Melbourne, 22 October 2019, *Transcript of evidence*, p. 55.

**Table 6.1** Common technologies for energy recovery from waste

	Technology	Feedstocks	Output	Residue
<b>Thermal</b>	Combustion	Residual MSW, mixed C&I and C&D	Heat, electricity	Bottom ash, fly ash, air pollution control residue, metals
	Pyrolysis	Single stream of sorted feedstock from residual MSW, C&I and C&D	Pyrolysis oil, syngas, biochar	Air pollution control residue
	Gasification	'Refuse-derived fuel'—pellets made from residual waste	Heat, electricity, syngas	Bottom ash, air pollution control residue
<b>Biological</b>	Anaerobic digestion	Food and organic waste, crop residue	Digestate, compost, heat, electricity, biogas	Liquid residue, wastewater, inert and non-compostable material
	Fermentation	Food and organic waste with high sugar content	Alcohols, digestate	Liquid residue, wastewater
<b>Combined</b>	Mechanical biological treatment	Residual MSW, C&I and organic waste	Refuse-derived fuels, biogas, electricity, compost	Process water, air pollution control residue, residual materials

Notes: 'MSW' - municipal solid waste; 'C&I' - commercial and industrial, 'C&D' - construction and demolition

Source: Department of Environment, Land, Water and Planning, *Turning waste into energy: join the discussion*, Victorian Government, Melbourne, 2017, p. 10.

This Chapter will not compare different types of energy from waste technologies. This is a broad and complex area and would require a more in-depth examination of the various methods and surrounding issues in the Victorian context. This Chapter will instead discuss some of the evidence that the Committee has heard around potential benefits and challenges of converting residual waste into energy.

Incineration or combustion plants are the most common form of energy from waste and are well-established across Europe and in the United States of America. However, waste incineration in Australia is generally divisive and the Committee has received a large amount of evidence in submissions and at public hearings about the desirability of establishing these in Victoria. Much of the evidence the Committee heard as part of the Inquiry related to incineration and other thermal types of energy conversion.

## 6.2 Regulatory framework

The Victorian Government is broadly supportive of energy from waste projects and has stated that there is ‘substantial opportunity for waste to energy to deliver improved waste and energy sector outcomes across the state’.<sup>521</sup> In 2017 it operated a Waste to Energy Infrastructure Fund, which provided grants to four projects involving biological conversion methods.<sup>522</sup>

The Victorian Government completed an examination of the role of waste from energy technology within the state in late 2017. It released a discussion paper that incorporated the views of community and stakeholders, before deferring further consideration as part of its broader development of a circular economy policy.<sup>523</sup> The circular economy policy is due to be released in late 2019 and is discussed further in Chapter 4.

In the discussion paper, the Government stated that energy recovery ‘should only be used where higher order recovery options [avoidance, reuse and recycling] are not practicable, or where higher order recovery options may lead to worse outcomes for the environment or human health’. It further stated its intention to limit landfill use and extract value from waste wherever possible.<sup>524</sup>

Infrastructure Victoria is currently examining the state’s infrastructure needs in the waste and resource recovery sector, including for energy from waste technologies.<sup>525</sup> While the final advice is not due until April 2020, an evidence base report stated that energy from waste ‘should be considered’ by government.<sup>526</sup>

The EPA has responsibilities to assess energy from waste proposals under the Environment Protection Act. Most facilities are classified as ‘scheduled premises’ under the Environment Protection (Scheduled Premises) Regulations 2017, which means they are subject to works approval by the EPA. The *Energy from waste guideline* sets out the criteria for assessment of applications for new facilities:

- Suitability of energy from waste in the circumstances, taking into consideration the environment protection principles and whether the feedstock consists of residual waste.
- Feedstock types and preparation for processing, including how the sources will be appropriately separated and treated.

<sup>521</sup> Department of the Environment, *Turning waste into energy: join the discussion*, p. 3.

<sup>522</sup> Environment and Climate Change Minister for Energy, *New Technologies To Recover Energy From Waste*, media release, Victorian Government, 26 October 2017.

<sup>523</sup> Department of Environment, Land, Water and Planning, *A circular economy for Victoria*, 2019, <<https://www.environment.vic.gov.au/sustainability/circulareconomy>> accessed 26 September 2019.

<sup>524</sup> Department of the Environment, *Turning waste into energy: join the discussion*, p. 7.

<sup>525</sup> Victorian Government, *Terms of reference - Advice from Infrastructure Victoria on recycling and resource recovery infrastructure*, 2019, p. 1.

<sup>526</sup> Infrastructure Victoria, *Recycling and resource recovery infrastructure: Evidence base report*, Infrastructure Victoria, 2019, p. 30.

- Design of the facility, included how it will be appropriately planned, sited, constructed and operated to minimise the production of emissions and other pollutants.
- Overall energy efficiency.<sup>527</sup>

The EPA provided further evidence to the Committee in response to questions taken on notice at a public hearing on 6 November 2019, in which it confirmed that new energy from waste facilities are subject to regulatory requirements including works approvals, commissioning approvals and licensing.<sup>528</sup> Environmental and public health impacts of the proposed facilities are assessed during these approvals stages. Dr Cathy Wilkinson from the EPA stated at a public hearing that European standards are taken into consideration in regulatory development in order to ensure that global best practice standards are being used in Victoria.<sup>529</sup>

More broadly, the Australian Government has indicated its interest in energy recovery from waste. The Minister for the Environment and Energy announced on 27 April 2018 that the Clean Energy Finance Corporation and the Australian Renewable Energy Agency had been instructed to prioritise energy from waste projects.<sup>530</sup>

**FINDING 30:** The Committee welcomes the Commonwealth Government's interest in energy recovery from waste.

### 6.3 Initiatives in Victoria

Energy recovery currently utilises a small proportion of generated waste in Victoria—approximately four per cent. This occurs through passive gas recovery at landfill sites, sewage treatment plants or other small-scale biological processes.<sup>531</sup>

With a growth in support for separated food and organics kerbside collection services in recent years, some smaller biological processing facilities have been established or are in development to process these materials. For example, Resource Resolution received a grant through the Waste to Energy Infrastructure Fund to establish an anaerobic digestion plant in Girgarre. At the time of publication this facility was still in approval stages.<sup>532</sup>

<sup>527</sup> Environment Protection Authority Victoria, *Guideline: Energy from waste: Publication 1559.1*, July 2017, pp. 3-6.

<sup>528</sup> Dr Cathy Wilkinson, Environment Protection Authority Victoria, Inquiry into Recycling and Waste Management hearing, response to questions on notice received 8 November 2019, p. 1.

<sup>529</sup> Dr Cathy Wilkinson, CEO, Environment Protection Authority, Public hearing, Melbourne, 6 November 2019, *Transcript of evidence*, p. 10.

<sup>530</sup> Parliament of Australia, Senate Environment and Communications References Committee, *Never waste a crisis: the waste and recycling industry in Australia*, June 2018, p. 130.

<sup>531</sup> Department of the Environment, *Turning waste into energy: join the discussion*, p. 7.

<sup>532</sup> Engage Victoria, *Resource Resolution works approval application (completed)*, 2018, <<https://engage.vic.gov.au/epa-works-approvals/resource-resolution-wa>> accessed 29 October 2019.

A number of major energy from waste project proposals across Victoria were at various stages of works approval at the time of publication. These included:

- Australian Paper and SUEZ incineration plant in the Latrobe Valley—proposed processing capacity of up to 650,000 tonnes of residual municipal and commercial and industrial waste per year.
- Recovered Energy Australia gasification facility in Laverton North—proposed processing capacity for up to 200,000 tonnes per year of source-separated residual municipal solid waste per year.
- Engrx facility in Hume—an application has been lodged with Hume City Council.
- A proposed facility at Ballarat, which Ballarat City Council has placed on hold until the state government’s circular economy policy is released.

## 6.4 Benefits and challenges

### 6.4.1 Circular economy

One key challenge relates to the role that energy from waste technology will play in a circular economy. Principles of resource repair, reuse and remanufacture are emphasised in order to create ‘closed loop’ systems. In this context, residual waste that is unable to have further use extracted should be minimal.

For incineration technologies, a guaranteed feedstock of waste is required to ensure their ongoing viability. Depending on the size and nature of any facilities, some submitters alleged that this has the potential to impact on waste to energy being a technology of ‘last resort’. In its submission to the Inquiry, Boomerang Alliance stated that high demands for feedstock would ‘cannibalise any fledging recycled materials recovery operations’ and detract from the core messages of ‘reduce’ and ‘reuse’.<sup>533</sup> In essence, it would provide an ‘easy way out’ at a time that focus should be centred on growing and strengthening a domestic recycling industry.<sup>534</sup> A number of submitters condemned the use of energy from waste on this basis,<sup>535</sup> with one stating that it was effectively ‘planning to fail’.<sup>536</sup>

In response to concerns around the negative effect that incineration may have on recycling rates, Craig Dunn, the General Manager of Communications and Sustainability at Australian Paper stated that:

Looking at the complementarity with recycling, the top 10 European countries with less than 10 per cent of municipal waste going to landfill actually have large waste-to-energy and also large recycling sectors. Germany is the EU benchmark for

<sup>533</sup> Boomerang Alliance, *Submission 424*, p. 5.

<sup>534</sup> Ibid.

<sup>535</sup> Joanna Drennan, *Submission 425*, p. 5; Zero Waste Victoria, *Submission 631*, p. 13; Dorothy Bruck, Anti-Toxic Waste Alliance, Public hearing, Melbourne, 6 August 2019, *Transcript of evidence*, p. 6.

<sup>536</sup> Mark Kerlin, *Submission 395*, p. 1.

recycling, with 68 per cent of its municipal waste stream recycled or composted. At the same time it has Europe's largest energy-from-waste network, with 96 waste-to-energy plants thermally treating 31 per cent of its total municipal waste volume. That really demonstrates in our view that energy from waste and recycling are complementary processes.<sup>537</sup>

Alex Serpo from the National Waste and Recycling Industry Council provided that cost disparities between waste going to energy recovery and going to recyclers may provide an incentive to recycle materials where possible:

I think there is a fear in the public sphere about material which could go to recycling going to energy instead. Just to clarify the sort of economics of that, if we are talking about plastics, you might get \$550 a tonne for clean PET, but it might cost you \$220 a tonne to send that material to a waste-to-energy facility. So there is actually an enormous economic difference between material recovery and energy recovery. Energy recovery is actually quite expensive.<sup>538</sup>

Dr Nicholas Aberle from Environment Victoria raised concerns about the nature of the contracts that would be required with councils in order to make large projects feasible.<sup>539</sup> Due to the scale of some of the plants proposed, contracts of up to 25 years may need to be negotiated. Nathaniel Bryant, State General Manager for Victoria at SUEZ Recycling and Recovery provided an explanation for longer contracts in relation to a proposed incineration facility in the Latrobe Valley:

We cannot construct the facility until we have a financial closure. We are awaiting the [Metropolitan Waste and Resource Recovery Group] tender. What that does require is long-term security for the construction. Obviously there is a \$600 million investment just in the facility alone, and over \$200 million worth of investment in ancillary construction with transfer stations, vehicles et cetera. It is a substantial investment, and that is why we need that longer term security and longer term contracts.<sup>540</sup>

However, these potential contract terms posed a significant concern for a number of individuals and organisations that engaged with the Inquiry.<sup>541</sup> For example, Lee Bell contended that long-term contracts would negate the benefits of future technological innovation—that might be more environmentally beneficial—because councils are 'locked in' to their contract obligations.<sup>542</sup>

<sup>537</sup> Craig Dunn, General Manager Communications and Sustainability, Australian Paper, Public hearing, Melbourne, 10 May 2019, *Transcript of evidence*, p. 3.

<sup>538</sup> Alex Serpo, Secretary, National Waste and Recycling Industry Council, Public hearing, Melbourne, 5 June 2019, *Transcript of evidence*.

<sup>539</sup> Nicholas Aberle, Campaigns Manager, Environment Victoria, Public hearing, Melbourne, 8 October 2019, *Transcript of evidence*, p. 17.

<sup>540</sup> Nathaniel Bryant, State General Manager, Victoria, Suez Recycling and Recovery, Public hearing, Melbourne, 3 October 2019, *Transcript of evidence*, p. 19.

<sup>541</sup> Kirsty Bishop-Fox, Zero Waste Victoria, Public hearing, Melbourne, 8 October 2019, *Transcript of evidence*, p. 3; Ken Woodward, *Submission 474f*, p. 1; Stop the Tip Inc, *Submission 642*, p. 7.

<sup>542</sup> Bell, *Transcript of evidence*, p. 55.

As has been discussed throughout this report, it is likely that there will be significant changes to the types and amounts of waste produced in Victoria due to predicted increases in organics recovery, increased separation of materials at the kerbside level, and the ban on e-waste going to landfill. Mr Dunn stated these changes would not necessarily stop large-scale plants from operating due to population growth estimates and predicted increases in overall waste production.<sup>543</sup>

Conversely, the MAV stated in its submission that demand for feedstock could ‘create perverse incentives to generate additional waste’.<sup>544</sup>

At a public hearing, Dr Cathy Wilkinson from the EPA provided the following information on how circular economy principles are taken into consideration during approvals stages of energy from waste facilities:

So what that means in practice is that we are looking for residual material to be used in those facilities—material that would otherwise be going to landfill—but what we are very conscious of in the context of Government moving to a circular economy policy is making sure, as any of these facilities are considered and should they be approved, that they are conditioned in such a way that they do not become static for the time at which they were conditioned. What that means in practice is they need to design their facilities so they can process material that has less residual waste into the future—as we get more organics out, as we get more plastics out of that residual landfill material.<sup>545</sup>

As noted, many countries across Europe have a well-established reliance on incineration as party of their waste management systems. The European Commission issued guidance in 2017 around the role of energy from waste technologies, including incineration, in a circular economy:

The European Environment Agency study suggests there is currently no incineration overcapacity in the EU as a whole. However, the statistics show that some individual Member States are excessively reliant on incineration of municipal waste. This situation may be partly explained by high demand for heat through district heating networks, the higher efficiency of their waste-to-energy processes and high levels of social acceptance.<sup>546</sup>

It also stated that countries with a high reliance on landfill and little to no incineration technology should carefully consider the impact of improved recycling rates on the viability of new incineration plants over their total lifespan (up to 20 to 30 years).<sup>547</sup>

<sup>543</sup> Dunn, *Transcript of evidence*, p. 7.

<sup>544</sup> Municipal Association of Victoria, *Submission 651*, p. 28.

<sup>545</sup> Wilkinson, *Transcript of evidence*, p. 10.

<sup>546</sup> European Commission, *The role of waste-to-energy in the circular economy: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*, Brussels, 2017, p. 7.

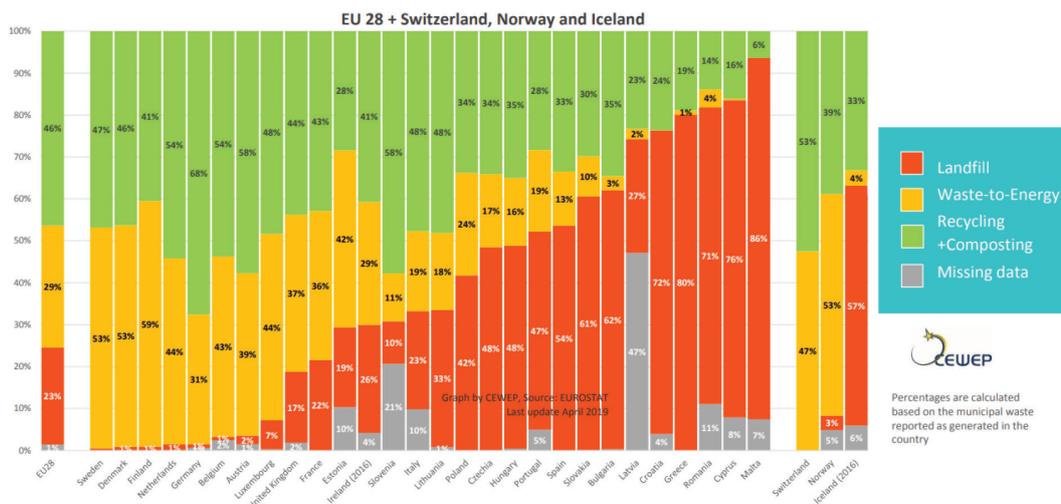
<sup>547</sup> Ibid.

In correspondence to the Committee, Australian Paper provided the following information:

In a number of EU countries, the need for landfills has virtually been eliminated with Sweden, Denmark, Finland, Germany, the Netherlands, Belgium and Austria –with a combined population of over 140 million – all landfilling three percent or less of their municipal waste.<sup>548</sup>

They also provided the following figure displaying the methods and rates of municipal waste treatment and resource recovery across European countries in 2017.

**Figure 6.2 European municipal waste treatment, 2017**



Note: The use of the term 'waste-to-energy' in the above data differs from the definition used for 'energy from waste' in this report. In the above data it refers primarily to incineration plants.

Source: Australian Paper, correspondence, 16 October 2019, p. 7.

The Committee heard evidence from Lee Bell at a public hearing, that:

Burning plastic waste in incinerators is no different to burning fossil fuels except that incinerating plastic generates larger volumes of more toxic emissions and toxic ash. The combination of these problems has seen the EU drop public subsidies for incineration, end any renewable energy credits and propose taxes on plastic incineration. Denmark and Sweden already tax waste incineration as an acknowledgement of its environmental impact. The waste incineration industry is headed for a phase-out, and Europeans now recognise that you cannot burn your way out of climate change.<sup>549</sup>

In terms of biological energy recovery, the European Commission’s guidance stated that organic waste should be removed from landfill and recovered through anaerobic digestion or similar methods.<sup>550</sup>

<sup>548</sup> Australian Paper, correspondence, 16 October 2019, p. 7.

<sup>549</sup> Bell, *Transcript of evidence*, p. 52.

<sup>550</sup> European Commission, *The role of waste-to-energy in the circular economy*, p. 6.

While Zero Waste Victoria opposed thermal energy from waste technologies, they recommended that if they were to be supported, a moratorium should be placed on their development while statewide waste avoidance education and other reuse and recycling programs are being rolled out.<sup>551</sup>

## 6.4.2 Energy

While energy from waste technologies have been proposed primarily as an alternative to landfill for residual waste, it has also been suggested by some submitters that these could provide an additional energy source.

Waste-derived fuel is conceptually attractive due to the availability of feedstock. This means it has been touted by a number of businesses as a potential supplementary fuel supply—such as at the proposed Australian Paper incineration plant. Mr Bryant discussed the commercial benefits of switching from gas to waste conversion in this situation:

[Australian Paper is] the largest industrial gas user within Victoria, so the incentive there is to create that steam. The energy conversion ratio, rather than being at 27 per cent in terms of the [gas] conversion ratio, is at 58 per cent. So when we start talking around efficiency and effectiveness, it is a lot more beneficial for them to proceed down this path.

... So from that end, when you look at an emission perspective, it is definitely a lot better.<sup>552</sup>

Another potential small-scale solution is a ‘closed loop’ industrial site. This occurs where a factory or other industrial facility that produces waste has infrastructure on-site to convert that waste into energy to power its own operations. This may be beneficial to some companies with a guaranteed stream of feedstock on the basis of reduced costs of waste management and energy supply. According to the Victorian Government’s discussion paper, smaller facilities of this nature could potentially have a payback period of less than five years.<sup>553</sup>

The Victorian Government has stated that energy from waste technology could play a small part in the ‘energy transition’ away from coal and improve energy reliability and diversity.<sup>554</sup> It classifies energy recovery as ‘renewable’ where organic waste is the energy source.<sup>555</sup> This means that any energy from waste technology that uses organic feedstock will contribute towards the Victorian Government’s renewable energy targets of 50 per cent by 2030.<sup>556</sup>

<sup>551</sup> Zero Waste Victoria, *Submission 631*, p. 13.

<sup>552</sup> Bryant, *Transcript of evidence*, p. 25.

<sup>553</sup> Department of the Environment, *Turning waste into energy: join the discussion*, p. 12.

<sup>554</sup> *Ibid.*, pp. 8-9.

<sup>555</sup> *Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2017* (Vic) s 4.

<sup>556</sup> *Renewable Energy (Jobs and Investment) Act 2017* (Vic) s 7.

Some submitters stated that recovering energy from non-organic residual waste was 'counterproductive' to efforts to combat climate change. This is because thermal processes would create additional greenhouse gas emissions.<sup>557</sup>

A number of submissions contended that other renewable forms of energy, such as wind and solar power, should remain the core focus for government rather than energy recovery from waste. They considered that these are generally cheaper, more sustainable and more beneficial in the long term.<sup>558</sup>

### 6.4.3 Environment

In terms of broad environmental impacts, some submitters considered that recovering energy from materials that are unable to be recycled would be beneficial, and could assist in alleviating the impact on certain fragile ecosystems such as oceans and waterways.<sup>559</sup> Others considered that in relation to materials that cannot be reused or recycled, including problematic plastics, this is a 'better option than landfill'.<sup>560</sup>

A core goal of energy from waste is the diversion of waste from landfill. However, the value of any technology will also depend on whether the resulting environmental impact is more beneficial than would have occurred through landfill. Such an assessment will largely depend on a number of factors including which technology is being used and where the feedstock will come from, as well as planning and accountability mechanisms built into the infrastructure.

Regarding 'cool' technologies, such as anaerobic digestion, the Committee heard evidence that these methods were likely to be environmentally beneficial. Peter Merrylees from community group Stop the Tip stated that anaerobic digestion is the most appropriate method of dealing with organics:

It is highly beneficial to the environment. In the first place, it takes away the methane that is coming out of the landfill. Waste biodegrades and generates methane. Methane is, I think, 20 or 30 times more deleterious to the environment than carbon dioxide. We need to get hold of it and control it and use it to develop energy. If we take it out of the waste stream, put it in an anaerobic digester, capture it, we have saved all that gas going to the environment, and what we have done is we have saved having to use fossil fuel to create electricity. So it is a win-win.<sup>561</sup>

However, the Committee has also heard significant concerns around the environmental impacts of thermal energy from waste technologies. In its submission to the Inquiry, Boomerang Alliance stated:

<sup>557</sup> Sustainable Agriculture and Communities Alliance, *Submission 665*, p. 3.

<sup>558</sup> Environment East Gippsland, *Submission 364*, p. 4; Australian Nursing and Midwifery Federation, Victorian Branch, *Submission 641*, p. 9; Sarina Kelly, *Submission 370*, p. 3.

<sup>559</sup> Vasiliki Erophile, *Submission 146*.

<sup>560</sup> Llewellyn Stephens, *Submission 176*; Herbert Weber, *Submission 369*, p. 1.

<sup>561</sup> Peter Merrylees, Stop the Tip, Public hearing, Melbourne, 6 August 2019, *Transcript of evidence*, p. 39.

Any waste to energy process presents serious inherent risks to human health and the environment. There is no thermal process to capture the embodied energy value of mixed waste that will not create significant pollution and toxic releases.<sup>562</sup>

The Victorian Government has stated that in order to receive a licence in Victoria, energy from waste operations 'must demonstrate they can meet strict environment protection standards'.<sup>563</sup> The EPA's *Energy from waste guideline* establishes that facility proposals must demonstrate that they will use current best practice processes in relation to air, land, water, noise and odour management. This includes management of ashes and other residues.<sup>564</sup> Emissions management must further meet standards set out in the European Union's Industrial Emissions Directive 2010/75/EU. This Directive sets limits on emissions and requires continuous monitoring of total particulate matter. In addition, energy from waste facilities 'should have comparable or reduced emissions' to the energy source that they are replacing.<sup>565</sup>

## Emissions

One key issue relates to the release of dioxin emissions through incineration processes. These are caused by burning carbon and chlorine simultaneously and are highly toxic.<sup>566</sup> Australia is a party to the Stockholm Convention on Persistent Organic Pollutants and has voluntarily accepted obligations to eliminate or reduce dioxin emissions wherever possible.<sup>567</sup>

The Industrial Emissions Directive discussed above requires heavy metals, dioxins and furans to be measured at least twice a year, with more frequent measurements in the initial stages of operation.<sup>568</sup>

The amount of dioxins and other toxic emissions produced will depend on the content of the feedstock being incinerated. Because plastics are predominantly oil and gas-based, they have a high calorific value and produce more heat when burned—but are likely to produce more toxic emissions than other materials.<sup>569</sup>

As incineration technology has developed, new ways of minimising the impact of dioxins have evolved. Operating temperatures and conditions are set to specific times and temperatures to minimise the impact of dioxins. Many incinerators now have sophisticated filtration systems that capture much of the dioxins released and the

<sup>562</sup> Boomerang Alliance, *Submission 424*, p. 4.

<sup>563</sup> Department of the Environment, *Turning waste into energy: join the discussion*, p. 10.

<sup>564</sup> Environment Protection Authority Victoria, *Guideline: Energy from waste*, p. 5.

<sup>565</sup> Ibid.

<sup>566</sup> Unilabs Environmental, *Characterisation and Estimation of Dioxin and Furan Emissions from Waste Incineration Facilities*, report for Environment Australia, 2001, p. 17; World Health Organization, 'Fact sheet: Dioxins and their effects on human health', 4 October 2016, <<https://www.who.int/news-room/fact-sheets/detail/dioxins-and-their-effects-on-human-health>> accessed 28 October 2019.

<sup>567</sup> *Stockholm Convention on Persistent Organic Pollutants*, signed 22 May 2001, 2256 UNTS 119 (entered into force 17 May 2004).

<sup>568</sup> Environment Protection Authority Victoria, *Guideline: Energy from waste*, p. 5.

<sup>569</sup> Roger Harrabin, 'Should we burn or bury waste plastic?', *BBC News*, 20 February 2018, <<https://www.bbc.com/news/science-environment-43120041>> accessed 20 February 2018.

resulting environmental impact is lower than in previous years. However, these are instead transferred into a solid form of ash residue which needs to be disposed of.

Lee Bell from the International POPs Elimination Network further described the impact of dioxins:

The dioxins are the most toxic chemicals ever analysed, and they persist in the environment for hundreds of years and are toxic in tiny amounts. They build up in the food chain, contaminate eggs, dairy products and livestock, and despite claims by the industry to the contrary, the problem of dioxins has never really been solved. At best they have been transferred from the air emissions to the bottom ash and fly ash by incredibly expensive filtration and scrubber units.<sup>570</sup>

In terms of the operating temperatures required to lower the effect of dioxin emissions, Mr Dunn described the regulatory requirements:

[Our plant] would operate at a minimum—it would have to reach a minimum—of 850 degrees Celsius for a specified period of time under the IED regulations to ensure that dioxins are not an issue with the plant. Practically speaking, a lot of energy-from-waste plants are operating at between the 1000 to 1100 degrees Celsius sort of band in Europe.<sup>571</sup>

Ian Guss, Director of Recovered Energy Australia outlined similar temperatures in the gasification process:

I guess the critical thing there is our primary gasification chamber runs somewhere between 800 and 1050 degrees. But the exhaust passes through the syngas chamber, which will be between 1100 and 1250 degrees centigrade, which in the context of waste-to-energy is very important. It is actually the standard temperature range required for hazardous and medical waste treatment, so we are well above that level that is required, I think, for the sort of waste that we are currently targeting from an emissions cautions point of view.<sup>572</sup>

In a response to a question taken on notice, the EPA provided further information on the requirements that new facilities need to comply with in terms of dioxins:

At the works approval stage a waste to energy facility proposal needs to demonstrate control of dioxins and furans (classified as class 3 indicators) to the maximum extent achievable as required by the State Environment Protection Policy (Air Quality Management). The most common controls involve high temperature oxidation of the flue gas to destroy the dioxins and furans; followed by rapid cooling of the flue-gas from temperatures above 400 °C to below 250 °C to prevent the these particles reforming. This is followed by the use of activated carbon (PAC) to adsorb any residuals in a baghouse prior to dispersing the emission through an appropriately designed flue stack.<sup>573</sup>

<sup>570</sup> Bell, *Transcript of evidence*, p. 53.

<sup>571</sup> Dunn, *Transcript of evidence*, p. 10.

<sup>572</sup> Ian Guss, Director, Recovered Energy Australia, Public hearing, Melbourne, 24 October 2019, *Transcript of evidence*, p. 15.

<sup>573</sup> Dr Cathy Wilkinson, response to questions on notice, p. 1.

A number of submitters expressed their concerns around greenhouse gas emissions from waste to energy conversion processes.<sup>574</sup>

In a recent discussion paper, the Victorian Government stated that a key benefit of diverting leftover waste from landfill was the net reduction of greenhouse gas emissions through the reduction of methane in waste.<sup>575</sup> Ian Guss stated that Recovered Energy Australia's facility proposal predicted a significant decrease in greenhouse gas emissions compared to average landfill emissions:

We did a very extensive carbon assessment, so we had MRA, one of the waste consultants, assess best practice landfills—and there are not a lot of them around—for every tonne of MSW going to a best practice landfill that generates around 0.778 tonnes of CO<sub>2</sub>. We have assessed that our plant generates around 0.48 tonnes of CO<sub>2</sub> per tonne of SW processed, so a 62 per cent reduction in CO<sub>2</sub> emissions for every tonne of waste that we process compared to that waste going to a best practice landfill.<sup>576</sup>

These figures rely on a comparison with greenhouse gas emissions occurring from landfill. When comparing emissions from incineration of municipal solid waste with those generated from other forms of energy generation, such as coal, the *2018 National Waste Report* stated the following:

Based on typical household waste composition in Australia, about half the energy collected would be from biological sources and half from fossil sources. Incineration of this waste would result in greenhouse gas emissions at about half the rate of bituminous coal per unit power generated.<sup>577</sup>

Similar comparisons around coal emissions were made by the Solid Waste Association of North America, according to a comparative emissions table published by the American Chemical Society and included below.

**Table 6.2 Comparative emissions by energy generation source**

Fuel	Emissions kg/(MW-h)		
	Carbon dioxide	Sulfur dioxide	Nitrogen oxides
Municipal solid waste	560.45	0.23	1.50
Coal	1,022.27	5.91	2.73
Oil	760.00	5.45	1.82
Natural gas	515.91	0.05	0.77

Source: Jeremy O'Brien, director of applied research, Solid Waste Association of North America, in Alexander Tullo, 'Should plastics be a source of energy?', *Chemical & Engineering News*, vol. 96, no. 38, 2018.

<sup>574</sup> Environment East Gippsland, *Submission 364*, p. 2; Kelly, *Submission 370*, p. 3; Boomerang Alliance, *Submission 424*, p. 4.

<sup>575</sup> Department of the Environment, *Turning waste into energy: join the discussion*, p. 5.

<sup>576</sup> Guss, *Transcript of evidence*, p. 16.

<sup>577</sup> Joe Pickin, Paul Randell, Jenny Trinh, Bill Grant, *National Waste Report 2018*, report for Department of the Environment and Energy, Blue Environment Pty Ltd, 2018, p. 74.

However, it is unclear how the above findings may vary where food and organics have been removed from municipal waste and the calorific value of the residual differs significantly. The removal of these materials from going to landfill is discussed in detail in Chapter 3.

Ensuring that food and organics are eliminated from landfill through diversion to composting or anaerobic digestion will significantly decrease the greenhouse gasses emitted from landfill.

Further, comparisons by energy generation source relate only to energy generated from fossil fuels. Lee Bell stated at a public hearing that when compared to renewable energy, such as solar or wind power, incinerators produce far higher greenhouse gas emissions.<sup>578</sup>

### Air quality monitoring

Many submitters expressed concerns about the air monitoring mechanisms for emissions from energy to waste technologies, including with regard to the dioxins and greenhouse gasses discussed above. While industry stakeholders and advocates of thermal processes have maintained that use of 'best practice' emissions controls would minimise any environmental and public health concerns from emissions, it is clear that strict and effective monitoring would be crucial to ensure public confidence.

The Victorian Branch of the Australian Nursing and Midwifery Federation contended that air standards are not adequately monitored and enforced in Victoria, and so industry reassurance around pollution levels is unconvincing.<sup>579</sup> This view was also put forward by Lee Bell, who stated:

To minimise the risk from the airborne dioxin emissions of incinerators, we also require highly competent regulatory authorities with in-house technical expertise on monitoring and enforcement of POPs emissions. Victoria does not have this, and the recent track record of [the] environmental agency with hazardous waste management underscores this.<sup>580</sup>

The EPA is responsible for monitoring and reporting on air quality across the state. An investigation by the Auditor-General in 2017 into air quality and pollution levels found that the 'EPA's limited air monitoring coverage does not provide it with information on air quality for most of the state, including many parts of metropolitan Melbourne'.<sup>581</sup> Further, it stated:

Contrary to the intent of its 2001 Ambient Air Quality NEPM Monitoring Plan Victoria (Monitoring Plan), EPA has failed to provide a better understanding of air quality outside the Port Phillip and Latrobe Valley regions. It has not updated nor adjusted the plan over

<sup>578</sup> Bell, *Transcript of evidence*, p. 49.

<sup>579</sup> Australian Nursing and Midwifery Federation, *Submission 641*, p. 9.

<sup>580</sup> Bell, *Transcript of evidence*, p. 53.

<sup>581</sup> Victorian Auditor-General's Office, *Improving Victoria's Air Quality: Independent assurance report to Parliament 2017-18:11*, March 2018, p. 7.

the last 17 years to reflect the changing risk profiles that accompany both considerable population growth and changes in industrial activities across the state.

In addition, while infrequent, we found some inaccurate assessments against PM air quality standards—all of which overstated air quality, and so serve to undermine confidence in publicly reported data.<sup>582</sup>

While the EPA has made improvements in recent years with regard to its monitoring and management of emissions and pollutants in Victoria, community concern around the adequacy of government enforcement of regulations and licence conditions should be addressed as a priority if these technologies are explored.

Further, Jeff Angel from the Boomerang Alliance made the point that emissions will accumulate from various technologies, and cannot be completely eliminated:

The other thing about waste to energy is even though they apply best practice emission controls it is not zero emissions, it is just smaller emissions, and that is where you run into a whole lot of local community problems. Some of the communities may already have highly polluted environments, which the waste-to-energy incinerator is adding to, and in the case of New South Wales we have yet to see a scheme that gives full confidence they can even meet the current emission limits with the current technologies they are proposing.<sup>583</sup>

In response to questions taken on notice at a public hearing on 6 November 2019, Dr Wilkinson provided the following further information regarding air monitoring:

During the commissioning stage of a waste to energy facility the performance of these pollution control systems is verified by stack testing to show that the controls are effective in reducing the emission to air (including dioxins and furans) to the required standard. If commissioning trials are successful then EPA may issue a licence to allow continued operation of the waste to energy facility subject to required monitoring and reporting conditions overseen by EPA.

...

Ongoing regulation and monitoring is determined by the risk associated with the solid wastes that are generated and their intended disposal or other use.<sup>584</sup>

Dr Wilkinson also stated that a mobile app has recently been released that links to the EPA's AirWatch website. This app aims to make air quality information accessible to the community and will be linked to by Emergency Management Victoria during emergency events.<sup>585</sup>

It is important that the EPA properly monitor air quality, and act decisively when there is non-compliance.

<sup>582</sup> Ibid., p. 8.

<sup>583</sup> Jeff Angel, Director, Boomerang Alliance, Public hearing, Melbourne, 8 October 2019, *Transcript of evidence*.

<sup>584</sup> Dr Cathy Wilkinson, response to questions on notice, pp. 2-3.

<sup>585</sup> Ibid., p. 14.

## Residues and by-products

Most energy from waste facilities will produce residues and by-products, which can include bottom ash and fly ash, wastewater and digestate from anaerobic digestion.

One significant by-product of incineration is residue ashes. These consist of bottom ash and fly ash. Bottom ash is generally considered to be non-hazardous and can be used in cements, road bases and other construction materials. Fly ash is significantly more toxic and may contain heavy metals and dioxins, meaning proper management and disposal is crucial. The proportion of fly ash that is produced from energy recovery depends on the particular technology but is likely to account for between one and three per cent of total residue materials.<sup>586</sup> Due to their substantially different qualities, different methods of management are required for bottom and fly ashes.

In evidence to the Committee, Lee Smith, Manager of Strategic Projects, Waste and Recycling at Veolia discussed some ways of managing residual ashes:

In lots of places in the world—yes, even countries like Germany which have largely banned landfill—they still have landfills just for the ash. They are called monofills because there is only one item basically that is going in there.

... Those ashes can be used as additives in concrete. In some cases they have been used for making pavers for industrial use. It does not have to go into landfill, although as soon as you develop something with what used to be a waste product in it and enter a market that somebody else is already supplying, the price is going to go down, and then it is a matter of who can do it cheapest.<sup>587</sup>

Nathaniel Bryant stated that the use of ashes in construction materials is used across a number of jurisdictions:

When we do talk about some of the impost and ash disposal afterwards, we do have facilities within Europe that Suez operate. ... They treat and re-use the ash that comes from that, so the residual waste after we have incinerated the material is used in cement and road base—not dissimilar to the leading countries that we do look at: Sweden, France and the UK.<sup>588</sup>

Craig Dunn stated that residual fly ashes from incineration would need to be placed in a prescribed landfill:

A lot of the volume of [the fly ash] is the activated carbon and lime and so forth that is used to trap and bind the toxic materials so they are not emitted but they are captured and then appropriately put into a controlled landfill or a prescribed landfill. So that is what we would be doing with that particular material.<sup>589</sup>

<sup>586</sup> Aneeta Mary Joseph et. al., 'The Use of Municipal Solid Waste Incineration Ash in Various Building Materials: A Belgian Point of View', *Materials*, vol. 11, no. 1, 2018, p. 2.

<sup>587</sup> Lee Smith, Manager, Strategic Projects, Waste and Recycling, Veolia, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 40.

<sup>588</sup> Bryant, *Transcript of evidence*, p. 19.

<sup>589</sup> Dunn, *Transcript of evidence*, p. 9.

Ian Guss, in explaining the gasification process, discussed the uncertainty around fly ash and disposal methods:

The fly-ash itself needs to be assessed by the EPA. We believe we have re-use options but at this stage, for the purposes of approvals, we take the most conservative approach possible, which is to stabilise it and dispose of it to landfill.<sup>590</sup>

One submission to the Inquiry stated that Australia does not currently have appropriate testing facilities to track and analyse furans and dioxins produced in fly ash.<sup>591</sup> This submission considered that such tracking mechanisms are critical in order to trace and manage contamination pathways resulting from incineration.

The EPA's *Energy from waste guideline* provides that appropriate management of these residues should occur in compliance with the *Environment Protection (Industrial Waste Resource) Regulations 2009* (Vic). These Regulations are currently under review, although the Victorian Government has stated that it expects the revised subordinate legislation to take effect from 1 July 2020.<sup>592</sup> Under the current Regulations, the EPA may classify a particular stream as 'prescribed industrial waste' and specify conditions for managing and treating that waste. Existing classifications include for paints, cooking fats and oils, and firefighting foams. The EPA provided the following further information to the Committee:

During commissioning the fly ash from the baghouse and bottom ash from the furnace is sampled and tested to confirm the hazard category of the waste in accordance with EPA Publication IWRG631 Solid Industrial Waste Hazard Categorisation and Management and the level of treatment required prior to landfill disposal.<sup>593</sup>

The *Energy from waste guideline* specifies that, where possible, 'proponents should explore reuse and recycling options for these residues'.<sup>594</sup> This could include, for example, use of residual ashes in road bases. The EPA provided further information on testing residual ashes for suitability for reuse:

Under the regulations EPA can assess a reuse proposal where the reuse is time limited, is for a specified quantity of material, the reuse option is fit for purpose; and the waste is consigned for the reuse purpose only.

Ash is tested and categorised prior to determining suitability for any particular reuse. Generally, ash wastes that have been produced through an industrial process can be categorised as either industrial waste or Prescribed Industrial Waste on the basis of the concentration and leachability of certain pollutants.

For unspecified pollutants, such as dioxins and furans, an assessment is required to identify the hazards associated with the specific reuse proposal. If the leachability does

<sup>590</sup> Guss, *Transcript of evidence*, p. 20.

<sup>591</sup> Natalie Abboud, *Submission 411*, p. 1.

<sup>592</sup> Environment Protection Authority Victoria, *Regulations*, 2019, <<https://www.epa.vic.gov.au/about-us/legislation/regulations>> accessed 22 October 2019.

<sup>593</sup> Dr Cathy Wilkinson, response to questions on notice, p. 2.

<sup>594</sup> Environment Protection Authority Victoria, *Guideline: Energy from waste*, p. 5.

not meet the requirements for the proposed use, further treatment might be required to stabilise the material, or it may not be considered suitable for reuse. The EPA may attach conditions to the reuse to ensure ongoing compliance with the intended destination of the material.<sup>595</sup>

Without a government policy on energy from waste, it is unclear how hazardous and toxic residues will be dealt with. A 2019 report by the Auditor-General into Victoria's resource recovery system found a lack of infrastructure planning in this area:

The [Statewide Waste and Resource Recovery Infrastructure Plan] does not include planning for hazardous waste infrastructure. SV acknowledges this gap and plans to include this in the next iteration of the SWRRIP due in 2023. However, given issues arising from the inappropriate storage and management of hazardous waste, the government allocated \$2.2 million in DELWP's 2018-19 budget to better manage the disposal of hazardous waste and to develop a hazardous waste policy.<sup>596</sup>

The EPA confirmed to the Committee that Sustainability Victoria is considering the need for new sites to manage hazardous waste as part of the next SWRRIP.<sup>597</sup>

Noting that further hazardous waste infrastructure planning may not be released until 2023, there is a lack of clarity around how any potential hazardous by-products of energy from waste technologies will be managed in the interim.

**RECOMMENDATION 36:** That the Victorian Government expedite its process of hazardous waste infrastructure planning.

#### 6.4.4 Public health

The Department of Environment, Land, Water and Planning's discussion paper stated that there could be public health and amenity improvements from a reduced reliance on landfill in terms of the minimisation of noise and odour.<sup>598</sup>

However, a number of submitters to the Inquiry had concerns around the public health impacts of some methods of converting waste into energy, such as from resulting dioxin emissions.<sup>599</sup> For example, one submission stated that incineration would 'jeopardise the health of the community at large'<sup>600</sup> while another stated that 'the community is justifiably worried about emissions'.<sup>601</sup>

<sup>595</sup> Dr Cathy Wilkinson, response to questions on notice, p. 2.

<sup>596</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste: Independent assurance report to Parliament 2018-19:27*, VAGO, Melbourne, 2019, p. 12.

<sup>597</sup> Dr Cathy Wilkinson, response to questions on notice, p. 2.

<sup>598</sup> Department of the Environment, *Turning waste into energy: join the discussion*, p. 5.

<sup>599</sup> Sasha Hall, *Submission 354*, p. 2; Sustainable Agriculture and Communities Alliance, *Submission 665*, p. 1; Australian Nursing and Midwifery Federation, *Submission 641*, p. 9.

<sup>600</sup> Amanda Kwong, *Submission 639*, p. 3.

<sup>601</sup> Rob Buttrose, *Submission 662*, p. 2.

Evidence received by the Committee around public health risks related overwhelmingly to thermal energy from waste processes. For this reason, as well as the differences in processes, variability of feedstocks and technological safeguards such as monitoring systems, possible health risks of any energy conversion facility should necessarily be considered on a case-by-case basis.

In terms of broad public health risks of incineration technologies, a recent systematic review of peer-reviewed research on this topic was published in September 2019 in the *Australian and New Zealand Journal of Public Health*. This review considered 93 papers and reported a number of health concerns. It found that there is considerable risk in food contamination and ingestion of pollutants by both nearby and distant residents.<sup>602</sup> However, this was primarily linked to older incineration factories, which were also linked with diseases including neoplasia and reproductive issues.<sup>603</sup> The review noted that while newer technology has not been linked with as many health effects, diseases resulting from cumulative exposure may take some time to manifest and so it is not possible to conclude that newer technologies are necessarily safer.<sup>604</sup>

Thermal energy from waste processes have improved significantly over time with regard to public health and emissions minimisation. In relation to gasification technology, Ian Guss provided evidence on a health impact report undertaken for Recovered Energy Australia's proposed plant at Laverton North. This report found that there were no ongoing health risks to workers or local communities over the operational life of the facility, including in relation to emissions.<sup>605</sup>

Dr Cathy Wilkinson stated that health impact assessments are undertaken during works approval processes for new facilities, and that 'quite significant conditions' for continued emissions monitoring are attached to approvals in order to provide assurance to the community.<sup>606</sup>

Project proposals for incineration plants are likely to continue to raise community concern. Adequate and meaningful consultation is crucial in order to take into account public health and environmental concerns. Kirsty Bishop-Fox discussed the importance of an open and transparent dialogue in the project development phase:

What is an acceptable distance to residential neighbours? There really is a long, long list of questions. When I went to the [community consultation] at Laverton—I am from the other side of town—I had a list of questions I was ready to ask them, but I sat back while the community got emotional. The community got emotional for lots of reasons. My biggest concern was that the community were not notified effectively. I am on the list from Engage Victoria to get these notifications. I did not get it. I found out from

<sup>602</sup> Peter Tait, James Brew, Angelina Che et. al., 'The health impacts of waste incineration: a systematic review', *Australian and New Zealand Journal of Public Health*, vol. Online open access, 2019, p. 8.

<sup>603</sup> Ibid., p. 1.

<sup>604</sup> Ibid., p. 8.

<sup>605</sup> Guss, *Transcript of evidence*, p. 16.

<sup>606</sup> Dr Cathy Wilkinson, response to questions on notice, p. 13.

somebody who happened to know because I have a contact at the EPA, so the public consultation I found out through inside information. We need to be more transparent with these types of things.<sup>607</sup>

Addressing community concerns around incineration was also emphasised in the above systematic review:

Local community groups have a basis for legitimate concern and so siting of incineration facilities needs to take these concerns into account. Early transparent consultation with communities about these facilities is essential.<sup>608</sup>

Careful siting of major facilities was advocated in a number of submissions. Dorothy Bruck from the Anti-Toxic Waste Alliance stated that if thermal technologies are adopted, they should have 'substantial buffer zones from residential communities and waterways'.<sup>609</sup>

The Committee considers that any energy from waste proposal should be required to be accompanied by significant community consultation that is meaningful, transparent and responsive to concerns. The siting of facilities should also take community concerns into account.

### 6.4.5 Financial

A key challenge for energy from waste relates to the financial costs involved in establishing plants with appropriate environmental and other controls that will remain viable in the long-term. According to a consultation report into the potential for energy from waste in Melbourne's west, industry and local government have cited the cost disparity between landfill and energy recovery from waste as a 'key barrier' to adopting new technologies.<sup>610</sup> It cited costs associated with planning and works approvals and licensing as some of the most challenging issues for both industry and local government.<sup>611</sup>

While the start-up costs in terms of research and development, capital infrastructure and regulatory requirements are likely to be high for new energy from waste plants, Alex Serpo from the National Waste and Recycling Industry Council stated that there could be broader economic benefits:

Look, I think one of the things you have to appreciate about landfill is the average landfill in Australia might last 30 or 40 years, so you pay in today's dollars to dispose of a tonne of waste when you go across the weighbridge, but then the after-care for that landfill will occur in 40 years time in dollars which are 40 years in the future. So that

<sup>607</sup> Bishop-Fox, *Transcript of evidence*, p. 4.

<sup>608</sup> Peter Tait, 'The health impacts of waste incineration: a systematic review', p. 8.

<sup>609</sup> Bruck, *Transcript of evidence*, p. 6.

<sup>610</sup> Reincarnate Strategic Environmental Consultants, *Report to the Minister for Energy, Environment and Climate Change: Waste to energy consultation and case study for Melbourne's West*, report for Cesar Melhem MP, Melbourne, 2017, p. 6.

<sup>611</sup> *Ibid.*, pp. 6-7.

is a huge future cost. If you put waste into a waste-to-energy facility today, you have added that value to the economy today. Economic growth is about getting innovation and infrastructure in as quickly as we can. So when you do those mathematics, it is much better to cash immediately, I think.<sup>612</sup>

In terms of the role of landfill levies, a 2016 report by the Clean Energy Finance Corporation stated that these levies are crucial to make energy from waste economically viable. As energy from waste plants charge fees to receive waste, this would have to be a lower cost than alternative disposal options such as landfill.<sup>613</sup> Mr Dunn described the impact this would have on their project:

At the moment we are looking at the cost associated with landfill in Victoria, which is quite low in comparison to New South Wales or South Australia. This is an incentive for landfill to continue as the mainstay of Victoria's waste management system. We believe that that does need to be challenged, and we think that the harmonisation of landfill levies would assist in that process.<sup>614</sup>

#### 6.4.6 Municipal solutions

A number of Councils provided evidence to the Committee that energy from waste technology could form part of a localised solution to the current crisis. This could, for example, use existing municipal feedstocks that would otherwise be sent to landfill to provide energy outputs for local government infrastructure.<sup>615</sup> Southern Grampians Shire Council stated that 'micro systems' could generate local energy while reducing financial costs and impacts of waste disposal.<sup>616</sup> Such systems would allow for greater council control over waste, increased transparency in where the waste ends up, and potentially lower costs of transportation.

Some councils have commissioned scoping reports to assess what role different options might have in their local communities. For example, a business case by the Metropolitan Waste and Resource Recovery Group found that some form of energy recovery will be required to decrease reliance on landfill. It further found that the private sector had shown strong interest in developing new 'advanced waste processing' infrastructure in Melbourne that can recover more recyclables and convert the residual to energy.<sup>617</sup>

As discussed in Chapter 3, municipal rollout of separated food and organic waste collection services is gaining momentum across Victoria. The Committee heard suggestions that these materials could be utilised in anaerobic digestion or other 'cool' energy from waste technologies to maximise resource use. There are a number of

<sup>612</sup> Serpo, *Transcript of evidence*, p. 16.

<sup>613</sup> Clean Energy Finance Corporation, *Energy from waste in Australia: a state-by-state update: A market report by the Clean Energy Finance Corporation*, 2016, p. 3.

<sup>614</sup> Dunn, *Transcript of evidence*, p. 10.

<sup>615</sup> Department of the Environment, *Turning waste into energy: join the discussion*, pp. 11-2.

<sup>616</sup> Southern Grampians Shire Council, *Submission 410*, pp. 2-3.

<sup>617</sup> Metropolitan Waste and Resource Recovery Group, *Advanced Waste Processing: Metropolitan Regional Business Case: Executive summary*, Victorian Government, September 2018, p. 9.

organics processing facilities in Victoria that generate heat or energy onsite. However, the Government stated in its 2015 *Victorian Organics Resource Recovery Strategy* that the use of organic materials as a source of energy 'has generated a great deal of interest but is largely unrealised on a commercial scale'.<sup>618</sup> There is clear potential for increased industry involvement in this area.

Exploring options for better dealing with municipal waste, for both separated organics and other residual waste, should focus on individual council requirements. Rob Millard, Chief Executive Officer of the Metropolitan Waste and Resource Recovery Group made the point that industry should be meeting the needs of councils, rather than the other way around:

Population growth is increasing our waste. We are at the point of creating an infrastructure network. Part of that integration is ensuring we have got the right amount of infrastructure out there and we do not have more infrastructure than we need. So part of it is going out to market and saying, 'This is how much material we have got and this is the infrastructure we need'. So it is really designing the infrastructure that we need rather than just having infrastructure built and they will come, because then you will get into a situation where you will have more infrastructure and not enough waste to feed it.<sup>619</sup>

Further, when developing council solutions, Mr Millard stated that a priority should be to remain 'technology agnostic' in order to ensure that the greatest overall outcomes in a reduction of waste going to landfill were achieved. He provided the following on cost comparisons of different technologies versus landfilling:

We have looked at waste-to-energy, we have looked at gasification, mass burn, we have looked at sorting—we have looked at a lot of different technologies. So we have done assessments of their costs over a 20 or 25-year period versus status quo, which is landfilling. All of the other technologies provide a better environmental outcome and most provide a better financial outcome.<sup>620</sup>

As discussed earlier in this Chapter, major facilities may require a guaranteed quantity of waste in order to remain commercially viable. Geoff Rollinson, Director of Infrastructure and Development at Gannawarra Shire Council stated that for smaller councils these contracts would not be feasible unless collaboration between councils occurred.<sup>621</sup> Kevin Erwin, Mayor of Northern Grampians Shire Council stated that their council had investigated a localised solution but that this had been found to not be

<sup>618</sup> Sustainability Victoria, *Victorian Organics Resource Recovery Strategy*, Victorian Government, 2015, p. 7.

<sup>619</sup> Rob Millard, CEO, Metropolitan Waste and Resource Recovery Group, Public hearing, Melbourne, 24 June 2019, *Transcript of evidence*, p. 8.

<sup>620</sup> *Ibid.*, p. 4.

<sup>621</sup> Geoff Rollinson, Director of Infrastructure and Development, Gannawarra Shire Council, Public hearing, Echuca, 3 September 2019, *Transcript of evidence*, p. 8.

viable due to the lack of a dependable feedstock.<sup>622</sup> Mr Dunn recommended that the Victorian Government facilitate ‘the urgent aggregation of municipal waste tenders to support projects with sufficient scale’.<sup>623</sup>

Concerns were also raised by local governments around the length of contracts that would be required to ensure the viability of major energy from waste projects. Steven Piasente, the CEO of Latrobe City Council, stated that:

The biggest impediment, though, is at the moment councils are pretty risk-averse, and they would not want to, from what I am hearing, necessarily say they are going to enter into a 25-year contract...

... They need a long-term arrangement for financing and councils will probably say five years is probably the most they would enter into.<sup>624</sup>

Additional considerations exist for regional and rural councils. For energy from waste to form part of a localised solution, infrastructure would need to be strategically located to ensure that transport costs were not prohibitive. Paul Mackenzie from Campaspe Shire Council provided that:

... it will need to be strategically located to ensure it gets the best product feed with the least amount of kilometres for it to travel to. At the moment once again this might be a case where a guiding hand is needed to say, ‘Look, we need one here and here and here, by all means, but we’re not going to support ones in other locations...’<sup>625</sup>

### 6.4.7 Policy certainty

In a circular economy, priorities such as waste avoidance, reduction, reuse and recycling will continue to be the aim of reducing the proportion of residual waste being produced and the role of energy from waste is uncertain.

In European countries where circular economies exist, and landfill levels are at a minimum, energy from waste facilities exist.

The Victorian Auditor-General stated in a March 2018 report that Sustainability Victoria receives approximately 50 enquiries a year regarding potential energy from waste projects or investment opportunities.<sup>626</sup> Without a policy position on energy from waste from the Victorian Government, there is significant uncertainty for industry stakeholders, local government and communities.

<sup>622</sup> Kevin Erwin, Mayor, Northern Grampians Shire Council Public hearing, Dunkeld, 19 September 2019, *Transcript of evidence*, p. 19.

<sup>623</sup> Dunn, *Transcript of evidence*, p. 3.

<sup>624</sup> Steven Piasente, CEO, Latrobe City Council, Public hearing, Morwell, 21 August 2019, *Transcript of evidence*, p. 4.

<sup>625</sup> Paul McKenzie, General Manager, Regulatory and Community Services, Campaspe Shire Council, Public hearing, Echuca, 3 September 2019, *Transcript of evidence*, p. 36.

<sup>626</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 47.

Some councils emphasised the difficulty in planning for future waste strategies and infrastructure in their regions.

Similarly, industry operators highlighted the risks involved in undertaking comprehensive preparatory research, development and scoping for projects that may not be broadly supported by government. Peter Anderson, Chief Executive Officer of the Victorian Transport Association provided the example of waste management company Veolia, who had undertaken significant financial and commercial risk in instigating an energy from waste proposal without any broad assurance from government.<sup>627</sup>

The need for a clear policy in this area was also highlighted by Infrastructure Victoria in its recent evidence base report into recycling and resource recovery infrastructure. It stated that clarity 'is an essential precondition for businesses to invest in infrastructure' and would streamline local planning and environmental approvals processes.<sup>628</sup> The Victorian Auditor-General similarly stated:

There is currently no [energy from waste] policy to guide government agencies and potential investors on what [energy from waste] technologies are acceptable and how they should implement them in Victoria. This is contributing to limited investment in new technologies.<sup>629</sup>

Bo Li, Senior Policy Adviser for the Victorian Local Governance Association, highlighted the importance of a statewide waste policy to ensure that energy recovery is appropriately limited:

We also see, in the absence of an overarching state waste management policy framework, that introducing a waste-to-energy plant can potentially undermine some of the other resource recovery efforts that have been done in other areas.<sup>630</sup>

The Committee notes that the Victorian Government intends to release its position on energy from waste as part of the release of its circular economy policy in late 2019. However, it considers that the lack of policy clarity in previous years has led to councils, businesses and investors undertaking significant risk in investigating or pursuing energy from waste options across the state.

**FINDING 31:** A policy statement on energy from waste is critical to provide certainty to investors and local government.

<sup>627</sup> Peter Anderson, Chief Executive Officer, , Victorian Transport Association, Public hearing, Melbourne, 2 October 2019, *Transcript of evidence*, p. 17.

<sup>628</sup> Infrastructure Victoria, *Recycling and resource recovery infrastructure: Evidence base report*, p. 15.

<sup>629</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 13.

<sup>630</sup> Bo Li, Senior Policy Adviser, Victorian Local Governance Association, Public hearing, Melbourne, 24 June 2019, *Transcript of evidence*, p. 2.

**RECOMMENDATION 37:** That the Victorian Government implement energy from waste technologies in Victoria, in conjunction with a future circular economy policy, as an alternative to landfill for residual waste.

**RECOMMENDATION 38:** That the Victorian Government remain ‘technology agnostic’ when developing a policy statement on energy from waste. A policy statement should further emphasise the use of best practice technologies that minimise any impact on the environment and on public health.

**RECOMMENDATION 39:** That the Victorian Government ensure that energy from waste projects are informed by regional requirements that take into consideration the long-term needs and capacities of local councils.

**RECOMMENDATION 40:** That the Victorian Government develop a strong regulatory framework around environment and public health outcomes for any energy from waste technologies adopted in Victoria, including in relation to monitoring and reporting on air emissions. Further, clarity would need to be provided around hazardous waste disposal of by-products and residues.



# 7

## Market development

The waste and resource recovery system in Victoria has historically focused on separating recyclables from the waste sent to landfill, with less attention paid to what happens to the recycled materials after this step. Recent media coverage has detailed the large amount of Australian recycled materials that were sent overseas for processing prior to international restrictions being established. According to the National Waste Report 2018, in 2016–17 approximately 43 per cent of recycled metals, 70 per cent of recycled plastics and 43 per cent of recycled paper and cardboard was exported internationally for processing.<sup>631</sup> In Victoria, 16 per cent of the total waste generated was exported in 2014–15.<sup>632</sup> As of April 2019, exports of paper and cardboard continue to grow.

As discussed in Chapter 2, an overreliance on international markets has prevented the establishment of strong markets for remanufacturing and selling products made from recycled materials. In light of a recent announcement by the Council of Australian Governments that Australia will set a timetable for banning the export of waste plastic, paper, glass and tyres overseas,<sup>633</sup> it is critical that these issues are addressed.

This Chapter will discuss some of the themes and recommendations that the Committee has heard throughout the Inquiry. The discussion is in light of the expected transition to a circular economy, discussed further in Chapter 4.

### 7.1 Government policy and action

Sustainability Victoria has among its core functions the development of markets for recycled materials in Victoria.<sup>634</sup> In 2016 it released the *Market development strategy for recovered resources*, which set out the statewide approach for:

- creating markets for secondary materials through research and development
- introducing product specifications and quality standards for recycled content
- supporting voluntary product stewardship programs, including for tyres, paint and photovoltaic systems
- increasing the value of recovered materials and developing high-quality secondary products

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<sup>631</sup> Joe Pickin, *National Waste Report 2018*, p. 17.

<sup>632</sup> Dr Joe Pickin and Paul Randell, *Australian National Waste Report 2016*, Department of the Environment and Energy & Blue Environment Pty Ltd, 2017, p. 65.

<sup>633</sup> Council of Australian Governments, *Meeting Communiqué*, 9 August 2019, <<https://www.coag.gov.au/meeting-outcomes/coag-meeting-communique-09-august-2019>> accessed 10 October 2019.

<sup>634</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 16.

- increasing investment in products made from recycled materials.<sup>635</sup>

According to the submission provided by the MAV, this plan was released prior to China's announcement of its new restrictions on waste imports and should have assisted the state to deal with the significant structural change that occurred. However, the MAV criticised the lack of transparency around implementation of the plan, stating that there has been little public information provided on the progress of the actions.<sup>636</sup>

Further, investigation by the Victorian Auditor-General into Sustainability Victoria's work in expanding the use of recyclables concluded that:

To date, however, [Sustainability Victoria]'s efforts have largely targeted new and expanded uses for products that use recovered glass, tyres and recycled concrete. While [Sustainability Victoria] has made progress in this regard, including working on the approval of revised product specifications, more could be done to target new markets for more problematic recyclables, such as plastics, where only limited opportunities have been identified to date.<sup>637</sup>

The Victorian Government announced a \$2.5 million Resource Recovery Market Development Fund in May 2018, managed by Sustainability Victoria.<sup>638</sup> A further \$2 million was allocated to the Fund in July 2018.<sup>639</sup>

The Research, Development & Demonstration Program falls under the above Fund, and provides grants to research projects that have the potential to increase the amounts of recycled products used and sold across the state.<sup>640</sup> Approximately \$4.08 million has been allocated in grants to date to universities, councils and industry bodies.<sup>641</sup>

The Department of Environment, Land, Water and Planning released a *Recycling Industry Strategic Plan* in July 2018 to provide a 'blueprint for a safe, resilient and efficient recycling system in the medium to long term'.<sup>642</sup> One of the goals contained in this plan was the development of markets for recycled materials. However, according to the Victorian Auditor-General, this plan did not address whether and what new infrastructure was required to fulfil the actions.

<sup>635</sup> Sustainability Victoria, *Victorian Market Development Strategy for Recovered Resources*, Sustainability Victoria, Melbourne, 2016.

<sup>636</sup> Municipal Association of Victoria, *Submission 651*, p. 11.

<sup>637</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 16.

<sup>638</sup> Lily D'Ambrosio MP, Minister for Energy, Environment and Climate Change, *New fund to develop markets for recyclables*, media release, Victorian Government, 29 May 2018.

<sup>639</sup> Lily D'Ambrosio MP, Minister for Energy, Environment and Climate Change, *Delivering a new plan for the future of recycling*, media release, Victorian Government, 3 July 2018.

<sup>640</sup> Sustainability Victoria, *Research, Development and Demonstration grants*, 2019, <<https://www.sustainability.vic.gov.au/Grants-and-funding/Research-Development-and-Demonstration-grants>> accessed 21 October 2019.

<sup>641</sup> Sustainability Victoria, *Projects funded by Research, Development and Demonstration grants*, 2019, <<https://www.sustainability.vic.gov.au/Grants-and-funding/Research-Development-and-Demonstration-grants/Projects-funded-by-Research-Development-and-Demonstration-Grants>> accessed 21 October 2019.

<sup>642</sup> Lily D'Ambrosio MP, *Delivering a new plan for the future of recycling*, media release.

The Resource Recovery Infrastructure Fund has operated since 2017 and allocates grants of between \$40,000 and \$500,000 to businesses and organisations for infrastructure development. These are aimed at increasing the capacity of the state's resource recovery sector.<sup>643</sup> Sustainability Victoria states that approximately \$21 million has been allocated in this program to date.<sup>644</sup>

The Victorian Government has requested that Infrastructure Victoria examine the state of recycling and resource recovery infrastructure in Victoria. Specifically, Infrastructure Victoria has been asked to provide advice on the infrastructure that will be required to develop the state's reprocessing sector for recycled materials and better enable the use of recycled materials in Victorian manufacturing and other industries.<sup>645</sup> Early findings were released in October 2019 and give some insight to the direction that the Government may take in reforming this sector.

The 2018 National Waste Policy includes key principles underpinning waste management and resource recovery in a circular economy. One principle is the increased use of recycled materials and developing demand and markets for recycled products.<sup>646</sup> Another principle supports the generation of information that will help build and grow domestic and international markets for recycled materials.<sup>647</sup>

The Committee notes that the Victorian Government is providing funding towards a number of initiatives aimed at building markets for recycled materials. However, in order to develop strong and sustainable domestic markets across the state, this is likely to require more significant and continued investment. Such funding announcements may occur in connection with the release of the Government's circular economy policy in late 2019.

**FINDING 32:** While the Committee welcomes this investment to create markets, it believes that more needs to be done to monitor the impact of this investment to ensure the sector is expanding and the investment meets its objectives.

**FINDING 33:** The Committee welcomes the involvement of Infrastructure Victoria in the provision of advice for the infrastructure that will be required to develop the state's reprocessing sector for recycled materials and better enable its use of recycled materials, and awaits its findings.

<sup>643</sup> Sustainability Victoria, *Projects funded by Resource Recovery Infrastructure Fund grants*, 2019, <<https://www.sustainability.vic.gov.au/Grants-and-funding/Resource-recovery-infrastructure-fund/Funded-projects>> accessed 21 October 2019.

<sup>644</sup> Sustainability Victoria, *Resource Recovery Infrastructure Fund*, 2019, <<https://www.sustainability.vic.gov.au/Grants-and-funding/Resource-recovery-infrastructure-fund>> accessed 21 October 2019.

<sup>645</sup> Victorian Government, *Terms of reference - Advice from Infrastructure Victoria on recycling and resource recovery infrastructure*, p. 1.

<sup>646</sup> Commonwealth of Australia, *2018 National Waste Policy: less waste more resources*, p. 15.

<sup>647</sup> *Ibid.*, p. 16.

## 7.2 Creating and growing markets

There are many reasons to invest in a strong local processing and repurposing sector in Victoria. The current waste crisis is one—with previous export markets closed, new options to deal with recyclables must be found. The Victorian Auditor-General concluded in a 2019 review of the Victorian resource recovery sector that ‘without accessible and competitive end markets, the number and size of stockpiles will continue to grow, and recyclables will eventually end up in landfills’.<sup>648</sup>

There are also broader incentives. Boomerang Alliance submitted that the recycling industry offers economic incentives as well as environmental ones, with approximately 9.2 persons employed in the recycling industry for every 10,000 tonnes of Australian waste, in comparison to only 2.8 persons for landfill.

The materials that we throw away can be better utilised. The Victorian Auditor-General has found that ‘a significant amount of the waste that Victorians send to landfill could be recycled or reprocessed’.<sup>649</sup> This can only occur through significant investment and coordination between government and industry, and behavioural change on behalf of the wider Victorian community.

The Victorian Government’s commitment to transitioning to a circular economy further necessitates the urgent development of policy in this area, and increased investment to ensure that Victoria’s markets for recycled materials are competitive. The MAV emphasised in its submission that a staged, holistic approach is required to ensure that new markets develop and thrive:

There must be a coordinated approach by the State to foster sustainable waste management practices in all upstream and downstream policies and strategies. Kerbside recycling material needs to be high quality, the material must have local market and manufacturing demand, and the material must be tied into a circular economy which is supported by strong procurement policies and a commitment from federal, state and local governments to purchase products containing local recycled content. This can and must commence now with products that are already available.<sup>650</sup>

In its submission to the Inquiry, the Australian Industrial Ecology Network contended that there was a considerable deficit in terms of infrastructure for a circular economy:

The AIEN does not consider any Australian jurisdiction (including Victoria) works in a sufficiently balanced way toward addressing the critical processing/manufacturing infrastructure and market development prerequisites for a circular economy.<sup>651</sup>

Reforming the reprocessing sector and developing the use of recyclable materials in domestic manufacturing, construction and other industries will not be without its

<sup>648</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 15.

<sup>649</sup> *Ibid.*, p. 9.

<sup>650</sup> Municipal Association of Victoria, *Submission 651*, pp. 11-2.

<sup>651</sup> Australian Industrial Ecology Network, *Submission 480*, p. 6.

challenges. Virgin materials are often cheaper and easier to use than recycled materials, for example. However, forward-thinking action and investment in this area could allow the state to position itself as a leader in the industry. Some submitters to the Inquiry even saw this as ‘a positive shift’.<sup>652</sup> In its findings, Infrastructure Victoria stated that:

Overall, we’ve found that high-performing resource recovery sectors across the world have succeeded because of a proactive approach by government, with a clear strategic direction supported by a long-term commitment and investment. A range of policy approaches working in parallel over an extended period are key to improved performance.<sup>653</sup>

Mr Allan provided an example of where product stewardship policies have successfully developed new markets for recycled content:

This plant in Germany, which is funded by the French product stewardship scheme even though it is in Germany, is taking shoes and shredding and recycling everything right down to the eyelets. They were turning it into sports flooring and it was worth, I do not know, a few hundred euro a tonne, which was barely marginal from a marketing point of view. Now Nike and Adidas are saying, ‘We want that material back into our shoes and we’ll pay you three times that to be able to brand our shoes with recycled content’.<sup>654</sup>

According to the Victorian Auditor-General, currently reported state waste data does not include information on market demand for recyclable materials. The report states that this data is not collected.<sup>655</sup> At a time where new markets are beginning to open, this data will be crucial to evaluating their success.

Many submitters to the Inquiry contended that the Sustainability Fund could be used for initiatives to stimulate market development for recycled materials.

**RECOMMENDATION 41:** That the Victorian Government work to improve data capture, monitoring and integrity in relation to recycling rates, markets for recyclables and the impacts of market development initiatives.

## 7.2.1 Existing markets

Some materials are already successfully reprocessed in Victoria. Sustainability Victoria stated at a public hearing that Victoria is the ‘leading state in Australia in the recycling of construction demolition waste back into high-value construction materials like aggregate asphalt and glass sand’.<sup>656</sup>

However, few options exist within the state for plastic, paper and cardboard.

<sup>652</sup> Chessell, correspondence, p. 6.

<sup>653</sup> Infrastructure Victoria, *Recycling and resource recovery infrastructure: Evidence base report*, p. 5.

<sup>654</sup> Allan, *Transcript of evidence*, p. 5.

<sup>655</sup> Victorian Auditor-General, *Recovering and Reprocessing Resources from Waste*, p. 14.

<sup>656</sup> Krpan, *Transcript of evidence*, p. 3.

The table below, prepared by DELWP, outlines the impacts of international import restrictions on commodity prices for certain materials.

**Table 7.1 Impacts of international trade restrictions<sup>(a)</sup>**

Material	Current impacts
Paper and cardboard	<ul style="list-style-type: none"> <li>• Cardboard price has fallen, is anticipated to partially recover</li> <li>• Mixed paper price has fallen significantly, is anticipated to recover weakly and remain low</li> <li>• Kerbside mixed paper stream is the most affected, as commercial paper/cardboard is better sorted and of higher quality</li> </ul>
Plastics	<ul style="list-style-type: none"> <li>• Polyethylene terephthalate (PET) (commonly used in water bottles, soft-drink bottles and food containers) price has fallen, has stabilised and is not anticipated to fall further in the short-term</li> <li>• High density polyethylene (HDPE) (commonly used in milk bottles, juice bottles and packaging for personal care and cleaning products) price has fallen, has partially recovered and is anticipated to remain stable in the short-term</li> <li>• Mixed plastics price has fallen significantly, is not anticipated to recover in the short-term</li> <li>• Kerbside mixed plastics stream is the most affected, as commercial plastic is better sorted and of higher quality</li> </ul>
Glass	<ul style="list-style-type: none"> <li>• Not affected by China's restrictions, not exported</li> <li>• Glass prices have been very low for many years</li> <li>• Glass contaminates processing facilities and other materials, particularly paper/cardboard</li> </ul>
Metals	<p>Not currently affected by China's restrictions</p> <p>Aluminium price has increased slightly over the past year and may have partially offset the impact of declines</p>

(a) Analysis according to March 2018 prices.

Source: Department of Environment, Land, Water and Planning, *Recycling Industry Strategic Plan*, Victorian Government, Melbourne, 2018, p. 11.

As outlined above and in Chapter 2, commodity prices for paper and cardboard and assorted plastics have fallen in recent years. Glass prices were unaffected by trade restrictions but remain low partially due to contamination with other materials in comingled kerbside recycling bins.

Stan Krpan, the former CEO of Sustainability Victoria, provided further information on these market shocks:

Australian exports of mixed paper and mixed plastics from MRFs has reduced by around two-thirds since the bans were enacted. The contraction of markets has resulted effectively in a commodity price crash of these materials. The average price for mixed paper prior to the decision by China to restrict those imports, for example, has fallen from \$225 per tonne to effectively \$50. Similarly, mixed plastics, which are highly valuable—and about 50 per cent of mixed plastics were being exported to China prior to the bans—has fallen from \$250 a tonne to effectively zero.<sup>657</sup>

657 Ibid.

It is clear that significant government investment is required in order to build capacity to find new uses for these materials.

A 2019 examination by EY of the Australian recycling sector analysed the potential for increasing value for certain recycled materials. Its findings emphasise that source separation of recyclable materials and market development for paper, cardboard and plastics could result in a high potential value increase for those materials.<sup>658</sup>

## 7.2.2 New markets

The Committee has heard a number of examples of businesses coming up with successful solutions for problematic or difficult to recycle materials, such as soft plastics. The Victorian Government can play a leadership role in encouraging further innovation of this kind or to help smaller businesses expand their scope of operations. This could be financial, or through broader business support and outreach programs. It is crucial that the impact of this kind of innovation is maximised.

New products are being rapidly developed, with some assistance from the Victorian Government. Sustainability Victoria gave one example of a collaborative approach between government and industry in construction, that was almost entirely comprised of recyclables:

Victoria has the world's first 99.9 per cent recycled asphalt road. It is a project with Hume council that we contributed \$100 000 to, to demonstrate that a local low-traffic road could be used with 100 per cent recycled content, predominantly recycled asphalt—and that is done by Downer EDI, it is the company locally; soft plastics, which are collected by a company called Redcycle, and they collect the soft plastics and packaging that is collected at the two major supermarket chains; a polymer that is based on cartridge toner, and so that creates actually a good binding agent in that road; and then glass bottles that have been crushed and then converted into effectively a substitute for river sand. So it is a combination of those things.<sup>659</sup>

John Bradley from DELWP also provided information about a new plastics recycling plant in Somerton, Advanced Circular Polymers, which was partly funded by the Resource Recovery Infrastructure Fund. He stated:

The centre will transform large quantities of low-value, contaminated plastics from households into high-quality commodities that go directly into the manufacture of new products through sorting and cleaning the plastic by polymer type and then meeting specified customer requirements. The end result should be a high-quality plastic flake that can be sold and made into more plastic products, such as packaging or polyester yarn.<sup>660</sup>

<sup>658</sup> EY Oceania, *How we can find the treasure in our trash*, September 2019, <[https://www.ey.com/en\\_au/climate-change-sustainability-services/how-we-can-find-the-treasure-in-our-trash](https://www.ey.com/en_au/climate-change-sustainability-services/how-we-can-find-the-treasure-in-our-trash)> accessed 1 November 2019.

<sup>659</sup> Krpan, *Transcript of evidence*, p. 10.

<sup>660</sup> Bradley, *Transcript of evidence*, p. 3.

Mr Bradley also discussed how the Sustainability Fund had been used to fund research and development and stimulate end markets for recycled materials:

So certainly we are seeing the [Sustainability Fund] being applied for the development of end markets for recycled materials.

... we also see in Victoria some leading practice in relation to the use of glass sands in construction materials, which is probably nation leading, and also in relation to the use of recycled sleepers. So in those elements the Sustainability Fund has been seeding, through its investments, the proof of technology, which then enables the take-up and more widespread application of particular solutions.<sup>661</sup>

In terms of a transition to a circular economy, all steps in a product's life cycle should be considered during development stages. This was discussed by Dr Aberle at a public hearing:

I will just use that to make a broader point around I guess some of the circular economy things. I was speaking on a panel about circular economies a couple of months ago, and a bunch of people came up to me afterwards and they said, 'Oh, yeah, I've got this great idea for turning material X into this other thing'. I was like, 'Oh, that's cool. What happens after it has been turned into that thing?', and they were like, 'Oh, well, then it goes into landfill'. It is not really circular; right? You are just kind of making it slightly curved rather than circular. So I think there is a risk that we see this idea of using things once more as a solution to a problem when really using something once more is merely going to delay the onset of the waste problem. I think specifically around the bin liners it is probably around the material choice thing rather than having them or not having them.<sup>662</sup>

As noted, the Victorian Government has provided some funding for research and development through the Resource Recovery Market Development Fund. However, there is scope for the Victorian Government to greatly expand its investment in this area. Support for additional research and development will enable growth in new and emerging industries.

**RECOMMENDATION 42:** That the Victorian Government set targets for the expansion of the recycling market.

**RECOMMENDATION 43:** That the Victorian Government provide significant investment into research and development of new uses for key recycled materials.

<sup>661</sup> Ibid., p. 5.

<sup>662</sup> Aberle, *Transcript of evidence*, p. 20.

### 7.2.3 Incentivising the use of recycled materials

As has been discussed in Chapter 2 of this report, reliance on several major players in resource recovery has contributed to the crisis in recyclables collection and processing. It is important to encourage new entrants to the sector in areas such as collection, sorting, processing, reuse and remanufacturing. Entry requires investment in capital and a reliable supply of usable materials. The Victorian Government therefore needs to be proactive in incentivising new entrants across all stages of a circular economy in order to ensure a clean stream of recyclable materials and opportunities to develop new products using those materials.

The *Recycling Industry Strategic Plan* identified this as a particular challenge for rural and regional areas:

Entry to the market and investment in capital is highly dependent on the ability for industry to secure long-term supply of sufficient volumes of recyclable material. This can be difficult, particularly in regional areas where population density is lower and higher transport costs impact on the viability of services.<sup>663</sup>

This was also discussed by the City of Greater Bendigo at a public hearing, who stated that there were particular difficulties for regional areas in sourcing products using recycled content:

As a regional Council it continues to be challenging to obtain a high level of recycled products. In part this is due to the limited demand for recycled products in regional areas being unable to create a viable market and justify the expenditure required by local industry to move towards integration of recycled materials in their products. The State Government can play a vital role in incentivising innovative industries by creating a higher level of demand across the state through setting minimum standards of recycled content within procurement targets for local and State Government bodies.<sup>664</sup>

The Committee heard a range of recommendations around encouraging the use of recycled materials in products, including:

- Introducing tax reliefs for Victorian manufacturers who use recycled content and packaging.<sup>665</sup>
- Introducing a rebate system for items that are bought, rather than items that are sold, that contain recycled products—essentially, incentivising consumers.<sup>666</sup>
- Providing specific grant programs for ‘closed loop’ manufacturers that are designing products to be disassembled and reused, moving towards a circular economy<sup>667</sup>

<sup>663</sup> Department of Environment, *Recycling Industry Strategic Plan*, p. 12.

<sup>664</sup> City of Greater Bendigo, *Submission 622*, p. 3.

<sup>665</sup> Municipal Association of Victoria, *Submission 651*, p. 18.

<sup>666</sup> Anderson, *Transcript of evidence*, p. 15.

<sup>667</sup> Environment Victoria, *Submission 523*, p. 4.

- improving contamination rates from kerbside recycling in order to increase the inherent value in secondary raw materials for manufacturers<sup>668</sup>
- providing support for ASPIRE (Advisory System for Processing, Innovation & Resource Exchange), an online marketplace that can match recyclers and manufacturers with recycled materials<sup>669</sup>
- providing grants for businesses working in rapidly expanding areas to respond to sudden market demand, such as those that may be impacted by a significant increase in business as a result of government procurement policies.

The *Recycling Industry Strategic Plan* identified that a challenge for market development for recyclables relates to virgin materials:

Recycled materials [are] not competitive with virgin material due to price, unreliable supply, poor information and [a] lack of recognised standards.<sup>670</sup>

Evidence to the Inquiry has shown that this is because the ‘true cost’ of the virgin material is not being paid—the price that incorporates recycling or disposal. This is a core principle of effective product stewardship.

Decreasing broad reliance on virgin materials is a key challenge that needs to be addressed. The Australian Institute of Packaging has stated that investment in new reprocessing infrastructure ‘will be an empty gesture unless the market, and fundamentally the value of secondary plastics, can be both increased and decoupled from the price of virgin material’.<sup>671</sup>

Stan Krpan provided an example of where innovation through research and development into the use of recycled content in new products has provided a better product:

We are working with a company in Mildura called Integrated Recycling, which is one of these innovators. They are currently the only company in Australia that converts soft plastics into railway sleepers, and we have funded the trial for those to be used as a railway sleeper, as a substitute. Indeed although it comes from recycled content, the early indications are that it performs better than timber: it lasts longer, it compacts better and it will have better properties in the field.<sup>672</sup>

Environment Victoria recommended implementing financial disincentives for the use of certain products by manufacturers, such as virgin plastics. They stated that this would address their ‘true cost’—the environmental as well as financial costs.<sup>673</sup>

<sup>668</sup> SUEZ, *Submission 508*, p. 5.

<sup>669</sup> Zero Waste Victoria, *Submission 631*, p. 7.

<sup>670</sup> Department of Environment, *Recycling Industry Strategic Plan*, p. 3.

<sup>671</sup> Chessell, correspondence, p. 5.

<sup>672</sup> Krpan, *Transcript of evidence*, p. 13.

<sup>673</sup> Environment Victoria, *Submission 523*, p. 3.

## 7.2.4 Product testing and specifications

Depending on the product or area, new products are subject to differing levels of performance and quality testing to ensure they are suitable for use. Sustainability Victoria explained that development of product specifications can be a lengthy process. They provided the following example:

... with roads, we have supported the development of six specifications for the use of recycled content in Victoria's roads, and every one of those goes through a rigorous technical process obviously to make sure that the roads are fit for purpose, that they are safe and that they will endure. So it does take quite a long time to develop those specifications.<sup>674</sup>

Karen Davies, the Manager of Roads, Fleet and Waste for Moreland City Council described the difficulties in finding products that meet all of the criteria for procurement:

If it is purely cost and we get our money back in terms of depreciation, so our ratepayers are not losing their money and so that we are not digging up the same road or footpath again in 12 months time, then we would definitely be open to [products using recycled content]. We are looking for a high-quality, sustainable product that is safe and has recycled product in there and that is good to use in the environment. We cannot always find that. We are still using concrete in this day and age, and my personal—not my professional, my personal—opinion is that we should not be using concrete at all, unfortunately.<sup>675</sup>

In order to ensure that products featuring recycled content are competitive in an open market, they need to be supported to meet or exceed the product specifications of products using purely virgin materials. Government support for research, development and testing is crucial to this.

The MAV stated that:

Regulatory specifications and requirements must enable the use of recycled content where appropriate. In many cases this will involve working with industry and researchers to validate and demonstrate equivalency of recycled content. Finally, there is a need for better processes, and possibly improved certification, to provide councils with confidence that stated levels of recycled content are genuine.

Gayle Sloan emphasised the importance of ensuring that standards embrace the use of recycled content: '... a lot of the specification standards that we currently have do not allow the use of recycled materials, so we very much need to look at state-based but also national standards where possible'.<sup>676</sup>

<sup>674</sup> Krpan, *Transcript of evidence*, p. 6.

<sup>675</sup> Karen Davies, Manager, Roads, Fleet and Waste, Moreland City Council., Public hearing, Melbourne, 22 October 2019, *Transcript of evidence*, p. 37.

<sup>676</sup> Sloan, *Transcript of evidence*, p. 17.

The Victorian Government set out in its *Recycling Industry Strategic Plan* that it would collaborate with industry and the Australian Government to update existing standards and specifications, or create new ones where required. It stated that this would increase industry confidence in the quality and safety of products containing recycled content.<sup>677</sup> However, little information was provided on how this would be achieved.

If more proactive government procurement policies for utilising recyclables are developed, as has been discussed throughout the Inquiry, then the clear need for comprehensive material specifications and standards will become even more important. A rapid increase in the use of recyclable materials will need to be independently assured.

In addition, as discussed in Chapter 4, a recycled content labelling scheme would greatly assist consumers in making sustainable choices.

**RECOMMENDATION 44:** That the Victorian Government provide support to manufacturers to streamline the testing and standards development processes for products containing recycled materials, particularly for key products that are likely to see increased demand as a result of government procurement policies.

## 7.2.5 Government procurement

The 2018 National Waste Policy promotes the consideration of ‘environmental issues’ in government procurement policies and stimulation of demand for recycled materials and products.<sup>678</sup>

A key action contained in the *Recycling Industry Strategic Plan* was to ‘drive demand for products containing recycled materials through government procurement’.<sup>679</sup> The Victorian Government stated that Sustainability Victoria, in collaboration with the Department of Treasury and Finance, would work with government agencies to increase procurement of recycled content and develop agency-specific commitments and targets ‘where appropriate’. It does not provide any specific broader targets that the Victorian Government will aim towards. The plan also states that the Department of Treasury and Finance will provide leadership on developing guidance materials on the procurement of recycled content.

In relation to local government procurement, the Plan stated that Local Government Victoria would work with the MAV and councils to update their *Best Practice Procurement Guidelines* in order to ‘encourage the procurement of recycled content and products, where available’.<sup>680</sup>

<sup>677</sup> Department of Environment, *Recycling Industry Strategic Plan*, p. 25.

<sup>678</sup> Commonwealth of Australia, *2018 National Waste Policy: less waste more resources*, p. 15.

<sup>679</sup> Department of Environment, *Recycling Industry Strategic Plan*, p. 26.

<sup>680</sup> *Ibid.*, p. 24.

These procurement actions are to be completed by 2021. A June 2019 implementation update did not provide any information on the progress of the actions relating to procurement.<sup>681</sup>

The Victorian Government released its Social Procurement Framework in April 2018. This requires government bodies to consider ‘environmental and social impacts’ when making procurement decisions.<sup>682</sup>

Sustainability Victoria stated at a public hearing that a particular focus in encouraging procurement of recycled materials had been in the use of recycled glass sand for construction and infrastructure. They also stated that ‘project-specific plans’ may be considered by some agencies.<sup>683</sup> They did not provide any further information on the policies or targets being developed by particular departments or agencies or the progress in their implementation.

Many submissions advocated for state leadership on sustainable procurement with regard to recyclables. However, the MAV emphasised that this must reflect a ‘genuine commitment’ to purchase products that have local recycling content.<sup>684</sup> It emphasised that this was an area where a number of local governments were excelling, but that broader state support was needed.

The establishment of minimum recycled content targets within government procurement policies was also prevalent in a wide number of submissions. Boomerang Alliance considered that this would stimulate the market for products made using recycled materials, where it is currently tipped in favour of virgin materials.<sup>685</sup> Peter Anderson, the Chief Executive Officer of the Victorian Transport Association discussed that when there is a market, industry will respond:

For example, if the councils were told that for them to be able to attract further revenue in whatever context they would have to have 50 per cent recycled product for all their outdoor furniture, all of a sudden we would have somebody producing. They would make the moulds to be used for blow-moulded plastic for outdoor seating or bins or fencing or poles or light poles. If we said every light pole under 7 metres was made of recycled plastic, all of a sudden we would have engineers designing them and we would have products being made because people had to buy them.<sup>686</sup>

In particular, construction and infrastructure projects could have a major impact. This was advocated by a number of submissions, including Bingo Industries, who stated that a minimum percentage requirement for all projects over a certain value would help to establish a sustainable market.<sup>687</sup>

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<sup>681</sup> Department of Environment, Land, Water and Planning *Recycling Industry Strategic Plan Implementation Update*, Victorian Government, June 2019, p. 2.

<sup>682</sup> Government of Victoria, *Submission 699*, p. 30.

<sup>683</sup> Genever, *Transcript of evidence*, p. 8.

<sup>684</sup> Municipal Association of Victoria, *Submission 651*, p. 12.

<sup>685</sup> Boomerang Alliance, *Submission 424*, p. 3.

<sup>686</sup> Anderson, *Transcript of evidence*, p. 20.

<sup>687</sup> BINGO Industries, *Submission 663*, p. 3.

Matt Genever, Director of Resource Recovery at Sustainability Victoria, acknowledged at a public hearing that there 'may well be scope for mandatory targets'. He provided a further example of how this could work:

Obviously procurement from government, particularly with large infrastructure programs, works with a couple of levels. Government will procure it out, and there will be a master contractor and they will procure out different parts of that as part of that contract. And they may well be able to set targets through that arrangement so that the contractor sets targets.<sup>688</sup>

However, at a further hearing, Mr Genever warned against specific procurement targets due to the potential for unintended consequences:

... we need to be careful not to set up counterproductive outcomes or perverse outcomes as a result of number-based targets. So whilst we definitely want to see strong commitment from Government and preferencing from Government for these materials, we just need to be careful that we are not lugging recycled glass sand from Laverton down to Wonthaggi to meet the requirement of a target where you are less than 2 kilometres away from a virgin sand quarry. Equally it might make less sense to truck that material to the other side of the city from Wonthaggi where Alex Fraser's Laverton glass plant is only a couple of kilometres away. So I think it is about the balance.<sup>689</sup>

If mandatory targets were introduced, additional complementary support would be required in order to ensure that there is industry capacity and adequate product specifications and certifications.

Submitters have further suggested that mandatory reporting against procurement targets could be implemented, in order to ensure transparency and help to restore trust in the domestic recycling system.<sup>690</sup> Zero Waste Victoria suggested that this could be reflected on the Victorian Government's 'Know Your Council' website for comparison between local government areas.<sup>691</sup> Claire Dunn, the Manager of Environment and Regulatory Services at the MAV highlighted the importance of transparency in order to assess the effectiveness of these policies:

It is not easy to find out how people are successfully pursuing procurement policies that achieve greater use of recycled content, which I think also comes back again to the lack of data and really a lack of strong understanding about how much recycled content is currently being used.<sup>692</sup>

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<sup>688</sup> Genever, *Transcript of evidence*, p. 8.

<sup>689</sup> Genever, *Transcript of evidence*, p. 26.

<sup>690</sup> Zero Waste Victoria, *Submission 631*, p. 11.

<sup>691</sup> *Ibid.*

<sup>692</sup> Dunn, *Transcript of evidence*, p. 11.

The Australian Institute of Packaging suggested procurement policies could support the soft plastics recycling program REDcycle, to help it expand its reach throughout Victoria and prevent further plastics from ending up in landfill.<sup>693</sup>

With regard to local government procurement, the MAV discussed what would assist councils in increasing their procurement of products using recycled materials:

Regulatory specifications and requirements must enable the use of recycled content where appropriate. In many cases this will involve working with industry and researchers to validate and demonstrate equivalency of recycled content. Finally, there is a need for better processes, and possibly improved certification, to provide councils with confidence that stated levels of recycled content are genuine. This would greatly assist councils to prioritise procurement of recycled content.<sup>694</sup>

**RECOMMENDATION 45:** That the Victorian Government introduce recycled content requirements for state and local government procurement and an obligation for agencies to publicly report on compliance with these requirements.

**RECOMMENDATION 46:** That the Victorian Government introduce minimum recycled content requirements for new packaging produced in Victoria.

<sup>693</sup> Chessell, correspondence, p. 5.

<sup>694</sup> Municipal Association of Victoria, *Submission 651*, p. 25.



# Appendix 1

## About the Inquiry

### A1.1 Submissions

1	Number not used
2	Tracy McGowan
3	Peta Hoiles
4	Abigail Elder
5	Leonie Chester
6	Susan Stafford
7	Loddon Shire Council
8	Name withheld
9	Mildura Rural City Council
10	Brenton Ford
11	Sophie Paterson
12	Maxwell Kitson
13	Aaron Brooks
14	Melita Sliker
15	Emma Ward
16	Number not used
17	Peter Lim
18	Gemma Carr
19	Joey Remenyi
20	James Burgoyne
21	Kerry Lewis
22	Nicholas Yalcin
23	Number not used
24	Irina Zahra
25	Number not used
26	Steven Cahill
27	Chau Nguyen
28	Wim Olivier
29	Nicole Butcher
30	Elle Kay
31	Caleb Ostwald
32	Emma Matthews
33	Number not used
34	John Lynch
35	Tamara Morgan
36	Melanie Nemer
37	Kylie Aggio
38	Nishani Nithianandan
39	Withdrawn
40	Jorgina Glover
41	Robyn Kilpatrick
42	Aaron Parsons
43	Dario Bulfone
44	Tom Davis
45	Number not used
46	Number not used
47	Debbie Davies
48	Dietmar Brisker
49	David O'Brien
50	John Bowman
51	Kitty Walker
52	Nadine Joy
53	Brian Park
54	Penny Spencer
55	Deborah Cleaves
56	Number not used
57	Bernard Abadie
58	Daniel Thompson
59	Chantelle Martin
60	Sonia Bourne

61	Saba Khalid	97	Jean Christie
62	Ashley Leadbeatter	98	Julia Lewis
63	Karina Foster	99	Lauren Bugeja
64	Helen Schofield	100	Androula Michaels
65	Belinda Pearson	101	Peter Stafford
66	Number not used	102	Saravanan Mani
67	Number not used	103	Trish Morrow
68	Laura Walsh	104	Megan Hollick
69	Mo Phillips	105	Julie Doyle
70	Kate Forster	106	Sydney Braunfeld
70a	Kate Forster	107	Number not used
71	Valerie Forster	108	Mary Cotter
72	Number not used	109	Number not used
73	S & D Van Der Kaay	110	Clare Sheppard
74	Number not used	110a	Clare Sheppard
75	Nina Vincent	111	Rob Michael
76	Julie Copeland	112	Number not used
77	Colin Smith	113	Francesca Dias
78	Trebor George	114	Susan Patton
79	Tegan Perry	115	Jo Adams
80	Lauren Starr	116	Samarra McErvale
81	Emily Jeffery	117	Confidential
82	Melba Rivera	118	Rahni Gee
83	Number not used	119	Ron Murfett
84	Melissa Petero	120	Number not used
85	Phillip Geschke	121	Wendy Radford
86	Debbie Powell	122	Kelli Lavelle
87	Damon Geeves	123	Peita Pini
88	Liz Spillane	124	Number not used
89	Ruth Varencia	125	Rocco Di Zio
90	Clem Baade	126	Number not used
91	Lyn McMurdie	127	Chris Clark
92	Ryan Sherring	128	Number not used
93	Name withheld	129	Sara Riva
94	Number not used	130	Priscilla Phelps
95	Bill Featherstone	131	Susan Sdrinis
96	Michelle Davies	132	Casey Wright

133	Matthew Flattley	170	Selene Dudley-Bateman
134	Stuart Gordon	171	Number not used
135	David Shutler	172	Andrea Dunkley
136	Kara Stuart	173	Jane Brownrigg
137	Richard Garth	174	Number not used
138	Number not used	175	Naomi Taig
139	Margaret Waddington	176	Llewellyn Stephens
140	Julie Fox	177	Tara Maree
141	Michelle Butler	178	Carolyn Gilpin
142	Number not used	179	Georgia Cooke
143	Jolie Boyd	180	Markus Egli
144	Tammie Meehan	181	Victoria Torabi
145	Geoffrey Brown	182	Rachel Fogarty
146	Vasiliki Erophile	183	Number not used
147	Farah Bostock	184	Kerryn Lester-Smith
148	Rebecca Bowles	185	Suzan Dlouhy
149	Vick Johnson	186	Freya Headlam
150	Jade Canavan	187	Number not used
151	Chereyne Colby	188	Naomi Davis
152	Chris Shearer	189	Number not used
153	Geraldine Bagwell	190	Number not used
154	Dallas Kinnear	191	Number not used
155	Number not used	192	Lawrence Mcguire
156	Number not used	193	Martin Cedés
157	Lettie Gerard	194	Simon Maynard
158	Duncan Leggoe	195	James Cannon
159	Louella Scanu	196	Alison Horton
160	Guna Green	197	Angela Bruni
161	Number not used	198	Josephine Taylor
162	Number not used	199	Tamir Berkman
163	Adrian Eppel	200	Hazel Maung
164	Number not used	200a	Hazel Maung
165	Matt Macgill	201	Bronwyn Hardman
166	Robyn Congreve	202	Number not used
167	John Langer	203	Michelle Newton
168	Steve Balmforth	204	Number not used
169	Leesa Brock	205	Tim Dean

206	Number not used	244	Number not used
207	Julia Symons	245	Withdrawn
208	Betsy Dunne	246	Abigail Benham-Bannon
209	Allison Diston	247	Jolie Boyd
210	David Charles	248	Number not used
211	Number not used	249	Sing Wong
212	Number not used	250	Claire Campbell
213	Number not used	251	Number not used
214	Nick Heynsbergh	252	Nina Zimmerman
215	Claire Pedersen	253	Kerry Omeara
216	Pauline Tranchant	254	Number not used
217	Geoffrey Linnell	255	Alessia Valenza
218	Maeve Johnson	256	Dayan Youssef
219	Matt Miller	257	Natasha Rabbidge
220	Willard Lloyd	258	Julia Gilbert
221	Sarah Briggs	259	Roanne Maxwell
222	Sarah Rostron	260	Hilary Hoggett
223	Rebecca Berto	261	Riina Aapa
224	Lauren Poulton	262	Alec Hand
225	Marine Care Ricketts Point	263	Jackie Garton
226	Number not used	264	Diana Gary Sanchez
227	Number not used	265	Number not used
228	Number not used	266	Louise Vernieux
229	Lisa Magnusson	267	Number not used
230	Ciara O'Dwyer	268	Wojtek Michalski
231	Wendy Savage	269	Tara Porter
232	Rita Fellows	270	Geoff Browne
233	Gabrielle Gautier	271	Number not used
234	Daniel Lim	272	Ena Vasudevan
235	Number not used	273	Number not used
236	Aaldert Vandenberg	274	Natalie Laussade-Long
237	Sarah Maclagan	275	Tara Reed
238	Heath Wallace	276	Fraser Marsden
239	Kim Jackson	277	Tom Heath
240	Vishnu Hazell	278	Rebecca Nichols
241	Jorell Knoblock	279	David Rogers
242	Number not used	280	Anne Cox
243	Melanie Wiltshire	281	James Jackson

282	Brad Homewood	319	Karen Heinz
283	Alison Ryan	320	Number not used
284	Charlene Sohn	321	Olive Archibald
285	Helen Hoffman	322	Phil Heading
286	Number not used	323	Number not used
287	Rosemary Gaetjens	324	Tim Foley
288	Chris Breaden	325	Callum Rogers
289	Anna Young	326	Janet Hall
290	Lindsay Rex	327	Marina Oliphant
291	Fiona Connan	328	Julie Mayer
292	Rio Marten	329	Anca Dragoi
293	Rachael Wilmot	330	Susan Langridge
294	Roslyn Evans	331	Josh Brammar
295	Name Withheld	332	Simone Fitzgerald
296	Jacqui Scruby	333	Heather Smith
297	Silke van der Linden	334	Nicole Foote-Lenoir
298	Terminate Tulla Toxic Dump Action Group Inc	335	Kyle Papini
299	Rachael Witham	336	Danty George
300	Graeme Walters	337	Julie Ward
301	Paul Carrick	338	Melanie Gibson
302	Jennifer Lehmann	339	Number not used
303	Katy Elwin	340	Vicki Johnson
304	Friends of Steele Creek	341	Kelly-Anne Twist
305	Lauren Andrew	342	Anita Jacobsen
306	Karen and Danny Ellis	343	Craig Ward
307	Tegan Mumford	344	Robert Ward
308	Lorris Jones	345	Kirsty Price
309	Christine Czajko	346	Marco Setiawan
310	Megan Hallows	347	Number not used
311	Number not used	348	Number not used
312	Jack Ralph	349	Katherine McIntosh
313	William Dunstan	350	Janet Russell
314	Richard Duong	351	Jeffrey Barlow
315	Christine Slatter	352	Anne Laver
316	Judy Routt	353	Silke Dole
317	Withdrawn	354	Sasha Hall
318	Erin Temming	355	Marilla Druitt
		356	Confidential

357	Tamsin Kelly	395	Mark Kerlin
358	Natasha Crawford	396	Ana Grayson
359	Frances Walsh	397	Liz Arnold
360	Sam Rodgers	398	Paul Newport
361	Kym OShannassy	399	Julia Laskowski
362	Jackie Yowell	400	Confidential
363	Number not used	401	Andy Breaden
364	Environment East Gippsland	402	Australians for Refunds on Cans and Bottles
365	Paula Gowans	403	Michael Howes
366	Ross Headifen	404	Bayside City Council
367	Jamie Corominas	405	Courtney Gardner
368	Lillian Cummins	406	Clean Up Australia
369	Herbert Weber	407	Tina Zacharis
370	Sarina Kelly	408	United Firefighters Union
371	Jean Allan	408a	United Firefighters Union
372	Charlie Lempriere	409	Tell Arstargazer
373	Linda Dal Castello	410	Southern Grampians Shire Council
374	Geraldine Bagwell	411	Natalie Abboud
375	Martin Suter	412	Warrnambool City Council
376	Number not used	413	Sara Sjoquist
377	Margaret and Sophie Green	414	Wendy Brand
378	Philippa Harrison	415	Jessica Townsend
379	Number not used	416	Margaret Byron
380	Helen Knight	417	Travis Blake
381	Glenn Boyd	418	Janet Lieber
382	Number not used	419	Sharyn Cambridge
383	Lyn Kellett	420	John Tully
384	Vaiya Fermanis	421	Relle Graefe
385	Abby Gee	422	Kathy Faulkner
386	Jess Yorke	423	Hobsons Bay City Council
387	Number not used	424	Boomerang Alliance
388	Number not used	425	Joanna Drennan
389	Simone Cusack	426	Sally Dawe
390	Inge Steyaert	427	Stephen Koci
391	Number not used	428	Pauline Lacaze
392	Robert Briggs	429	Lisa Coffa
393	Richard Telford	430	Darebin Creek Management Committee
394	Cheryl DeCoite		

431	Petar Pantic	469	Number not used
432	Anne Makhijani	470	Robert Heron
433	Friends of Merri Creek	471	Anne Hasegawa
434	Scott Compson	472	Gabrielle Hogan
435	Becky Walls	473	Banyule City Council
436	Christina Caleo	474	Ken Woodward
437	Elizabeth Melgaard	474a	Ken Woodward
438	Marc Katsambis	474b	Ken Woodward
439	BEAM Mitchell Environment Group Inc	474c	Ken Woodward
440	Eleni Smith	474d	Ken Woodward
441	City of Wodonga	474e	Ken Woodward
442	Ashleigh Peplow Ball	474f	Ken Woodward
443	Charles Quinn	474g	Ken Woodward
444	Surf Coast Shire	475	City of Ballarat
445	Golden Plains Shire	476	City of Monash
446	Number not used	477	Number not used
447	Ramona Headifen	478	Mount Alexander Shire Council
448	Anna Kjer-Nielsen	479	Mario Milici
449	Gianfranco Bisesti	480	Australian Industrial Ecology Network
450	Number not used	481	Central Goldfields Shire Council
451	David Priest	482	Name withheld
452	Wellington Shire Council	483	Rebecca Thompson
453	James Tutt	484	Vicky Ellmore
454	Number not used	485	City of Port Phillip
455	Laura May	486	Barwon South West Waste Resource Recovery Group
456	Haylea Fitsimmons	487	Greater Shepparton City Council
457	Alexandra Russo	488	Bayside Climate Change Action Group
458	St Kilda Mums Inc	489	Shu Fei Wong
459	Jamie Clowes	490	Ben Kaminsky
460	Number not used	491	National Waste and Recycling Industry Council NWRIC
461	Alexandria Marsh	491a	National Waste and Recycling Industry Council NWRIC
462	Number not used	492	Australian Council of Recycling
463	Alec Sandner	493	Kelly Gillespie
464	Morgan Koegel	494	Alpine Shire Council
465	Number not used	495	Brimbank City Council
466	Bianca Cottle	496	Moreland City Council
467	Trevor Thornton		
468	Carolina Aguirre		

497	Tim Landells	533	Joan Cashion
498	Australian Marine Conservation Society	534	John Cashion
499	J Allen Brent	535	Number not used
500	Stephanie Wapling	536	Beaumaris Conservation Society
501	City of Casey	537	John Christou
502	City of Boroondara	538	Therese Illingworth
503	Tony Smith	539	NSW Small Business Commissioner
504	City of Greater Geelong	540	Santosh Muttamsetty
505	Meghan Lawson	541	Lauren Sandeman
506	North East Local Government Waste Forum	541a	Lauren Sandeman
507	Wyndham City Council	541b	Lauren Sandeman
508	SUEZ	542	ReGroup
509	Cleanaway Waste Management Ltd	543	Carly Jehu
510	Corangamite Shire Council	544	Number not used
511	Northern Grampians Shire Council	545	Suzanne Brown
512	ResourceCo	546	Barrie Tyson
513	Anine Cummins	547	Jane Howlett
514	Belinda Mullen	548	Jacobs Lyons-Giusti
515	Stephanie Mulligan	549	Moyne Shire Council
516	Petra Kahle	550	Uday Mohandas
517	Sustainable Resource Use	551	Kathryn Hall
518	Port Phillip EcoCentre	552	Christine Levic
519	Hume City Council	553	Catherine Lyons
520	Glenelg Shire Council	554	Jemma Crawford
521	Victorian Local Governance Association	555	Giridhar Vemulapalli
522	Yume Food Australia	556	Nillumbik Shire Council
523	Environment Victoria	557	Lee Swan
524	Roslyn Aikman	558	Irene Proebsting
525	Cement Concrete Aggregates Australia	559	Tim Newhouse
526	Reloop	560	Kathryn Farrell
527	Darebin City Council	561	Frances Lennard
528	Yarra Climate Action Now	562	Sylvia Lo Piccolo
529	City of Whittlesea	563	Sara Melvin
530	WM Waste Management Services	564	Plastic Free Peninsula Facebook page
531	Gannawarra Shire Council	565	Ross Headifen
532	Aaron Zaharias	566	Briar-Rose Forrer-Lacey
		567	iQ Renew
		568	Teresa Teresa Day

569	Gianna Romano	604	Alexia Huth
570	Macedon Ranges Shire	605	Jacqueline Rozenfeld
571	Ocean Protect	606	Geneva Atkinson
572	Erin Lindwall	607	Storm Moore
573	Hannah Marshall	608	Planet Ark
574	Kaye Degenhardt	608a	Planet Ark
575	Mary Fennessy	609	Gippsland Local Government Waste Forum
576	Elizabeth Oldenburger	610	Love Our Street
577	Rosalie Darby	611	Rebecca Carta
578	Ella Pillay	612	Yvette Agar
579	Daniel Breves Ribeiro	613	Nick Rees
580	Metropolitan Fire and Emergency Services Board (MFB)	614	Macedon Ranges Sustainability Group
581	SKM Recycling	615	Campaspe Shire Council
582	Australian Paper	616	Gianna Romano
583	Mornington Peninsula Shire	617	Knox City Council
584	Regional Cities Victoria	618	Victoria McGinness
585	Lily Geyle	619	Katrin Pierce
586	Felicity Maharjan-Reid	620	Jenny Fry
587	Kelly McGrath	621	Nina Skuja
588	Deirdre Boeyen Carmichael	622	City of Greater Bendigo
589	The Australian Industry Group	623	Camila Salazar
590	Michelle Stephenson	624	Strathbogie Shire Council
591	Sarah Joyce	625	Daniella Salazar
592	Liz Jakob	626	Sheriden Tate
593	Emily Jeffery	627	Plastic-free Victoria Alliance
594	Jo-Anne Britt	628	Hannah Goh
595	Rebecca Nichols	629	Carolyn Layton
596	Friends of Langwarrin Outdoors & Waterways	630	Friends of Moonee Ponds Creek
597	Dr Jane Sewell	630a	Friends of Moonee Ponds Creek
598	Melissa Whiting	631	Zero Waste Victoria
599	Emily King	632	Stef Cooper
600	Loddon Malle Local Government Waste Forum	633	Confidential
601	Maddy Butler	634	Pamela Lloyd
602	Sierra Laidman	635	Erin Rhoads
603	Kate Chinarova	636	Rachael Hart
603a	Kate Chinarova	637	Kim Meagher
		638	BRACSIP

638a	BRACSIP	669	Greta Walters
638b	BRACSIP	670	Susan Laukens
638c	BRACSIP	671	Dr Maria Godinho
639	Amanda Kwong	672	Nicole Johnston
640	Dr Michelle Chow	673	RAW Travel
641	Australian Nursing and Midwifery Federation Victorian Branch	674	Balwyn High Environment Committee
642	Stop the Tip Inc	675	Kirthika Kannan
643	Confidential	676	Mount Eliza Waste Free Beach Patrol
644	Nikkola Mikocki-Bleeker	677	Jennifer McAuliffe
645	Robyn Parker	678	Li Mei Brusey
646	Tiffany Vines	679	Andrew Shinn and Lisa Simpson
647	Desirae Hancock	680	Louise Segrave
648	Shannon Burton-Rushworth	681	Sue Hollingworth
649	Mitchell Shire Council	682	TOMRA Collection Solutions
650	Moonee Valley City Council	682a	TOMRA Collection Solutions
651	Municipal Association of Victoria	683	Nina Franceschi-Eason
652	Jessie Smith	684	Name withheld
653	Tammy Logan	685	Ken Savage
654	Hannah Robert	686	Waste Management and Resource Recovery Association of Australia
655	Murrindindi Shire Council	687	Waste Industry Alliance Victoria
656	Leanda Smith	688	VISY
657	City of Greater Dandenong	689	Sarah Lane
658	National Toxics Network	690	Law Institute of Victoria
659	Natasha Ludowyk	691	Tegan Ballinger
660	Lotte St Clair	692	Yarra Ranges Council
661	WorkSafe Victoria	693	Diplomatic Group Pty Ltd
662	Rob Buttrose	693a	Diplomatic Group Pty Ltd
663	BINGO Industries	693b	Diplomatic Group Pty Ltd
663a	BINGO Industries	694	Australian Workers Union Victorian Branch
664	Sylvia Worboys	695	Brandon Monteith
664a	Sylvia Worboys	696	Anti-Toxic Waste Alliance
664b	Sylvia Worboys	697	Simone Alesich
664c	Sylvia Worboys	698	Confidential
665	Sustainable Agriculture and Communities Alliance	699	Government of Victoria
666	Zara Sell	700	Frankston City Council
667	Margaret Jungwirth	701	PlaSTEAMed
668	Geelong Sustainability		

## A1.2 Public hearings

### Friday 3 May 2019

Legislative Council Committee Room, Parliament House, East Melbourne

Name	Title	Organisation
John Bradley	Secretary	Department of Environment, Land, Water and Planning
Kylie White	Acting Secretary, Environment and Climate Change	
Dr Cathy Wilkinson	Chief Executive Officer	Environment Protection Authority Victoria
Dr Andrea Hinwood	Chief Environmental Scientist	
Adam Dalrymple	Acting Deputy Chief Fire Officer	Metropolitan Fire Brigade
Mark Carter	Acting Assistant Chief Fire Officer	
Tass Georgas	Manager and Senior Engineer	
Dr Angie Bone	Acting Chief Health Officer	Department of Health and Human Services
Bernadette Thomas	Acting Manager Sustainable Environment and Waste	Hume City Council

### Friday 10 May 2019

Legislative Council Committee Room, Parliament House, East Melbourne

Name	Title	Organisation
Marnie Williams	Chief of Business Operations	WorkSafe Victoria
Michael Coffey	Head of Hazardous Industries and Industry Practice	
Stan Krpan	Chief Executive Officer	Sustainability Victoria
Matt Genever	Director Resource Recovery	
Richard Macchiesi	General Manager Insights and Innovation	VISY
Alana Morgan	Corporate Counsel	
Craig Dunn	General Manager Communications and Sustainability	Australian Paper
Ben McLean	Strategic Projects Manager	

### Wednesday 5 June 2019

Legislative Council Committee Room, Parliament House, East Melbourne

Name	Title	Organisation
Rose Read	Chief Executive Officer	National Waste and Recycling Industry Council
Alex Serpo	Secretary	
Peter Murphy	Member	
Simon Mackie	Member	

## Monday 24 June 2019

### Legislative Council Committee Room, Parliament House, East Melbourne

Name	Title	Organisation
Bo Li	Senior Policy Adviser	Victorian Local Governance Association
Ian Guss	Director	Recovered Energy Australia
Rob Millard	Chief Executive Officer	Metropolitan Waste and Resource Recovery Group
Josephine Regal	Director of Corporate Strategy, Projects and Communication	
Coral Ross	President	Municipal Association of Victoria
Kerry Thompson	Chief Executive Officer	
Claire Dunn	Manager, Environment and Regulatory Services	

## Tuesday 25 June 2019

### Legislative Council Committee Room, Parliament House, East Melbourne

Name	Title	Organisation
Dr Jonathan Spear	Executive Director, Advisory and Corporate	Infrastructure Victoria
Elissa McNamara	Project Director, Waste and Resource Recovery Infrastructure Advice	
Peter Marshall	Secretary	United Firefighters Union
Frank Howell	Member	
Stephen Munro	Member	
Damon Coonan	Member	
Peter Stafford	Member	
Michael Sayers		Slater and Gordon
Frank Lintvelt	Head of Strategy, Mergers and Acquisitions	Cleanaway
Penny Creswell	Senior Legal Counsel	
Michael Strickland	Project Manager	WM Waste Management

## Tuesday 6 August 2019

### Legislative Council Committee Room, Parliament House, East Melbourne

Name	Title	Organisation
Sue Vittori	Chair	Anti-Toxic Waste Alliance
Jane Miller	Secretary	
Dorothy Bruck	-	
Dr Marion Cincotta	-	

Name	Title	Organisation
Robert Timmins	-	-
Che Stockley	-	-
John Rutherford	-	-
Sonya Rutherford	-	-
William Freeman	-	-
Sheridan Tate	-	-
Peter Merrylees	-	Stop the Tip
Marion Martin	-	
Marlene Gorman	-	
Darren Bennets	-	Friends of Stony Creek
Steven Wilson	-	
Clare Sheppard	-	

## Wednesday 21 August 2019

### Morwell Bowling Club, 52 Hazelwood Road, Morwell

Name	Title	Organisation
Tim Rowe	Manager, Natural Environment and Parks	Wellington Shire Council
Cr Graeme Middlemiss	Mayor	Latrobe City Council
Steven Piasente	Chief Executive Officer	
Cr Natalie O'Connell	Mayor	East Gippsland Shire Council
Anthony Basford	Chief Executive Officer	
Fiona Weigall	General Manager, Assets and Environment	
Kartik Venkatraman	Manager, Sustainability and Waste Minimisation	
Malcolm Lewis	Chief Financial Officer	Baw Baw Shire Council
Edward Pocock	Manager, Infrastructure Delivery and Waste	
Deirdre Griepsma	Manager, Sustainable Environment	Bass Coast Shire Council
Matthew Peake	Chief Executive Officer	Gippsland Waste and Resource Recovery Group
Wendy Bezzina	Chief Executive Officer	Latrobe Valley Enterprises

## Tuesday 3 September 2019

### Mercure Port of Echuca Function Room, 465 High Street, Echuca

Name	Title	Organisation
Geoff Rollinson	Director of Infrastructure and Development	Gannawarra Shire Council
Janelle Bunfield	Manager, Works and Waste	Greater Shepparton City Council
Ifte Hossain	Team Leader, Waste Services	
Brooke Pearce	Manager, Resource, Recovery and Education	Greater Bendigo City Council
Debbie Wood	Director, Presentation and Assets	
Paul McKenzie	General Manager, Regulatory and Community Services	Campaspe Shire Council

## Thursday 19 September 2019

### John Myers Room, Dunkeld Community Centre, 14 Sterling Place, Dunkeld

Name	Title	Organisation
Scott Cavanagh	Director of City Infrastructure	Warrnambool City Council
Glenn Reddick	Manager, City Amenity	
Cr Mary-Ann Brown	Mayor	Southern Grampians Shire Council
Michael Tudball	Chief Executive Officer	
Cr Neil Trotter	Mayor	Corangamite Shire Council
Lyall Bond	Manager, Environment and Emergency	
Cr Kevin Erwin	Mayor	Northern Grampians Shire Council
Trenton Fithall	Executive Manager, Operations	
Robert Gibson	Manager, Environmental and Regulatory Services	Moyne Shire Council

## Wednesday 2 October 2019

### Meeting Room G1, 55 St Andrews Place, East Melbourne

Name	Title	Organisation
Gary Combes	Regional Procurement Director, Asia-Pacific	Owens-Illinois, Inc
Craig Mynott	Regional Cullet Director	
Mark Smith	Executive Officer	Victorian Waste Management Association
Peter Anderson	Chief Executive Officer	Victorian Transport Association
Geoff Hill	Chief Executive Victoria	BINGO Industries
David Taylor	General Manager, Property and Infrastructure	
Chris Gordon	General Manager, Corporate Affairs, Stakeholder Relations and PMO	

Name	Title	Organisation
Lee Smith	Manager, Strategic Projects, Waste and Recycling	Veolia
Keith Chessell	Sustainable Packaging Design	Australian Institute of Packaging
George Kovits	President, MGA Liquor Committee	MGA Independent Retailers
Lincoln Wymer	Board Member	

## Thursday 3 October 2019

### Meeting Room G1, 55 St Andrews Place, East Melbourne

Name	Title	Organisation
Peter Allan	Director	Sustainable Resource Use
Marc Lichtenstein	Joint Chief Executive Officer	Close the Loop
Nathaniel Bryant	State General Manager, Victoria	SUEZ

## Tuesday 8 October 2019

### Meeting Room G1, 55 St Andrews Place, East Melbourne

Name	Title	Organisation
Kirsty Bishop-Fox	-	Zero Waste Victoria
Elisabeth van Roosendaal	-	
Dr Nicholas Aberle	Campaigns Manager	Environment Victoria
Taegen Edwards	Senior Campaigner	
Yale Stephens	Head of Public Affairs and Brand	Australian Retailers Association
Russell Zimmerman	Executive Director	
Ross Headifen	-	Plastic Free Victoria
Ramona Headifen	-	
Jeff Angel	Director	Boomerang Alliance
Amy Westnedge	Senior Campaigner	

## Tuesday 22 October 2019

### Meeting Room G1, 55 St Andrews Place, East Melbourne

Name	Title	Organisation
Cr Jonathon Marsden	Mayor	Hobsons Bay City Council
Pene Winslade	-	
Cr Dick Gross	Mayor	City of Port Phillip
Marc Cassanet	-	
Cr Danae Bosler	Mayor	Yarra City Council
Chris Leivers	Director, City Works and Assets	
Joseph Agostino	-	
Andrew Croft	Waste Management Coordinator	Banyule City Council
Cr Natalie Abboud	Mayor	Moreland City Council
Karen Davies	Manager, Roads, Fleet and Waste	
Cr Jane Addis	Mayor	City of Boroondara
Andrew MacKinnon	Group Manager, Parks and Infrastructure	
Natasza Letowt-Vorbek	Coordinator, Waste Contracts and Projects	
Susan Rennie	Mayor	Darebin City Council
Rachel Ollivier	General Manager, Sustainability and Strategy	
Lee Bell	Senior Researcher	IPEN

## Wednesday 6 November 2019

### Meeting Room G1, 55 St Andrews Place, East Melbourne

Name	Title	Organisation
John Bradley	Secretary	Department of Environment, Land, Water and Planning
Kylie White	Deputy Secretary, Environment and Climate Change	
Sebastian Chapman	Executive Director, Waste and Recycling	
Dr Cathy Wilkinson	Chief Executive Officer	Environment Protection Authority Victoria
Gayle Sloan	Chief Executive Officer	Waste Management and Resource Recovery Association of Australia
Carl Muller	Interim Chief Executive Officer	Sustainability Victoria
Matt Genever	Director, Resource Recovery	
Dr Gillian Sparkes	Commissioner	Office of the Commissioner for Environmental Sustainability
Katherine Li	Business Support Officer	
Michael Reid	Manager, Business and Engagement	
Andrew Marshall	Science Writer	

Name	Title	Organisation
Dr Jonathon Spear	Executive Director, Advisory and Corporate	Infrastructure Victoria
Elissa McNamara	Project Director, Recycling and Resource Recovery Advice	



Appendix 2

**The Metropolitan Waste and  
Resource Recovery Group's  
required infrastructure schedule**

Table 9. Future resource recovery Infrastructure Schedule

Infrastructure	Category of proposed infrastructure	General location	Material streams managed	Timeframe (likely commencement date/need date)	Reason for need	Other requirements
RRC/TS	Proposed new infrastructure at existing and/or new sites in broad metropolitan region	Central	MSW residual, hardwaste, organics, MSW & C&I drop off, priority materials	<sup>16</sup> 2016-2017	Indicative capacity need by year 2031-2040: 22,000-65,000 tpa Increase resource recovery	
RRC/TS		Eastern			Indicative capacity need by year 2031-2040: 96,000-121,000 tpa Increase resource recovery	
RRC/TS		Western			While there is sufficient capacity the RRC/TS network in the Western subregion, there is a need to increase resource recovery achieved	
RRC/TS		Northern			Indicative capacity need by year 2031-2040: 17,000-43,000 tpa Increase resource recovery	
RRC/TS		Southern			Indicative capacity need 2031-2040: 115,000-168,000 tpa Initial priority to focus on closure of landfills in south east	
Residual sorting and treatment	Technology type to be identified through facilitated procurement for MSW residual treatment <sup>17</sup>	Metropolitan region	MSW and C&I residual waste	2026	Increase MSW and C&I recovery rates Infrastructure capacity to sort and treat approximately 670,000 tonnes of residual municipal waste (to recover and divert from landfill 300-400,000 tonnes of recoverable materials)	Facilitated procurement process to be undertaken by 2021 Initial priority will be to focus on providing infrastructure capacity in the south east of Melbourne

<sup>16</sup> Indicative commencement dates for proposals across one or more sub-regions

<sup>17</sup>2015 MWRRG market assessment process indicated a range of technology types that are likely to be put forward

Infrastructure	Category of proposed infrastructure	General location	Material streams managed	Timeframe (likely commencement date/need date)	Reason for need	Other requirements
Reprocessor - paper/ cardboard <sup>a</sup>	Formal proposals yet to be identified	Metropolitan region	Paper/ cardboard	2016	Indicative current shortfall in local reprocessing capacity: 525,000 tpa	
Reprocessor - plastics <sup>b</sup>	Formal proposals yet to be identified	Metropolitan region	Plastics	2016	Indicative current shortfall in local reprocessing capacity: 127,000 tpa	
Reprocessor - glass	Formal proposals yet to be identified	Metropolitan region	Glass	2016	Shortage of reprocessing capability Improved sorting technology is needed to increase recovery	Expansion of markets for recovered glass would benefit recovery
Reprocessor - rubber/tyres <sup>c</sup>	Formal proposals yet to be identified	Metropolitan region	Rubber/tyres	2016	Tonnage unspecified <sup>d</sup>	
Reprocessor - metals	Formal proposals yet to be identified	Metropolitan region	Metals	2025	Indicative capacity need by 2026: 138,000 tpa	Potential opportunity for market to respond
Reprocessor -organics, garden	New infrastructure at new site	North West- Wyndham	Municipal garden organics	Date - TBA	Identified need and contractual requirement 35,000 tpa	
	New/upgraded infrastructure	South East – Greater Dandenong	Municipal garden organics, some food organics	2017	Identified need and contractual requirement 24,000 tpa	
	New infrastructure at new site	South East	Municipal garden organics, some food organics	2017	Identified need and contractual requirement 80,000 tpa <sup>18</sup>	
	New infrastructure at new site	South East – Greater Dandenong	Municipal garden organics, some food organics	2017	Identified need and contractual requirement 100,000 tpa	
	New infrastructure at new site	East – location to be determined	Municipal garden organics, some food organics	Tender released end of 2015	80,000 projected tpa	

<sup>18</sup> This organics material to be processed outside the region with consolidation and transfer occurring in the metropolitan region

Infrastructure	Category of proposed infrastructure	General location	Material streams managed	Timeframe (likely commencement date/need date)	Reason for need	Other requirements
<b>Reprocessor - organics</b>	Options to be identified	Regional – location(s) to be determined	Municipal garden and food organics	Initial planning to commence 2016	200,000 projected tpa	
<b>Reprocessor - organics, food</b>	Options to be identified	Metrowide	Commercial food organics	Initial planning to commence 2016	To be determined	

The 2015 market assessment process indicated a range of technology types that are likely to be put forward in a procurement process, see Appendix B for further information on the market assessment process.

#### Notes

- a The shortfall in local reprocessing for paper/cardboard is currently managed through export markets. This is expected to continue into the future.
- b The shortfall in local reprocessing for plastics is currently managed through export markets. This is expected to continue into the future.
- c Assumes all tyres recovered will be locally reprocessed
- d Required capacity unspecified to preserve commercial in confidence

# Extract of proceedings

Legislative Council Standing Order 23.27(5) requires the Committee to include in its report all divisions on a question relating to the adoption of the draft report. All Members have a deliberative vote. In the event of an equality of votes, the Chair also has a casting vote.

The Committee divided on the following questions during consideration of this report. Questions agreed to without division are not recorded in these extracts.

## Committee meeting – 18 November 2019

### Chapter 2

Mr Hayes moved, That Finding 6 be adopted and stand part of the report.

#### Question – put.

#### The Committee divided.

Ayes: 6	Noes: 3
Mr Meddick	Dr Ratnam
Ms Terpstra	Ms Bath
Ms Taylor	Mr Davis
Mr Melhem	
Mr Hayes	
Mr Limbrick	

#### Question agreed to.

Mr Davis moved, That Finding 8 be inserted and form part of the report which states that the ‘state government failed to undertake sufficient oversight of waste and recycling in Victoria’.

#### The Committee divided.

**Question – put.**

Ayes	Noes
Mr Davis	Mr Melhem
Dr Ratnam	Ms Terpstra
Ms Bath	Ms Taylor
Mr Limbrick	Mr Meddick
Mr Hayes	

**The question was agreed to.**

Ms Terpstra moved, that the Section entitled Increasing Costs in Chapter 2 be adopted and form part of the report.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Ms Terpstra	Mr Davis
Ms Taylor	Mr Limbrick
Mr Melhem	
Dr Ratnam	
Ms Bath	
Mr Bourman	
Mr Hayes	

**The question was agreed to.**

### Chapter 3

Ms Taylor moved, that Finding 12 be adopted and form part of the report.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Limbrick	Ms Terpstra
Mr Davis	Mr Hayes
Ms Taylor	Dr Ratnam
Ms Bath	
Mr Melhem	
Mr Bourman	
Mr Meddick	

**The question was agreed to.**

Dr Ratnam moved, That Recommendation 12 be adopted and form part of the report.

Mr Melhem moved, as an amendment, That the term ‘landfill’ replaces the words ‘residual waste’.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Melhem	Dr Ratnam
Ms Taylor	Mr Hayes
Ms Terpstra	
Mr Limbrick	
Mr Davis	
Ms Bath	
Mr Meddick	

**The question was agreed to.**

**Original question – put and agreed to.**

Mr Davis moved, That a new sentence be added at the end of Section entitled Costs for introducing FOGO services in Chapter 3 regarding the considerable costs of a statewide FOGO scheme and is aware of the potential impacts on family budgets.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Mr Melhem
Mr Limbrick	Ms Taylor
Ms Bath	Mr Hayes
	Dr Ratnam
	Mr Meddick

**Question negatived.**

Mr Hayes moved, That Recommendation 18 be adopted and form part of the report.

Mr Davis moved, as an amendment, That the words ‘within 12 months’ be omitted.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Ms Taylor
Mr Limbrick	Mr Melhem
Ms Bath	Mr Hayes
	Dr Ratnam
	Mr Meddick

**The question was negatived.**

**Original question – put and agreed to.**

## Committee meeting - Tuesday 19 November 2019

Dr Ratnam moved, that the sentence at the end of the Section entitled ‘The views of stakeholders regarding a container deposit scheme’ in Chapter 3 be made a finding.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Mr Bourman
Mr Davis	Ms Taylor
Ms Bath	Ms Terpstra
Mr Meddick	Mr Limbrick

There being an equality of votes, the Chair gave his casting vote to the Noes.

**The question was negatived.**

Dr Ratnam moved, That in Recommendation 20 the words “consider the introduction of” be omitted and the word “introduce” be inserted in the their place.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Mr Bourman
Mr Meddick	Ms Taylor
	Ms Terpstra
	Ms Bath
	Mr Limbrick
	Mr Davis

**The question was negatived.**

Mr Meddick moved, That Recommendation 21 be adopted and form part of the report.

Mr Davis moved, as an amendment, That the words “should include a cost benefit analysis” be inserted.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Mr Melhem
Mr Limbrick,	Mr Hayes
Mr Bourman	Dr Ratnam
Ms Bath	Ms Taylor
	Ms Terpstra
	Mr Meddick

**The question was negatived.**

**Original** question - put.

**The Committee divided.**

Ayes	Noes
Mr Hayes	Mr Davis
Dr Ratnam	Mr Limbrick
Mr Meddick	Mr Bourman
Mr Melhem	Ms Bath
Ms Taylor	
Ms Terpstra	

**The question was agreed to.**

Ms Terpstra moved, That Recommendation 24 be adopted and form part of the report.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Ms Terpstra	Mr Davis
Mr Melhem	Mr Limbrick
Ms Taylor	Ms Bath
Mr Meddick	Mr Bourman
Dr Ratnam	
Mr Hayes	

**The question was agreed to.**

## Chapter 4

Ms Terpstra moved, That Recommendation 29 be adopted and form part of the report.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Meddick	Mr Davis
Ms Terpstra	Ms Bath
Mr Hayes	Mr Limbrick
Ms Taylor	Mr Bourman
Dr Ratnam	
Mr Melhem	

**The question was agreed to.**

Ms Taylor moved, That Finding 25 be adopted and form part of the report.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Melhem	Mr Limbrick
Mr Bourman	
Dr Ratnam	
Mr Hayes	
Ms Taylor	
Ms Terpstra	
Mr Meddick	
Ms Bath	

**The question was agreed to.**

Dr Ratnam moved, That the words “The lack of markets as cited by Mr McLean was of concern to the Committee and will be discussed in greater detail in Chapter 7.” be inserted at the end of 4.3.1.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Mr Bourman
Ms Bath	Ms Taylor
Mr Meddick	Ms Terpstra
	Mr Limbrick

**The question was negatived.**

Dr Ratnam moved, That a new Recommendation be inserted 'that encourages further consideration and investment in expanding product-specific processing facilities.'

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Mr Bourman
Mr Meddick	Ms Taylor
	Ms Terpstra
	Ms Bath
	Mr Limbrick

**The question was negatived.**

Mr Hayes moved that a new Recommendation 26 be inserted regarding extended warranty requirements for products.

Mr Davis moved, that the motion to be amended to advocate working with the Commonwealth Government.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Ms Taylor
Ms Terpstra	Mr Hayes
Ms Bath	Dr Ratnam
Mr Bourman	Mr Meddick
Mr Melhem	
Mr Limbrick	

**The question was agreed to.**

**Original question, as amended, – put.**

**The Committee divided.**

Ayes	Noes
Mr Davis	Mr Limbrick
Mr Meddick	
Ms Bath	
Ms Terpstra	
Ms Taylor	
Mr Bourman	
Mr Melhem	
Dr Ratnam	

**The question was agreed to.**

Mr Davis moved, That Finding 26 be adopted and form part of the report.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Melhem	Mr Limbrick
Dr Ratnam	
Mr Hayes	
Mr Bourman	
Ms Taylor	
Ms Terpstra	
Ms Bath	
Mr Meddick	
Mr Davis	

**The question was agreed to.**

Ms Taylor moved, that Finding 27 be adopted and form part of the report.

Ms Bath moved, as an amendment, That the words ‘Sustainability Victoria’ be omitted and ‘Victorian Government’ be inserted in their place.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Ms Bath	Mr Melhem
Mr Limbrick	Dr Ratnam
	Mr Hayes
	Ms Taylor
	Ms Terpstra
	Mr Meddick

**The question was negatived.**

**Original question – put and agreed to.**

## Chapter 5

Mr Davis moved, That in Recommendation 32 all words after ‘provide support’ be omitted.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Mr Melhem
Mr Limbrick	Dr Ratnam
Ms Bath	Mr Hayes
Mr Bourman	Ms Taylor
	Ms Terpstra
	Mr Meddick

**The question was negatived.**

Mr Hayes moved, That recommendation 32 be adopted and form part of the report.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Melhem	Mr Davis
Dr Ratnam	Mr Limbrick
Mr Hayes	Ms Bath
Ms Taylor	Mr Bourman
Ms Terpstra	
Mr Meddick	

**The question was agreed to.**

Dr Ratnam moved, that the words “The Committee commends the Metropolitan ...: in Section entitled Landfill Closure in Chapter 5 be removed.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Mr Bourman
Ms Taylor	Ms Terpstra
	Ms Bath
	Mr Meddick
	Mr Limbrick

**The question was negatived.**

Ms Terpstra moved, That Recommendation 34 be adopted and form part of the report.

Mr Davis moved, as an amendment, That the year “2030: be omitted and the year “2036” be inserted in its place.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Mr Melhem
Mr Limbrick	Dr Ratnam
Ms Bath	Mr Hayes
	Ms Taylor
	Ms Terpstra
	Mr Meddick

**The question was negatived.**

**Original question – put and agreed to.**

Mr Hayes moved, That Recommendation 35 be adopted and form part of the report.

Mr Davis moved, as an amendment, That the word ‘all’ be omitted.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Mr Hayes
Mr Limbrick	Dr Ratnam
Ms Bath	Mr Melhem
	Ms Terpstra
	Ms Taylor
	Mr Meddick

**The question was negatived.**

**Original question – put and agreed to.**

Mr Hayes moved, That a new Recommendation be inserted that requires government building and infrastructure proposals to mandate recycled materials.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Hayes	Mr Melhem
Dr Ratnam	Ms Terpstra
Ms Taylor	Ms Bath
	Mr Meddick
	Mr Limbrick
	Mr Davis

**The question was negated.**

Dr Ratnam moved, That Chapter 7 on Market development be moved and be an earlier chapter.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Mr Bourman
	Ms Taylor
	Ms Terpstra
	Ms Bath
	Mr Meddick
	Mr Davis
	Mr Limbrick

**The question was negated.**

## Chapter 6

Mr Hayes moved, That a new Recommendation be inserted that sees warnings placed on Waste To Energy proposals.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Hayes	Mr Melhem
Dr Ratnam	Ms Terpstra
	Ms Bath
	Mr Meddick
	Mr Davis
	Mr Limbrick
	Ms Taylor

**The question was negatived.**

The Committee having resolved to remove the quote from Environment East Gippsland in Chapter 6, Dr Ratnam moved, That the decision be rescinded based on new information.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Ms Bath
Ms Taylor	Mr Bourman
Ms Terpstra	Mr Limbrick
Mr Meddick	Mr Davis

There being an equality of votes, the Chair gave his casting vote to the Noes.

**The question was negatived.**

Dr Ratnam moved, That a recommendation be inserted to the effect that FOGO and recyclable materials cannot be included in any waste to energy stock and cannot be incinerated.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Ms Terpstra
Ms Taylor	Ms Bath
	Mr Meddick
	Mr Davis
	Mr Limbrick

**The question was negatived.**

Dr Ratnam moved, That a paragraph be inserted that states the uncertainties of Waste to Energy and highlighting other higher order priorities.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Melhem
Mr Hayes	Ms Terpstra
Ms Taylor	Mr Meddick
	Ms Bath
	Mr Davis
	Mr Limbrick

**The question was negatived.**

Ms Bath moved, That the quote from the European Environment Agency in the Australian Paper Supplementary Submission, as well as Figure 4 from the same document, be inserted after “...including incineration, in a circular economy”.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Melhem	Dr Ratnam
Ms Terpstra	Mr Hayes
Mr Bourman	Ms Taylor
Mr Meddick	
Ms Bath	
Mr Limbrick	
Mr Davis	

**The question was agreed to.**

Ms Bath moved, that the words ‘potentially large volumes’ be removed from the draft under the Heading *Residues and By-products* in Chapter 6, in the paragraph starting ‘Without a government policy on energy from waste’.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Dr Ratnam
Ms Bath	Mr Hayes
Mr Limbrick	Ms Taylor
Ms Terpstra	Mr Meddick
Mr Melhem	

**The question was agreed to.**

## Chapter 7

Dr Ratnam moved, That a new Recommendation 42 be inserted, adopted and form part of the report.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Limbrick
Mr Hayes	
Mr Melhem	
Ms Taylor	
Ms Terpstra	
Ms Bath	
Mr Meddick	
Mr Davis	

**The question was agreed to.**

Ms Terpstra moved, That Recommendation 43 be adopted and form part of the report.

Mr Davis moved, as an amendment, That in Recommendation 43 the words ‘significant investment into’ be omitted and the words ‘support for’ be inserted in their place.

**The Committee divided.**

**Question – put.**

Ayes	Noes
Mr Davis	Dr Ratnam
Mr Limbrick	Mr Hayes
Ms Bath	Mr Meddick
Mr Melhem	Ms Taylor
	Ms Terpstra

**The question was negatived.**

**Original question – put.**

**The Committee divided.**

**Question – put.**

Ayes	Noes
Dr Ratnam	Mr Limbrick
Mr Hayes	
Mr Melhem	
Ms Taylor	
Ms Terpstra	
Ms Bath	
Mr Meddick	
Mr Davis	

**The question was agreed to.**

Ms Taylor moved, That Recommendation 45 be adopted and form part of the report.

Mr Davis moved, as an amendment, That the reporting requirements be reduced.

**The Committee divided.****Question – put.**

Ayes	Noes
Mr Davis	Dr Ratnam
Mr Limbrick	Mr Hayes
Ms Bath	Mr Melhem
	Ms Taylor
	Ms Terpstra
	Mr Meddick

**The question was negatived.****Original question – put.****The Committee divided.**

<b>Ayes</b>	<b>Noes</b>
Dr Ratnam	Mr Davis
Mr Hayes	Mr Limbrick
Mr Melhem	Ms Bath
Ms Taylor	
Ms Terpstra	
Mr Meddick	

**The question was agreed to.**

Ms Taylor moved, That Recommendation 46 be adopted and form part of the report.

**The Committee divided.**

**Question – put.**

<b>Ayes</b>	<b>Noes</b>
Dr Ratnam	Mr Davis
Mr Hayes	Mr Limbrick
Mr Meddick	Ms Bath
Ms Taylor	
Mr Melhem	
Ms Terpstra	

**The question was agreed to.**

# Minority reports

# **Inquiry into Waste and Recycling in Victoria 2019**

## **Environment and Planning Committee, Legislative Council**

### **Minority Report - Samantha Ratnam MLC**

#### **Introduction**

The Planning and Environment Committee's inquiry into Recycling and Waste Management in Victoria was initiated by the Victorian Greens in April 2019 in response to the waste crisis unfolding in our state and the collapse of the recycling system.

The inquiry received over 700 submissions and conducted extensive hearings across Victoria to hear from key stakeholders, local councils, environmental organisations, industry groups, community members, companies and government agencies involved in the management of Victoria's waste and recycling system.

While the majority report is largely a fair representation of the evidence presented, a number of the findings leave much to be desired in both their ambition and clarity given the overwhelming evidence and support for broad scale reform of Victoria's waste management system.

What is clear from the evidence presented to the inquiry is that the State Government failed to heed the warning signs about the introduction of the China National Sword policy that catalysed the problems Victoria experienced with recycling in 2019. There was little acknowledgement of this failure by the Government and its agencies as reflected in the report. This is on top of the neglect of waste policy and inertia, with no overarching waste policy in place since 2014 and virtually no major reforms to substantially reduce the volume of resources going to landfill for decades.

The solutions to the waste crisis are available to Victoria and should be embraced by the State Government as soon as possible. These solutions include reducing the amount of waste generated, better separating the recycling stream, removing food and organics from the residual waste stream, a container refund scheme and expanding our local recycling sector. Burning our waste via waste incineration plants is not a solution and will create more environmental and public health problems that Victorians will be left to clean up for decades to come.

The most significant findings that the majority report failed to illustrate that are discussed in more detail within this report were as follows:

**Finding 1:** Despite clear warning signs from 2011, the Victorian Government and its agencies manifestly failed to heed the warnings of China's changing policy environment regarding its acceptance of contaminated paper/paperboard

and plastics and did not prepare its stakeholders, the recycling and resource recovery industry nor local councils in Victoria for the impact of the China National Sword Policy.

**Finding 2:** Waste incineration has the potential to undermine recycling in Victoria and that Victoria is unprepared to deal with over 500,000 tonnes of toxic and other ash by-products that will be produced per annum if all proposals currently tabled proceed.

The following is the summary of recommendations contained in this report.

**Recommendation 1:** That the Victorian Government establish a system for recording the volumes of materials that are processed into reusable materials, processed for exports (with estimated contamination levels) and the volume sent to landfill from our material recovery facilities.

**Recommendation 2:** That State Government provides funding to and works in partnership with local Councils to establish a statewide household kerbside food and garden organics waste collection service.

**Recommendation 3:** That the State Government require that all food and plant based commercial enterprises use compost collection services, with appropriate exemptions for businesses that compost on-site.

**Recommendation 4:** That the State Government make a commitment to ensuring that no food or other organic materials are used as feedstock for waste incineration projects in Victoria.

**Recommendation 5:** That the Victorian Government introduce a Container Deposit Scheme in Victoria as soon as possible.

**Recommendation 6:** That the Victorian State Government promptly extend the ban on single use plastic bags to other unnecessary single use plastics starting with cutlery, plates, straws (taking into account the needs of people with disabilities), stirrers, cotton buds, and polystyrene take away containers and cups.

**Recommendation 7:** That any future policy statement about waste incineration in Victoria include a commitment to no recyclables or food organics being incinerated.

**Recommendation 8:** That the Government implements a moratorium on new waste incineration plants in Victoria until 2030 to ensure that the full environmental and public health impacts are properly investigated.

**Recommendation 9:** That a Class 2 landfill be identified for the lifetime of hazardous waste generation and disposal from each facility before it is approved

**Recommendation 10:** That local communities are comprehensively consulted with before any waste incineration facility proceeds.

## 1. Preparation and Response to China's National Sword Policy

Victoria's recycling system was overly dependent on exporting the material we collected as recyclables for further processing and remanufacture. In January 2017, approximately 71% of scrap paper and plastics generated in Australia were being exported to China.<sup>1</sup> In Victoria, 43% of paper/cardboard and 62% of plastics were exported in the 2017-18 financial year.<sup>2</sup>

However, China began warning the international market years earlier about its intentions to impose stronger standards on the quality of materials it would receive. In April 2011, China adopted regulations - what are commonly known as article 12 - that were aimed at reducing contamination in imported material. In February 2013, the Chinese government decided to aggressively enforce article 12 to improve the quality of imported recyclables through Operation Green Fence. In February 2017, National Sword 2017, a one-year campaign similar to Green Fence, was launched. In July 2017 China announced a ban of 24 import materials to the World Trade Organisation, and then there were later indications towards the end of 2017 of the announcements of the specifics of contamination levels, which were much more restrictive than seen before.

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<sup>1</sup> Australian Packaging Covenant Organisation, Envisage Works; Helen Lewis Research; *Sustainable Resource Use, Market Impact Assessment Report - Chinese Import Restrictions for Packaging In Australia*, March 30, 2018, p 1

<sup>2</sup> *Victorian Recycling Industry Annual Report, 2017-2018*, p 15 2017–18 <https://www.sustainability.vic.gov.au/-/media/SV/Publications/Government/Victorian-waste-data-portal/Victorian-Recycling-Industry-Annual-Report/Victorian-Recycling-Industry-Annual-Report-2017-18.pdf>

Figure 1.1



3

Despite these warning signs, governments did very little to anticipate and prepare for the drastic changes in the processing of recycling that was to ensue. The appropriateness of the preparedness and response by the Victorian State Government to this crisis was a key focus of this parliamentary inquiry. Government agencies such as the Department of Environment, Land, Water and Planning (DELWP), Sustainability Victoria (SV) and the Environment Protection Agency (EPA) were all questioned about what they did to mitigate the collapse of the recycling system. Their evidence indicated that much of the action that was taken by agencies was after the crisis became visible and acute. Their responses indicated that very little preparation was undertaken in the years leading up to the introduction of the National Sword policy.

<sup>3</sup> <https://www.audit.vic.gov.au/report/recovering-and-reprocessing-resources-waste?section=33227--1-audit-context>

In questioning representatives from DELWP, it was clear that very little was done prior to 2018 to prepare Victoria's recycling system for the changes it was about to experience, despite being the agency responsible for policy development and oversight of Victoria's recycling system.

*Dr RATNAM: Do you think the government could have reasonably anticipated this issue given those earlier indications going as far back as 2011 that we had a crisis that was to be unfolding and responded prior to getting to such critical levels?*

*Ms WHITE: I will start with the recycling strategy and working with industry and local government leading into the July 2018 document or the strategy that evolved. That was around the immediate need to be able to reset contracts and to enable the resetting of contracts between local government and collectors and recycling sites or recycling companies to acknowledge that an increased cost in sorting and decontamination was required if they wanted to meet the high standards and be able to export part of their commodity or be able to still be in the commodity market worldwide. Prior to that, though, there had been a range of activities and a range of programs largely delivered through Sustainability Victoria which were around upgrading our recycling capacity—so things such as grants to recycling sites to be able to produce a broader range of products so they could expand their markets, both internally and particularly abroad, and also to be able to upgrade their facilities to the higher standards. It was also across a broad range of commodities, everything from glass through to manufacturing or industrial recycling. So there had been a number of programs that had been put in place. I think then from an immediate response post-1 January it was about then, if you like, grappling with a whole-world oversupply of low contamination, but prior to that we had also been working on upgrading the standards or broadening the base of what would be our recycling commodities that could be sold. <sup>4</sup>*

Similarly, Sustainability Victoria, another key agency that is primarily responsible for program delivery regarding the waste sector, indicated that while they had been aware of the changes in the global recycling market for some time, very little effective planning had been completed by 2018.

*Mr Krpan: On 1 February 2018 I received correspondence that had been shared widely through the industry. It is publicly reported. It was correspondence to our minister—and I was copied in—from five companies in regional Victoria, some in the west, some in Gippsland and I think one in the north of the state. It was effectively a delegation asking for a meeting to discuss a proposed ban by Visy—not a ban, I should say, a decision by Visy that they would no longer take recycled material from those collectors from regional Victoria. That obviously precipitated a conversation about the effect of China's National Sword policy, so that was on 1 February I received that email. We engaged in those meetings, I was present at those meetings—including with Visy and SKM and Polytrade, who were the three predominant material recovery facilities—to understand the impact of the China National Sword, and by 8 March that emergency package, which I mentioned, the \$13 million, had been announced by the minister and the government. <sup>5</sup>*

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<sup>4</sup> Ms Kylie White *Transcript of Evidence*, 3 May 2019, p 16

<sup>5</sup> Mr Stan Krpan, *Transcript of Evidence*, 10 May 2019, p 14 [https://www.parliament.vic.gov.au/images/2\\_FINAL\\_-\\_Sustainability\\_Victoria.pdf](https://www.parliament.vic.gov.au/images/2_FINAL_-_Sustainability_Victoria.pdf)

*Mr KRPAN: In 2013 China had announced this Green Fence policy, and that was widely spoken about. Having said that, that did not ultimately impact on any recycling markets or offshoring, as we have described it, in Australia. In other words they had made those announcements in 2013, had not enacted them, and indeed the immediate response, even to the announcement, was, as I understand it, that the Chinese manufacturing sector was concerned that they were not getting enough product in terms of feedstock for producing more manufacturing of plastics, paper and cardboard.*

*As I said—or I might not have said, actually, sorry—30 per cent of paper and cardboard was being exported at that stage, predominately to China, and 50 per cent of plastics were going there, but they were valuable commodities that were being traded. In terms of the impact, my recollection of that period of time between 2013 and 2017, and then subsequently coming back into this role, is that it was seen as an announcement but that it was unlikely to affect any significant operations in Victoria, and for that reason I am not aware of any contingency plans in the industry or in the state government or local government or indeed at a federal level to explore whether those bans would, at a global level—given that the commonwealth government is responsible for international trade—have a conversation with the World Trade Organization, for instance, about whether there would be an impact on Australia.<sup>6</sup>*

**Finding:** Despite clear warning signs from 2011, the Victorian Government and its agencies manifestly failed to heed the warnings of China’s changing policy environment regarding its acceptance of contaminated paper/paperboard and plastics and did not prepare its stakeholders, the recycling and resource recovery industry nor local councils in Victoria for the impact of the China National Sword Policy.

## **Inadequate data management and reporting systems**

One of the central and consistent themes to emerge from the inquiry was that poor data capture, recording and monitoring systems for resource recovery and recycling rates in Victoria has made it difficult to measure any progress the system has made. While the inquiry heard evidence from Sustainability Victoria early in its hearings that Victoria recycles 67% of materials from the waste stream, this was questioned by other agencies, including Infrastructure Victoria, due to the poor data capture systems being used. While 67% may reflect how much material is placed in recycling bins, this does not necessarily result in all of that material being recycled.

*Ms McNamara: Improving data collection—obviously, in news to no-one, VAGO is among one of many to have highlighted issues with data in both Victoria and Australia. That is certainly something that we have found in our research and something that we looked at in other jurisdictions<sup>7</sup>*

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<sup>6</sup> Ibid, p 14-15

<sup>7</sup> Ms McNamara, *Transcript of Evidence*, 6 November 2019, p 42

*Dr RATNAM: Do we have monitoring data of where that is heading? What levels of recycled content, for example, in Government procurement are we seeing? Is it 5 per cent, is its 10 percent? Are we tracking that at all to see if it is going up or down? I am just thinking if the aim is to increase without a target, how do we know we are increasing, and how are we monitoring it?*

*Mr GENEVER: You are absolutely right. We do not have data on that at the moment, and that is an issue that is being taken on, again, by those infrastructure agencies. The MTIA have a new program called 'ecologic', which is being led out of MTIA, and I would encourage you to talk to them if you have not already. One of the key things on their list is essentially getting better data on what is currently being used.<sup>8</sup>*

**Recommendation 1:** That the Victorian Government establish a system for recording the volumes of materials that are processed into reusable materials, processed for exports (with estimated contamination levels) and the volume sent to landfill from our material recovery facilities.

This task will be made notably easier with the nation-wide export bans on plastics, paper/cardboard, and other waste materials.

## **Dealing with food and organic waste**

As detailed in the majority report, diverting food and organic waste from ending up as residual waste presents a great opportunity to improve resource recovery rates and deliver much better environmental outcomes. Organic waste comprises approximately 47% of waste disposed of by households in landfill, according to the most recent Sustainability Victoria bin audit<sup>9</sup>. In 2018, 22 out of 79 Councils offered a food organics collection service, while 59 out of 79 offer a garden waste organics service either on a fortnightly or pick-up by request basis<sup>10</sup>.

Given the volume of food waste generated and detrimental impacts on the environment when it is allowed to decompose in landfill and create the greenhouse gas methane, the Victorian government must introduce, in partnership with Councils, a statewide food and garden organics collection service. Food and garden organics can also be successfully reprocessed through anaerobic digestion for energy.

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<sup>8</sup> Mr Genever, *Transcript of Evidence*, 6 November 2019, P 26-27

<sup>9</sup> Sustainability Victoria, *Victorian Statewide Garbage Bin Audit 2013*, <https://www.sustainability.vic.gov.au/-/media/SV/Publications/Government/Victorian-waste-data-portal/Victorian-statewide-bin-audits/Victorian-Statewide-Garbage-Bin-Audit.pdf>

<sup>10</sup> Parliamentary Budget Office, 2019, *Fortnightly statewide kerbside food and garden waste collection 120L bins*.

<https://sway.office.com/hBqFAtmRBYpKheCk/>

Without a statewide commitment to food organics collection, it is likely that food will be used for waste incineration projects and that we will fail to recover the energy and reuse value that food waste represents in terms of soil conditioner.

**Recommendation 2:** That State Government provides funding to and works in partnership with local Councils to establish a statewide household kerbside food and garden organics waste collection service.

**Recommendation 3:** That the State Government require that all food and plant based commercial enterprises use compost collection services, with appropriate exemptions for businesses that compost on-site.

**Recommendation 4:** That the State Government make a commitment to ensuring that no food or other organic materials are used as feedstock for waste incineration projects in Victoria.

## **A Container Deposit Scheme for Victoria**

The majority report outlines that the committee received overwhelming support through submissions for the introduction of a container refund scheme in Victoria. Over 52 submissions were made in favour of a container deposit scheme (CDS) from Councils and other organisations alone, and many more from individuals, with no organisations opposing it. The lack of political will by the State Government to embrace this universally supported initiative, that has been found to be tremendously effective in both separating recyclables in the waste stream and drastically reducing plastic and glass litter pollution, was met with dismay by many witnesses during committee hearings.

It was disappointing that the committee was unwilling to make a stronger set of findings and recommendations regarding the introduction of a CDS in Victoria despite the clear and consistent evidence presented to the committee.

As Mr Jeff Angel, Director of Boomerang Alliance put to the committee, a CDS is a great example of a product stewardship scheme that has proved all its critics wrong.

*Mr Angel: I think a container deposit scheme is a product stewardship scheme. The essential element of a product stewardship scheme is that the industry levies its sector members, and yes, of course that is often passed on to the consumer. In the case of a container deposit scheme there are two elements: one is the refund, the 10-cent refund; but there is a second element, which is a handling fee, which is what supports the collection infrastructure. It is the same with the e-waste. They levy tiny amounts—but it passes on into the retail cost—and that levy supports the collection infrastructure. So that is the key element of any product stewardship scheme: you actually collect the stuff to recycle it,*

*otherwise what is the point of the whole exercise? Because container deposit schemes create a separate collection infrastructure to kerbside, there have been arguments—frankly false arguments in terms of economic impact, but there have been arguments—that creates competition for kerbside collection, and the materials that were in the kerbside bin, the drink containers, could now be diverted into the cleaner stream, the container deposit systems and its collection infrastructure. What was argued when the debate in all the other states was going on about container deposits was that container deposits would financially undermine kerbside. What we are now seeing from the experience in New South Wales and Queensland is that that is not the case. The reason that is not the case is that drink containers are still left in kerbside, they have not 100 per cent disappeared, and the 10-cent value, the refund value, of those containers far outweighs the loss of material value that is created by some containers being extracted from kerbside bins. In fact I have read the Tomra submission to your Inquiry, and they very clearly say New South Wales kerbside is now getting \$50 million a year from the refunds in the kerbside bin that are part of the container deposit scheme, and they say that they expect Victoria would get \$40 million a year. Now, that is more than Government can provide. It is more than ratepayers need to provide, because it is a new source of income, and it is a continuing source of income; it is not just some one-off subsidy. Now, to be honest, we expected that because that is what normally happens. There were arguments, because people were trying to oppose the scheme and put up various propositions. Our view is that a container deposit scheme not only increases recycling because more people are collecting it in order to get the 10-cent refund and not only massively reduces litter—the benchmark information in New South Wales also proves that; they did before and after CDS litter sites—but also supports kerbside.*<sup>11</sup>

Mr Headifen from Plastic Bag Free Victoria presented compelling evidence to the committee about the impact a CDS could have on our beaches and oceans as evidenced from their regular volunteer beach clean-up work.

*Mr Headifen: The number of bags of containers compared to the number of bags in total is almost always 30 per cent, 30–35 per cent. So that would be a huge bulk of litter that would not be on the street, because even if people are going to return the bottles themselves, as we have seen in other jurisdictions, other people pick them up—and they will pick them up. Like, we had a clean on Saturday. We collected 300 bottles and cans, so that would have been \$30. Other people are incentivised even if the person buying the drink is not incentivised.*<sup>12</sup>

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<sup>11</sup> Mr Jeff Angel, *Transcript of Evidence*, 8 October 2019, p 43-44

<sup>12</sup> Mr Headifen, *Transcript of Evidence*, 8 October 2019, p 36-37

**Recommendation 5:** That the Victorian Government introduce a Container Deposit Scheme in Victoria as soon as possible.

## **Banning single use plastics**

Waste avoidance and minimisation was a key focus for the committee's inquiry. While references are made to observing the waste hierarchy informing the findings and recommendations contained in the report, the majority report fell disappointingly short when it came to making strong recommendations to government about how Victoria should eliminate unnecessary and polluting single use plastics from the waste stream.

Ms Bishop-Fox from Zero Waste Victoria urged the inquiry to focus on waste avoidance rather than only what to do when the waste is generated.

*Ms Bishop-Fox: In a linear economy it is very obvious: rubbish comes in; rubbish goes out. The recycling economy and circular economy in my mind often get blurred when I see definitions. A recycling economy to me is where we use it, recycle it and then try and figure it out. So if we are going to landfill that is not a circular economy. If we are going to incinerate it, that is not circular. If we are going to take glass and put it into a road base, that isn't a recycling economy because that glass is lost. The same with plastic: it just goes into a park bench and goes into a school and we need new plastic in. That cannot be considered part of the circular economy. The public thinks circular goes around and around and around—in the simplicity of a child. Once that resource is lost and undervalued, it is gone.<sup>13</sup>*

She went on to highlight the importance of waste minimisation in a true circular economy

*Ms Bishop-Fox: What actually surprised me when I started looking at government policy is that their hierarchy is not too different to ours. This is the national one, and I know the state one is quite similar: where we look at avoiding waste, reducing, re-using, recycling, recovery and all the rest. The main difference between the grassroots approach is that we actually start at avoiding waste and do our best to do it. What I find with society and the government system is we are looking at recycling and saying our system is broken, and then we move down. I know there is a fund with a lot of money sitting there and you are trying to figure out how to spend it. I urge you to look to the top of the hierarchy and work your way down. Recycling is important. We have got a lot of rubbish that we need to deal with, but if we only look at recycling and not*

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<sup>13</sup> Ms Bishop Fox, *Transcript of Evidence*, 8 October 2019, p 2

*what the cause of it is, and look at systems to avoid waste, we are going to be going around and we are going to be here again and again and again.*<sup>14</sup>

The inquiry heard substantial evidence from community groups, environment groups and local governments that waste avoidance must remain the focus of the Government's future intervention despite the complexity that it involves. While the majority report details the modest progress the Victorian Government has made towards banning single use plastic bags throughout the state, it was clear that this ban would need to be extended if we are to demonstrate a true commitment to reducing the volumes of plastic waste and packaging waste that is produced each year.

**Recommendation 6:** That the Victorian State Government promptly extend the ban on single use plastic bags to other unnecessary single use plastics starting with cutlery, plates, straws (taking into account the needs of people with disabilities), stirrers, cotton buds, and polystyrene take away containers and cups.

This action should be followed with a transition towards banning single-use plastic take away containers, plastic-lined coffee cups, other plastic cups, and heavy weight single-use plastic bags, ensuring that the products recommended to replace them are assessed as having a better environmental footprint.

## **We can't set fire to our problems - The future of Waste Incineration**

The subject of waste-to-energy was a matter of contention during this inquiry. Waste to energy has various forms, the most commonly touted for Victoria is combustion technology that includes gasification, pyrolysis and incineration. The majority report canvasses the relative merits of the full range of technologies, so I will focus on the waste-to-energy proposals that were the subject of most concern to the inquiry - waste incineration.

There are currently four waste incineration projects being proposed in Victoria. The Victorian Government has not released a policy framework for this form of waste management and each project requires only limited approval to proceed. As a result, the community has not been made aware of the full environmental and public health issues with waste incineration, the potential for it to stymie the transition to a circular economy by requiring large volumes of waste to be generated for decades to come, nor has the Victorian Government assessed or prepared for the generation and disposal of hundreds of thousands of toxic and other ash byproducts that will be created through incineration.

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<sup>14</sup> Ibid, p 3

The committee heard from the waste incineration industry that they believed their projects were a solution to Victoria's waste problems. However, the evidence of waste incineration industry proponents such as Australian Paper within the majority report needs to be interpreted with some caution given their commercial profit interests in these projects going ahead.

The inquiry heard compelling testimony from a range of environmental organisations and other experts about the concerns with Victoria's current willingness to allow the waste incineration industry to take advantage of Victoria's lack of policy in this area.

Mr Lee Bell from the International POPs Elimination Network (IPEN)<sup>15</sup> provided the inquiry with evidence from the international jurisdictions that use waste incineration and provided a sound warning to Victoria to heed the lessons from the European Union that is now withdrawing support for waste incineration.

*Mr Bell: Burning plastic waste in incinerators is no different to burning fossil fuels except that incinerating plastic generates larger volumes of more toxic emissions and toxic ash. The combination of these problems has seen the EU drop public subsidies for incineration, end any renewable energy credits and propose taxes on plastic incineration. Denmark and Sweden already tax waste incineration as an acknowledgement of its environmental impact. The waste incineration industry is headed for a phase-out, and Europeans now recognise that you cannot burn your way out of climate change.*<sup>16</sup>

Environment East Gippsland also raised concerns about why Victoria would utilise this polluting technology when clean renewable energy options were available for a fraction of the cost.

*A 64ha solar farm established at nearby Maffra is a \$40-50M project and will produce 30 Mw/hr of power. This is exactly the same estimated energy output that the Maryvale incinerator will produce. However it will be for over 10 times the cost.*<sup>17</sup>

Going down the path of waste incineration in Victoria will lock us into producing very large volumes of waste for decades to come. The four current proposals will require over 2 million tonnes of residual waste per year to be sent to incineration in order for

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<sup>15</sup> Mr Bell is an advisor to the International POPs Elimination Network on issues related to household and hazardous waste management with over 25 years' experience in hazardous waste policy and technical analysis, including contaminated sites, landfills, waste incineration, plastic waste management and advanced non-combustion technologies for destroying persistent organic pollutant waste. Mr Bell is a member of both the Stockholm and Basel convention expert groups focused on waste management and dioxin management and holds a Masters degree in Ecologically Sustainable Development and has lectured at Murdoch and Curtin University in Ecology and Human Health and waste related issues. Source <https://ntn.org.au/meet-lee/>

<sup>16</sup> Mr Lee Bell, *Transcript of Evidence*, 22 October 2019, p 52

<sup>17</sup> Environment East Gippsland, Submission 364, p. 4.

the projects to be financially viable. This is alarming given that in total, Victorian households generated 1.18 million tonnes of residual waste in 2016-17, which is a much smaller volume than required by the incinerator proposals. This figure is also a likely predictor of future waste volumes even when accounting for population growth which raises more concerns about what strategies will be used by the incineration industry to lock Victoria into producing high volumes of waste in future. Waste incineration companies are trying to secure 20-30 year waste supply contracts from municipal councils and international examples suggest that should a Council be successful in reducing waste volumes generated, they would face penalties for breach of contract or possibly be sued should they not be able to keep up with the supply of waste.<sup>18</sup>

Dr Nicholas Aberle from Environment Victoria reiterated these concerns.

*Dr Aberle: It is important to note that not all waste to energy is created equal. Anaerobic digesters are very different from just incinerating rubbish, and as the previous presenters indicated we are concerned that the wholesale incineration of rubbish is going to undermine efforts to improve recycling in this State.<sup>19</sup>*

Waste incinerators prefer materials with higher calorific value as this generates more energy. It is therefore in the interests of these commercial proponents to take limited action to separate recyclable material that they may receive for incineration. During their submission of evidence, Australian Paper - the proponent of the waste incinerator in Maryvale, admitted that it would not separate recyclables and food organic waste from other waste once it received it for incineration.

*Mr DUNN: So what Ben is confirming is there is no presorting of waste that is part of our proposal. We are really looking for that to take place at the household level. The waste contracts that we sign with councils have quality parameters around them, and so we would be looking to inspect waste, ensure that our waste supply chain is living up to those contractual obligations. But in terms of—*

*Mr McLEAN: In terms of mechanical investment, there is no mechanical investment.*

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Without adequate separation prior to incineration, waste incinerator plants effectively become oil burning machines because they will burn plastics and other materials that could otherwise be recycled.

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<sup>18</sup> <https://www.baltimoresun.com/maryland/baltimore-county/ph-tt-wheelabrator-0417-story.html>

<sup>19</sup> Dr Nicholas Aberle, *Transcript of Evidence*, 8 October 2019, p 15

<sup>20</sup> Mr Dunn & Mr McLean, *Transcript of Evidence*, 10 May 2019, p 13

Furthermore, the director of the Boomerang Alliance highlighted that waste incineration not only undermines a circular economy, but also produces greenhouse gas emissions that contribute to climate change.

*Mr Angel: The other thing about waste to energy is even though they apply best practice emission controls it is not zero emissions, it is just smaller emissions, and that is where you run into a whole lot of local community problems. Some of the communities may already have highly polluted environments, which the waste-to-energy incinerator is adding to, and in the case of New South Wales we have yet to see a scheme that gives full confidence they can even meet the current emission limits with the current technologies they are proposing. That is why two of them fell over in New South Wales. The bigger the throughput the bigger the emissions quantities that you have to manage, and some of it is eventually released into the air. So it is not only an environmental threat, it is actually now a threat to the circular economy.*<sup>21</sup>

Several local Councils including Darebin Council also expressed concern about waste incineration and stated that they did not believe it to be a viable environmentally sustainable solution to Victoria's waste issues.

*Dr Rennie: For that reason we do not regard waste-to-energy technology as a sustainable technology. At its base it does actually involve burning materials made from oil and creating CO2. You can make that more clean with more technology but you are still left with residual by-products that are problematic, and we think there are essentially much better solutions for most of this product.*

<sup>22</sup>

On the issue of the byproducts of incineration, it became clear throughout the course of the inquiry that the Victorian Government is woefully unprepared to deal with the hundreds of thousands of tonnes of toxic fly ash and bottom ash that will be produced when waste and recyclables are incinerated. Mr Bell from IPEN submitted evidence that suggested that Victoria would need a new toxic hazardous material processing facility and potentially more landfill capacity to deal with upwards of 500, 000 tonnes of ash produced by waste incineration should all the current proposals proceed.

*On the basis of the planned Victorian incineration throughput, you would need to have new capacity to dump between 16,000 and 80,000 tonnes of highly hazardous fly ash every year. But for the hazardous bottom ash you would require capacity for up to 500,000 tonnes each and every year.*<sup>23</sup>

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<sup>21</sup> Mr Jeff Angel, *Transcript of Evidence*, 8 October 2019, p 47

<sup>22</sup> Dr Susan Rennie, *Transcript of Evidence*, 22 October 2019, p 43

<sup>23</sup> Mr Lee Bell, *Transcript of Evidence*, 22 October 2019, p 52 (please note supplementary information was provided to correct the transcript via email to committee members on 22 October 2019)

Mr Bell went onto further state that Victoria may be unprepared to deal with the toxic by-products of incineration and that the risks to population health must be taken into account before Victoria embarks on this course of waste management.

*Mr Bell: The toxic material in the incinerator ash is a combination of thin metals and dioxins. The dioxins are the most toxic chemicals ever analysed, and they persist in the environment for hundreds of years and are toxic in tiny amounts. They build up in the food chain, contaminate eggs, dairy products and livestock, and despite claims by the industry to the contrary, the problem of dioxins has never really been solved. At best they have been transferred from the air emissions to the bottom ash and fly ash by incredibly expensive filtration and scrubber units.*

*To minimise the risk from the airborne dioxin emissions of incinerators, we also require highly competent regulatory authorities with in-house technical expertise on monitoring and enforcement of POPs emissions. Victoria does not have this, and the recent track record of environmental agency with hazardous waste management underscores this.*

*Before making any recommendations that might expose the Victorian population and food chain unnecessarily to the large volumes of dioxin-riddled waste and emissions that incineration will create, I would urge Committee members to consider the newly published scientific article by Tait et al of the Australian National University Medical School, who have conducted a global meta analysis of all incinerator health impact studies ever produced. They concluded that waste incineration has significant impacts on the health of incinerator workers and local communities around incinerators, as well as the food chain, and should not be situated near food-producing areas. <sup>24</sup>*

**Finding:** Waste incineration has the potential to undermine recycling in Victoria and that Victoria is unprepared to deal with over 500,000 tonnes of toxic and other ash by-products that will be produced per annum if all proposals currently tabled proceed.

**Recommendation 7:** That any future policy statement about waste incineration in Victoria include a commitment to no recyclables or food organics being incinerated.

**Recommendation 8:** That the Government implements a moratorium on new waste incineration plants in Victoria until 2030 to ensure that the full environmental and public health impacts are properly investigated.

**Recommendation 9:** That a Class 2 landfill be identified for the lifetime of hazardous waste generation and disposal from each facility before it is approved

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<sup>24</sup> Ibid, p 53

**Recommendation 10:** That local communities are comprehensively consulted with before any waste incineration facility proceeds.

**END**



**Minority Report – Inquiry into Waste and recycling**  
**Legislative Council Standing Committee on the Environment and Planning**

**Waste and recycling policy in Victoria**

Labor has been in power in Victoria for 16 of the last 20 years. It has comprehensively botched waste and recycling policy in that long stint in government. The hallmarks have been chaotic mismanagement, poorly defined lines of responsibility, acquiescent and slovenly agencies. Victoria has seen in the last 12 months massive quantities of waste that should have been recycled being dumped in landfill. This is despite clear warnings of changes in the international settings, particularly changes in China's attitude and yet Daniel Andrews and his incompetent Ministers failed to act. The blurred lines of responsibility in Victoria and the weak approach of incompetent Labor Ministers has meant that, in effect, no-one is in charge of waste and recycling policy in Victoria. A series of key agencies have hopelessly underperformed.

The Coalition believes that a more traditional approach where a Minister and, in this case, her department, accept responsibility, is appropriate and, indeed, necessary. An end to duelling agencies and fuzzy responsibilities is required.

**Recommendation 1**

Minister, the Hon Lily D'Ambrosio, and her department, DELWP, accept responsibility for the failure of waste and recycling policy in Victoria and work to fix it.

**The EPA**

The Environment Protection Authority has not discharged its responsibilities adequately, failing to enforce key protections for communities, despite having massive powers to intervene. The dangerous and illegal stockpiles around Melbourne's suburbs and in some country locations were allowed to accumulate unchecked. This has resulted in risk to neighbouring communities and businesses. It has also resulted in massive fires, which have certainly put communities at risk. The EPA's air quality monitoring has also not been up to scratch.

**Finding 1**

The EPA has failed in its primary duties and is an incompetent organisation.

**Sustainability Victoria**

Sustainability Victoria is a body which has never had a clear purpose and has failed on almost any measure to provide leadership or coordination to the relevant waste and recycling sectors with which it deals. Its independence is uncertain and many think it make no useful contribution. The money spent on its administration could well be better spent on actual projects administered by the department.

**Recommendation 2**

The Department of Environment, Land, Water and Planning take over the functions of Sustainability Victoria, administer its programs and redirect the administrative cost into actual waste and recycling projects.

### **The Sustainability Fund**

The large fund with many hundreds of millions of dollars administered jointly by DELWP and DTF has accumulated and not been spent as intended in support of key waste and recycling objectives. The State Government has also continued to collect levies through the recent crisis despite enormous volumes simply being tipped to landfill in contradiction of its stated objectives. This is not the fault of municipal councils, it is the fault of Daniel Andrews and his Minister.

Essentially, families have through the municipal rates paid a massive waste levy – a tax – which has not been spent on the purposes for which it was intended.

### **Recommendation 3**

The Sustainability Fund should be spent for the purposes it was intended, that is supporting waste and recycling programs and not be allowed to accumulate endlessly as has become Labor's practice.

### **Extracts of proceedings**

The extracts of proceedings attached to the majority report show, despite the chaotic failures of Labor's waste and recycling programs, the Coalition members have worked in good faith with other Committee members to document constructive waste and recycling policy steps that can be taken by Government to improve the imbroglio in which Victoria, under Labor, finds itself. As the extracts, together with the recommendations and findings in the report, show, the Coalition members have sought to ensure that new, bold and sustainable policy is our focus, while recognising the need to cut wasteful spending and ensuring households and businesses are not unfairly burdened with additional costs. Cost of living pressures are important to Victorian families, but most Victorians also want to see a clean environment where we face up to our responsibilities for environmental stewardship.



The Hon David Davis MP



Melina Bath MP