INQUIRY INTO THE DEVELOPMENT AND EXPANSION OF WASTE-TO-ENERGY (WTE) INFRASTRUCTURE IN VICTORIA

'Clean Air Communities' Submission

Abstract

This submission argues that waste-to-energy incineration is inconsistent with public health, climate and circular economy objectives, and that safer, more effective alternatives exist for managing Victoria's waste.

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Parliament of Victoria
Legislative Council Economy and Infrastructure Committee
Parliament House, Spring Street
EAST MELBOURNE VIC 3002

Dear Committee Secretariat,

Thank you for the opportunity to provide a submission to the Legislative Council Economy and Infrastructure Committee's inquiry into the development and expansion of waste-to-energy (WtE) infrastructure in Victoria.

I am submitting on behalf of Clean Air Communities, a community advocacy group focused on protecting public health from air pollution through evidence-based policy. Our priority is residential solid fuel combustion, as the least recognised and dominant source of hazardous fine particle pollution in Australia's urban, rural and regional areas[i].

Our submission draws on extensive scientific literature and our prior detailed analysis of a proposed WtE facility in Wollert, Victoria. It outlines significant concerns regarding the impacts of WtE on air quality, human health, environmental integrity, climate outcomes, and the circular economy.

In particular, we highlight that:

- There is no safe level of exposure to fine particulate air pollution
- Waste incineration poses long-term and cumulative health risks
- WtE contributes materially to greenhouse gas emissions
- The technology undermines waste reduction and circular economy objectives
- Disadvantaged communities are disproportionately impacted

We have structured our submission to directly address the Terms of Reference and have provided clear recommendations for policy reform, including the adoption of a precautionary approach and a moratorium on new facilities.

We would welcome the opportunity to provide further information or appear before the Committee if helpful.

Thank you for your consideration of this submission.

Kind regards,
Arabella Daniel
Clean Air Communities

[redacted]

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“More recent incinerators have fewer reported ill effects, perhaps because of inadequate time for adverse effects to emerge. A precautionary approach is required. Waste minimisation is essential.”

Australian and New Zealand Journal of Public Health
‘The health impacts of waste incineration: a systematic review’
Volume 44, Issue 1, February 2020, Pages 40-48[1]

EXECUTIVE SUMMARY

Clean Air Communities strongly opposes the expansion of waste-to-energy (WtE) incineration in Victoria.

Drawing on extensive scientific evidence and community experience, this submission demonstrates that WtE poses unacceptable risks to **human health, air quality, environmental integrity, and climate outcomes**, while undermining the **circular economy**.

Key Findings

- **No safe level of air pollution:**
  Fine particulate matter (PM2.5), a key emission from combustion, is a **Group 1 carcinogen** with no safe exposure threshold - and that even low concentrations cause measurable harm[ii].

- **Health risks are well established:**
  A major Australian and New Zealand systematic review[iii] found:
  - 66% of studies showed adverse health outcomes
  - Increased risks of cancer, reproductive harm, and developmental impacts

- **Modern incinerators are not risk-free:**
  Reduced emissions do not eliminate harm. Many health effects take decades to emerge, requiring a precautionary approach.

- **WtE contributes to climate change:**
  - Emissions per unit of electricity can exceed fossil fuels
  - Lifecycle emissions are comparable to natural gas
  - WtE locks in high-emission infrastructure for decades

- **WtE undermines the circular economy:**
  - Creates demand for waste as fuel
  - Discourages recycling and waste reduction
  - Diverts investment from sustainable solutions

- **Environmental injustice is a major concern:**
  Facilities are disproportionately located in disadvantaged communities, compounding existing health and pollution burdens.

Conclusion

Waste incineration is not a sustainable waste or energy solution. It is a **polluting, high-emissions technology** that conflicts with Victoria's climate goals and circular economy ambitions.

Key Recommendations

- Implement a **moratorium on new WtE facilities**
- Embed the **precautionary principle** in decision-making
- Invest in **waste reduction, recycling, and composting**
- Require **independent long-term health monitoring**
- Ensure **environmental justice protections** in planning decisions

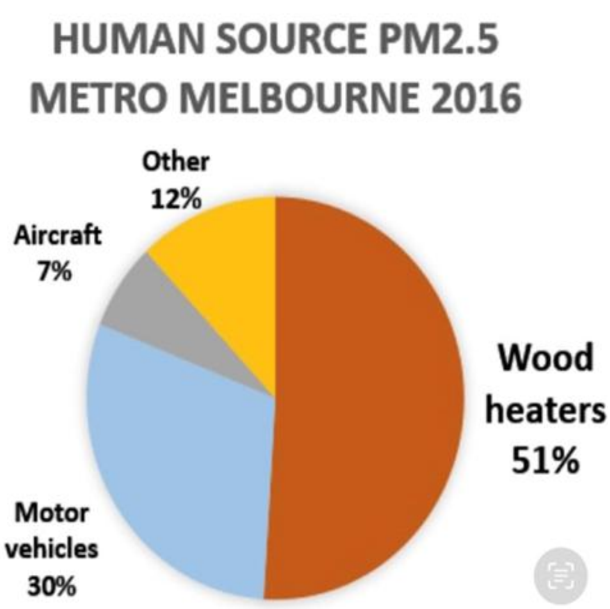
We all have a right to breathe clean air - everywhere, all the time.

1. SUITABILITY OF WTE PLANS & POLICY FRAMEWORK

Current policy settings and plans that enable the development and expansion of waste-to-energy (WtE) infrastructure are fundamentally inconsistent with the protection of public health and the principles that underpin modern environmental regulation and circular economy principles.

A substantial and well-established body of scientific evidence demonstrates that there is **no safe level of exposure to fine particulate matter (PM2.5)**[iv]. The World Health Organisation classifies PM2.5 as a **Group 1 carcinogen**, and its 2021 Global Air Quality Guidelines confirm that adverse health effects occur even at very low levels of exposure[v]. These impacts include increased risks of cardiovascular disease, respiratory illness, cancer, adverse birth outcomes, and premature death. This evidence base is supported by tens of thousands of studies globally and is widely accepted across public health and regulatory institutions.

In this context, WtE facilities represent an additional **combustion-based source of air pollution**, emitting particulate matter alongside a range of other hazardous pollutants. While regulatory frameworks often assess such facilities on the basis of compliance with emission limits, this approach does not adequately account for **cumulative exposure**. Communities are already exposed to multiple pollution sources, including transport emissions, industrial activities, and most dominantly - domestic solid fuel combustion. **EPA Victoria attributes over half**[vi] **(51%) of PM2.5 emissions in Metro Melbourne to ~10% of homes that use wood burning as the primary source of heating**. The introduction of an additional source - regardless of its relative contribution - necessarily increases total exposure and therefore increases risk.



https://www.epa.vic.gov.au/-/media/epa/files/publications/2028---2016-emissions-inventory-report.pdf

This raises a critical inconsistency within the current policy framework. On one hand, environmental and public health policy recognises the need to reduce population exposure to air pollution. On the other, WtE policy settings permit the introduction of new emission sources on the basis that their incremental contribution is "acceptable." This position is not compatible with the **precautionary principle**[vii], which requires that where there is credible evidence of harm, and particularly where uncertainty remains, decision-makers should err on the side of preventing harm rather than allowing it.

> ***We acknowledge that more modern facilities have "reduced" emissions – but as this study states: "since many health effects require cumulative exposure and may take many years to manifest, it will be difficult to measure any improved safety from modern incinerator designs for decades"*** [viii]

The precautionary principle is especially relevant in the case of WtE infrastructure. Many health impacts associated with air pollution are **cumulative and long-term**, often taking years or decades to manifest. As such, the absence of immediate or observable harm cannot be taken as evidence of safety. Approving new combustion infrastructure under these conditions effectively transfers risk to current and future populations.

Given this evidence, it is not sufficient for policy frameworks to rely solely on compliance-based assessments of individual facilities. Instead, a **public health-centred approach** is required - one that explicitly considers cumulative impacts, existing pollution burdens, and the absence of a safe exposure threshold.

Accordingly, the Committee should consider recommending that WtE policy settings be revised to **prohibit the introduction of additional combustion-based infrastructure in already burdened airsheds** (see Section: 6 (b) Impacts of siting of Wte facilities in the Port Phillip Air Quality Control Region (PPAQCR)), and to embed the precautionary principle as a central decision-making criterion. This would ensure that environmental regulation is aligned with contemporary scientific understanding and the fundamental obligation to protect human health.

1A. IMPACT OF WTE PROJECTS ON TRANSPORT INFRASTRUCTURE

The development and operation of waste-to-energy (WtE) facilities has significant implications for transport infrastructure, which are often underexamined in policy and approval processes. To reduce transport costs, waste incinerators are sited close to the waste source, hence the concentration of facilities in the Port Phillip Air Quality Control Region (see Section: 6 (b) Impacts of siting of Wte facilities in the Port Phillip Air Quality Control Region (PPAQCR)). WtE facilities require a **continuous and reliable supply of large volumes of waste**, typically transported via heavy vehicles. This results in a substantial increase in truck movements to and from the facility over its operational life. Unlike landfill, which may serve a more localised catchment, WtE facilities often draw waste from **multiple municipalities or regions**, further intensifying transport demands.

The implications of this are multifaceted. Increased heavy vehicle traffic contributes to:

- **Local air pollution**, including particulate matter and diesel emissions
- **Noise impacts** affecting nearby residential communities
- **Road congestion and safety risks**, particularly in suburban or peri-urban areas
- Accelerated **wear and degradation of road infrastructure**, leading to increased maintenance costs borne by the public

These impacts are not merely logistical; they have direct consequences for **community health and amenity**, compounding the environmental burden associated with the facility itself.

Importantly, transport-related emissions are often treated as **secondary or indirect impacts** in WtE assessments. However, when considered within a lifecycle framework, they represent a meaningful contribution to both **local air pollution and overall greenhouse gas emissions**. This is particularly relevant where waste is transported over long distances to maintain feedstock supply.

There is also a structural issue inherent in WtE systems: the need to secure sufficient waste volumes can create incentives to **expand collection catchments**, further increasing transport intensity over time. This runs counter to efforts to localise waste management and reduce transport-related emissions.

Current policy frameworks do not appear to adequately account for these cumulative and long-term transport impacts. As such, there is a risk that the true cost and burden of WtE infrastructure are underestimated.

1B. ANNUAL CAPS ON WASTE FOR THERMAL WTE PROCESSING

The introduction of annual caps on waste volumes for thermal WtE processing represents an attempt to balance landfill constraints with circular economy objectives; however, there are **significant concerns regarding the effectiveness and durability of this policy mechanism**.

We have already seen a shift in the cap: seven waste-to-energy plants were given the green light in 2025, in addition to four already approved – a total surpassing the rest of the country combined.

Together, the new projects have a cap of 2.35m tonnes of rubbish a year[ix] – **more than double the 1m-tonne limit the Victorian parliament set when it first legislated the waste-to-energy scheme in 2022[x].**

NOTE: Projects like the Maryvale facility, are NOT included in this cap - it's initial capacity to process 325,000 tonnes of non-recyclable waste each year, will be expanded in future, with a potential second processing line increasing capacity to 650,000 tonnes of municipal solid waste (80%) and commercial and industrial waste (20%). This makes the total volume of waste allowed to be incinerated in effect exceeding the 2.5 million tonnes cap.

While caps may provide an initial safeguard against over-expansion, which is already proving to be ineffectual, they do not address the underlying structural issue: WtE facilities require a **consistent and long-term supply of waste** to remain economically viable. This creates an inherent tension between the operation of WtE infrastructure and the policy goal of reducing waste generation.

In practice, there is a substantial risk that caps will be subject to **future pressure for expansion or revision**. As population growth and waste generation increase, and as facilities seek to maintain throughput, there may be economic and political incentives to:

- Increase cap limits
- Broaden the definition of eligible waste streams
- Extend operational capacity

This dynamic has been observed internationally, where jurisdictions with high levels of incineration have faced challenges in maintaining recycling rates and have subsequently been advised to introduce corrective measures, including incineration taxes and moratoriums on new facilities[xi].

There is also a risk that caps create a **false sense of control**. Even within a capped system, WtE infrastructure can:

- Compete with recycling and organics processing for feedstock
- Lock in waste flows over decades
- Discourage investment in higher-order waste solutions

Importantly, caps do not address the issue of **cumulative environmental and health impacts**. A capped volume of waste still results in ongoing emissions, ash production, and associated risks to communities and ecosystems.

From a policy perspective, reliance on caps alone is insufficient to ensure alignment with circular economy principles. A more robust approach would prioritise **waste avoidance and material recovery**, with WtE positioned - if at all - as a strictly limited, transitional technology.

The Committee should therefore consider recommending that:

- Caps be accompanied by **clear and enforceable limits on eligible waste streams**, ensuring that recyclable and compostable materials are excluded
- A **progressive reduction pathway** be established, decreasing reliance on thermal treatment over time
- Strong safeguards be implemented to prevent **cap expansion or policy dilution**
- Policy settings prioritise **waste reduction, reuse, and recycling over combustion**

Without these additional measures, there is a significant risk that caps will function not as a constraint, but as a **mechanism that enables and entrenches long-term reliance on waste incineration**.

1C. IMPACT ON COMMUNITIES

Waste-to-energy (WtE) facilities pose significant and long-term risks to the health and wellbeing of surrounding communities, particularly when considered in the context of cumulative exposure to air pollution.

A substantial body of evidence demonstrates associations between waste incineration and adverse health outcomes. A comprehensive systematic review published in the *Australian and New Zealand Journal of Public Health* (2020)[xii], which examined 91 studies, found that 66% reported significant adverse effects. These included increased risks of cancer (including sarcoma and non-Hodgkin lymphoma), adverse reproductive outcomes such as preterm birth and congenital anomalies, and developmental impacts in children. Importantly, several studies identified elevated levels of known toxic pollutants, including dioxins, furans, and heavy metals, in populations living near incinerators.

> "***There is some suggestion that newer incinerator technologies with robust maintenance schedules may be less harmful, but diseases from exposures tend to manifest only after many years of cumulative exposure, so it is premature to conclude that these newer technologies improve safety***"[xiii]

While proponents of WtE often emphasise advances in emission control technologies, the evidence base highlights a critical limitation: many health impacts associated with air pollution are **chronic and cumulative**, and may take years or decades to emerge. As noted in the review, reduced emissions from newer facilities do not equate to absence of harm, particularly given the relatively short timeframes over which such facilities have been studied.

This has important implications for policy and decision-making. Communities are not exposed to a single source of pollution in isolation. Rather, they experience a **layering of exposures** from multiple sources over time. In this context, even a “small” additional contribution from a WtE facility may have meaningful health consequences at a population level.

Accordingly, the Committee should consider recommending that WtE policy frameworks require **comprehensive cumulative impact assessments**, and that facilities not be approved in areas where communities are already subject to elevated pollution burdens. A precautionary, health-first approach is necessary to prevent the long-term entrenchment of avoidable harm.

3. EMISSIONS, WASTE AND ASH

Waste-to-energy facilities generate a complex mixture of emissions and byproducts that present risks not only to air quality, but also to land, water, and food systems.

Combustion of mixed waste streams produces emissions including fine particulate matter (PM2.5 and PM10), nitrogen oxides, volatile organic compounds, heavy metals, and persistent organic pollutants such as dioxins and furans. Many of these substances are well-established as toxic, carcinogenic, or otherwise harmful to human health, even at low concentrations.

In addition to airborne emissions, WtE facilities produce solid residues in the form of bottom ash and fly ash. These byproducts often contain **concentrated levels of hazardous substances**, including heavy metals and persistent pollutants. The management, transport, and disposal of these materials introduce further environmental risks, particularly in relation to soil contamination and potential leaching into groundwater systems.

The implications extend beyond immediate environmental exposure. Airborne pollutants can deposit onto soil and vegetation, leading to the **bioaccumulation of toxins within food systems**. This has direct consequences for urban agriculture, home food production, and broader ecosystem health. Evidence from international studies has raised concerns about the safety of food grown in proximity to incinerators, highlighting the potential for long-term contamination.

Impacts on soil and gardens - “New incinerators should be located away from areas of food production… Food grown near an incinerator should be avoided” [xiv]

Current regulatory approaches tend to assess emissions and residues within separate frameworks, without fully capturing these interconnected pathways of exposure. A more integrated, lifecycle-based assessment is required to properly understand and manage the risks associated with WtE.

The Committee should therefore consider recommending that WtE facilities be subject to **independent, continuous emissions monitoring**, as well as comprehensive lifecycle assessments that account for air, land, and water impacts. Without such safeguards, there is a risk that environmental harms are underestimated and insufficiently controlled.

4. CLIMATE IMPACTS

Waste-to-energy incineration is often positioned as a climate-aligned solution to landfill constraints; however, the evidence indicates that it is a **high-emissions technology** that is inconsistent with long-term decarbonisation goals.

The combustion of waste releases significant quantities of carbon dioxide (CO_2), alongside other greenhouse gases such as methane (CH_4) and nitrous oxide (N_2O), particularly where combustion is incomplete. Lifecycle assessments have found that the greenhouse gas emissions associated with WtE can be **comparable to, or in some cases exceed, those of fossil fuel-based electricity generation**. This challenges the classification of WtE as a form of “clean” or “renewable” energy. Example: “study finds that incinerators emit more greenhouse gas emissions per unit of electricity produced (1707 g CO2e/kWh) than any other power source (range: 2.4 to 991.1 g CO2e/kWh). They also emit more criteria air pollutants than replacement sources of energy, such as natural gas. Incineration’s inclusion in “renewable” or “clean” energy standards is thus counterproductive, as they also divert more than $40 million in subsidies annually from cleaner energy sources. As the electric grid decarbonizes, these disparities will only grow”[xv]. This study concludes:

> ***“a rapid shutdown of existing incinerators would help decarbonize the electric grid and reduce criteria air pollution, particularly in environmental justice communities, which are disproportionately burdened by environmental health hazards”***

Another assessment[xvi] finds the life cycle climate change impact (LCCCI), a cradle-to-gate life cycle assessment (LCA) of a WTE facility found: **"is comparable to that of electricity from fossil fuels.** With system expansion*, the LCCCI ranges from below that of renewable energy to **comparable to natural gas-based electricity**. These results disagree with claims in the reviewed literature that WTE can avoid GHG emissions overall, although avoided emissions reduce the magnitude of its impact".

(* System expansion accounts for avoided landfilling emissions, additional metals recycling, and the loss of potential electricity generation from landfill gas)

WtE infrastructure represents a long-term capital investment, typically operating over several decades. Approving new facilities effectively **locks in emissions pathways**, reducing flexibility to transition to lower-emissions alternatives over time. This is particularly problematic in the context of Victoria's legislated emissions reduction targets and broader commitments to achieving net zero.

There is also a broader systems implication. By providing an outlet for waste disposal through combustion, WtE can **reduce incentives to pursue higher-order waste strategies such as reduction, reuse, and recycling** - many of which have significantly lower emissions profiles.

Given these factors, the Committee should consider recommending that WtE be **excluded from renewable energy classifications and policy support mechanisms**, and that climate policy prioritise genuinely low- and zero-emissions alternatives. Aligning waste and energy policy with **climate objectives requires a clear shift away from combustion-based approaches**.

5. WASTE MANAGEMENT AND CIRCULAR ECONOMY

The expansion of waste-to-energy (WtE) infrastructure presents fundamental challenges to the principles of a circular economy and the effective operation of sustainable waste management systems in Victoria.

At its core, the circular economy prioritises **waste avoidance, reuse, recycling, and recovery of materials**, with disposal as a last resort. In contrast, WtE relies on a **continuous and predictable supply of waste** to remain operationally and economically viable. This creates an inherent structural tension: rather than reducing waste generation, WtE infrastructure can create a long-term dependency on it.

A key concern is the practical difficulty of ensuring that only genuinely residual waste is directed to WtE facilities. In real-world waste streams, mixed loads frequently contain **significant proportions of recoverable materials**, including plastics, paper, metals, and organics. These materials represent some of the highest-value resources within the waste stream. When they are combusted, that value is irreversibly lost, undermining resource efficiency and reducing the effectiveness of recycling systems.

Organic waste presents a particularly clear example of this misalignment. When properly separated, organic material can be processed through composting or anaerobic digestion, returning nutrients to the soil and supporting low-emissions energy generation. When instead directed to incineration, it contributes unnecessarily to **greenhouse gas emissions and air pollution**, while also representing a lost opportunity to support soil health and circular nutrient cycles.

Operational requirements of WtE facilities further complicate this issue. To maintain efficient combustion, facilities require feedstock with a consistent calorific value. This can create incentives to retain higher-energy materials, such as plastics and paper, within the waste stream, rather than diverting them for recycling. As a result, even where separation systems exist, there may be **economic and operational pressures that undermine optimal resource recovery outcomes**.

Beyond material flows, WtE infrastructure generates a range of emissions and residual byproducts that must be managed over the long term. Combustion produces pollutants including **fine particulate matter, nitrogen oxides, heavy metals, and persistent organic pollutants such as dioxins and furans**. While emission control technologies can reduce concentrations, they do not eliminate emissions, and residual releases contribute to cumulative environmental and health burdens.

In addition to airborne emissions, WtE facilities produce significant quantities of **bottom ash and fly ash**, which often contain concentrated levels of hazardous substances. These materials require ongoing handling, transport, and disposal, introducing risks of **soil and groundwater contamination**, as well as long-term environmental liability. Airborne deposition of pollutants can also lead to the gradual accumulation of toxins in surrounding soils and vegetation, with implications for food safety, urban agriculture, and ecosystem health.

From an economic perspective, the cost-benefit case for WtE is more complex than is often presented. These facilities are **capital-intensive and long-lived**, requiring consistent waste volumes to remain financially viable. This can result in higher costs being passed on to consumers and businesses through waste disposal fees and energy pricing.

Importantly, WtE also carries significant **opportunity costs**. Investment in incineration infrastructure can divert resources away from more sustainable and cost-effective solutions, including recycling systems, organics processing, and waste reduction initiatives. These alternatives often deliver greater environmental benefits and support the development of domestic resource recovery industries.

There is also the issue of **economic lock-in**. Long-term contractual arrangements associated with WtE facilities often require minimum waste volumes, which can constrain future policy flexibility and create disincentives for waste reduction. In effect, this can entrench a system in which waste generation must be maintained to support infrastructure viability.

International experience reinforces these concerns. Jurisdictions with high levels of incineration have faced challenges in maintaining recycling rates and have introduced corrective measures, including incineration taxes, the removal of policy support, and, in some cases, moratoriums on new facilities. These developments highlight the risk that WtE, rather than supporting a circular economy, can **undermine its core objectives**.

When considered holistically, including lifecycle emissions, resource loss, environmental risks, and long-term economic impacts, WtE represents a **lower-value and higher-risk pathway** compared to circular economy approaches.

Accordingly, the Committee should consider recommending that:

- WtE be **strictly limited to genuinely residual waste**, with enforceable safeguards to prevent competition with recycling and organics streams
- Policy settings prioritise **waste reduction, reuse, recycling, and composting** over thermal treatment
- A **phase-down pathway** be established to reduce reliance on WtE over time
- Full **lifecycle environmental and economic assessments** be required to inform decision-making

Without these measures, there is a significant risk that WtE infrastructure will **lock Victoria into a less sustainable, more polluting, and economically constrained waste management system**, contrary to the goals of a circular economy.

6. ENVIRONMENTAL JUSTICE

The siting and operation of waste-to-energy facilities raise significant concerns in relation to environmental justice and equity.

There is substantial evidence that environmentally hazardous infrastructure is disproportionately located in communities experiencing socioeconomic disadvantage. These communities often face higher baseline exposure to pollution, greater vulnerability to health impacts, and fewer resources to mitigate or respond to environmental risks, a phenomenon commonly described as the "triple jeopardy" effect.

The *triple jeopardy hypothesis*[xvii] states that low socioeconomic communities face:

(1) higher exposure to air pollutants and other environmental hazards and

(2) increased susceptibility to poor health (primarily as a result of more psychosocial stressors, such as discrimination and chronic stress, fewer opportunities to choose health-promoting behaviors and poorer health status) resulting in

(3) health disparities that are driven by environmental factors

6 (a) Current locations for siting of WtE facilities in Victoria raise Environmental Justice concerns

1. City Of Whittlesea - Wollert

Nothing exemplifies more the triple hypothesis theory than the Wollert waste incinerator facility being imposed on the City of Whittlesea. The City of Whittlesea is the fifth-most socioeconomically disadvantaged of Victoria's 31 metropolitan local governments[xviii]. This disadvantage has associated health impacts, and existing local air pollution issues due to domestic solid fuel combustion and local industry, with WtE adding further burden to health.

"A rapid shutdown of existing incinerators would help decarbonize the electric grid and reduce criteria air pollution, particularly in environmental justice communities, which are disproportionately burdened by environmental health hazards" [xix]

2. Latrobe City - Maryvale

The Maryvale paper mill in the Latrobe Valley, which has joined with nine councils in Melbourne's south east to take up to 95% of their waste because there is no space left for it locally. The Latrobe Valley faces a range of socio-economic challenges. There is a high percentage of low-socio-economic households across the region[xx]. It is a community that was subjected to decades of coal-fired power station pollution and was looking forward to a clean energy transition – instead it is now home to Victoria's first WtE[xxi] facility where it will burn the next fossil fuel – plastic.

3. City of Casey - Hampton Park

Part of this plan involves a new waste transfer station in Hampton Park, where rubbish would be collected and trucked to Maryvale. Hampton Park is considered a low socio-economic area, frequently ranked among the most disadvantaged suburbs in Melbourne's south-east based on 2021 ABS SEIFA data. Located in the City of Casey, it is characterised by lower employment rates (91.9% employed vs. 94.3% in Casey), lower labour participation, and higher rental rates compared to the surrounding municipality.

4. City of Hume - Sunbury

Hume City, the site of the Sunbury WtE facility, ranks as the third most socio-economically disadvantaged area in Greater Melbourne. Many households experience financial stress, with nearly half falling into the bottom 40% of the income distribution[xxii].

5. City of Greater Dandenong – Dandenong South

Dandenong South is part of the City of Greater Dandenong, an area characterized by a low relative socio-economic status[xxiii] and a high degree of cultural diversity. It is part of a broader region that is considered disadvantaged compared to other parts of Melbourne, often ranking in the lower half of socio-economic deciles.

6. City of Wyndham - Laverton North

Laverton North is historically identified as one of Victoria's most socio-economically disadvantaged areas. It is characterised by high unemployment, lower household incomes, and a high proportion of industrial and working-class residents, often appearing near the bottom of SEIFA (Socio-Economic Indexes for Areas) rankings[xxiv].

7. City of Greater Geelong – Lara

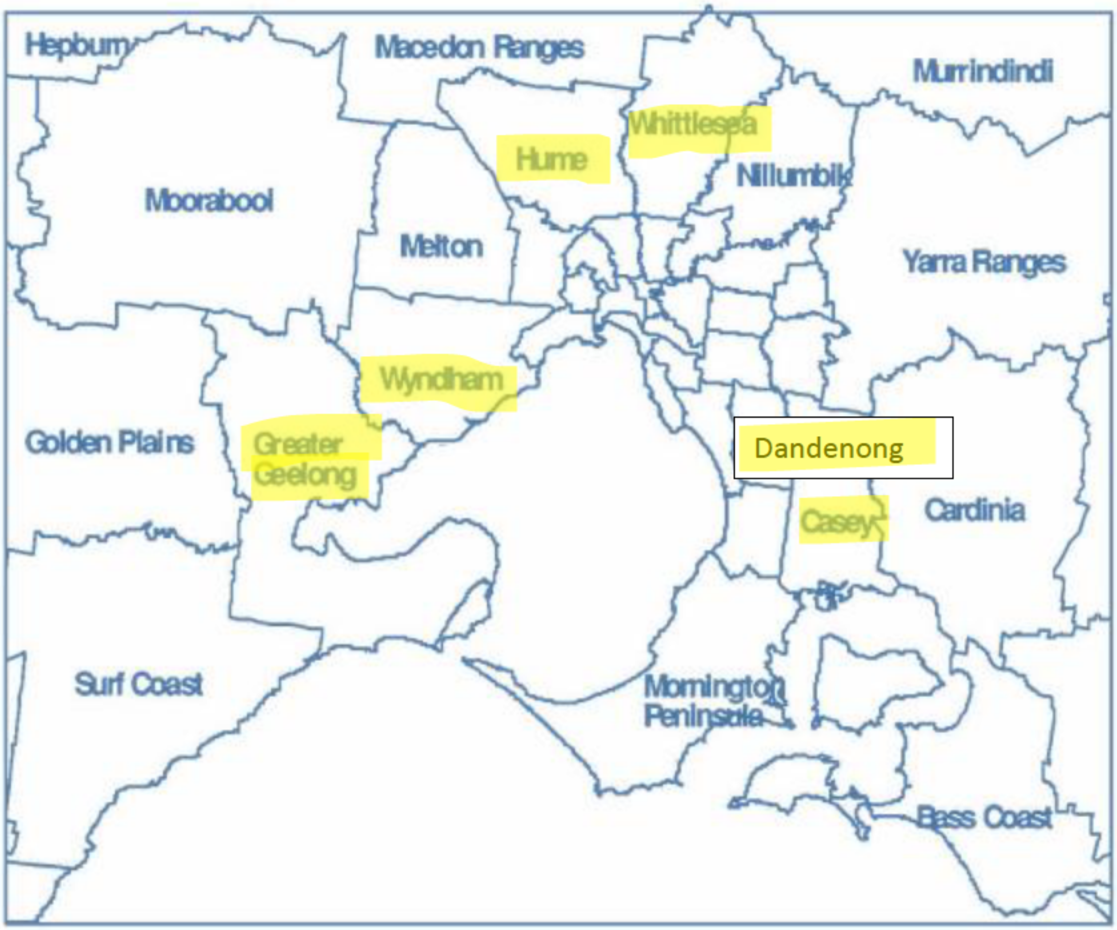
Geelong has a mixed socioeconomic profile, featuring affluent coastal and city-fringe areas alongside pockets of high disadvantage, particularly in the northern suburbs.

In this context, the introduction of WtE facilities can exacerbate existing inequalities, compounding both environmental and health burdens. This raises important questions about fairness, accountability, and the equitable distribution of environmental risks and benefits.

A failure to explicitly consider these factors within planning and regulatory frameworks risks perpetuating systemic inequities. It is not sufficient to assess facilities solely on technical compliance; there must also be consideration of **who is impacted, and how those impacts are distributed**.

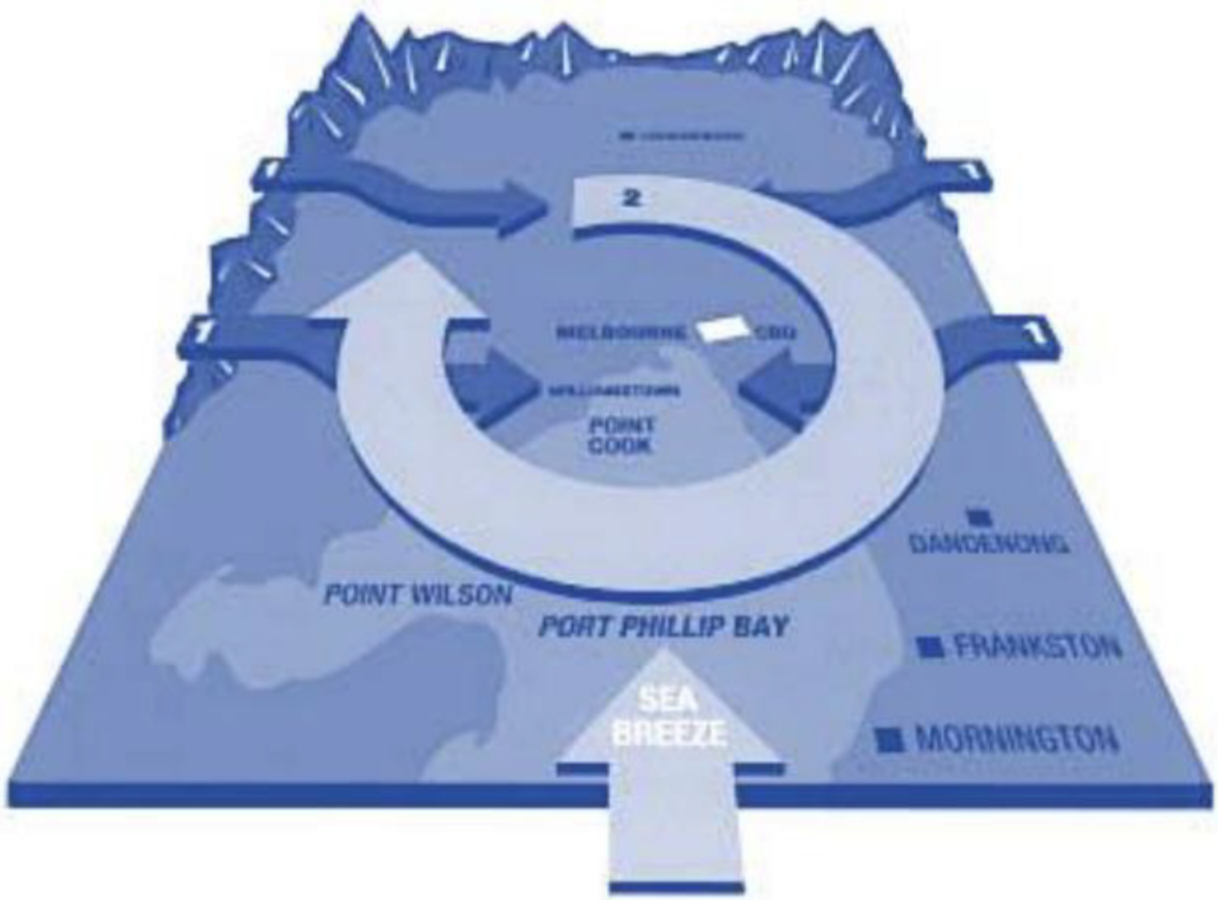
The Committee should therefore consider recommending that environmental justice principles be **formally embedded in WtE decision-making processes**, including requirements for cumulative impact assessments and explicit consideration of socioeconomic factors. This would help ensure that no community is disproportionately burdened by environmental harm.

6 (b) Impacts of siting of WtE facilities in the Port Phillip Air Quality Control Region (PPAQCR)



As explained by EPA Victoria[xxv] : *The Port Phillip Air Quality Control Region (PPAQCR) - as shown above, is defined in the area spanning 171km east-west and 141km north-south covering greater Melbourne. PPAQCR also corresponds with a common regional scale topography that can lead to the clockwise circulation of winds that can occur in Melbourne leading to a build-up of pollution levels, known as the* ***Melbourne or 'Spillane' Eddy*** *- as shown below, that forms to the south of the Great Dividing Range under certain weather patterns. Under a special set of meteorological conditions, air flowing from the north-east is funnelled by mountains to the north and east of Port Phillip Bay (labelled 1) creating a circular, horizontal motion of about 100 kilometres in diameter (labelled 2) trapping pollution over the Bay, taking it away from Melbourne. The eddy pushes air pollution out over the Bay and back over Melbourne with afternoon sea breezes.*

The Melbourne Eddy



We submit that the emissions from the current planned WtE facilities located within the PPAQCR will have impacts on a broad high density population, and that this will further exacerbate the cumulative impact on public health.

7. COMMUNITY CONSULTATION & ACCESS TO INDEPENDENT EXPERTISE

Community Consultation

Effective community consultation is a critical component of legitimate and equitable decision-making; however, current approaches to consultation on waste-to-energy (WtE) proposals are often inadequate.

Communities frequently report limited access to **clear, independent information** about the health and environmental risks associated with WtE. Consultation processes are often conducted after key decisions have effectively been made, reducing opportunities for meaningful input and undermining trust.

In addition, there is typically an **imbalance in access to expertise**. Proponents are able to draw on technical consultants and detailed modelling, while communities may lack the resources to independently assess or challenge these claims. This creates a **structural inequity** within the consultation process.

Independent Expert Consultation

For consultation to be meaningful, it must be early, transparent, and supported by access to independent expertise. Communities should be provided with clear, accessible information about risks - not just regulatory compliance - and given genuine opportunities to influence outcomes.

In this context, it is important to consider the independence of expert advice relied upon in regulatory processes:

> *For example, EPA Victoria commissioned a literature review on the health impacts of waste-to-energy emissions from Environmental Risk Sciences (EnRisks)[xxvi], which has been used to inform policy and assessment processes. While such work can provide valuable technical synthesis, concerns arise where advice is sourced from* ***a single consultant*** *and where there is no clear, publicly available* ***disclosure of potential conflicts of interest****. This falls short of contemporary expectations of* ***transparency*** *in public health and environmental governance.*
>
> *The review was peer-reviewed by a single expert, who also does not provide a conflict-of-interest declaration. While the EPA-commissioned review notes that it was independently peer-reviewed, peer review is a mechanism for assessing technical quality rather than independence. Without clear and transparent disclosure of conflicts of interest for both the authors and reviewer, peer review alone cannot provide assurance of independence. Contemporary best practice in*

environmental health assessment requires both independent review and full conflict of interest disclosure to support credibility, transparency and community confidence.

Given EPA Victoria has indicated that this literature review will inform future works approval and licence assessments, as well as the design of monitoring programs for waste-to-energy facilities across the state, the implications of this work extend well beyond a single project or decision. This places a heightened responsibility on the EPA to ensure that the review has been developed through a demonstrably rigorous, transparent and independent process. In such contexts, ***best practice would include clear conflict of interest disclosures, the use of multiple independent experts or peer reviewers, and robust quality assurance processes.***

In circumstances where an expert or firm may have existing or prior engagements with industry stakeholders, the absence of transparent disclosure and independent oversight can reasonably give rise to perceptions of bias. This risks undermining community confidence in both the evidence base and the integrity of decision-making. It reinforces the need for ***strengthened consultation frameworks, including clear conflict of interest disclosure requirements, the use of multiple independent experts, and access to genuinely independent technical advice for affected communities.***

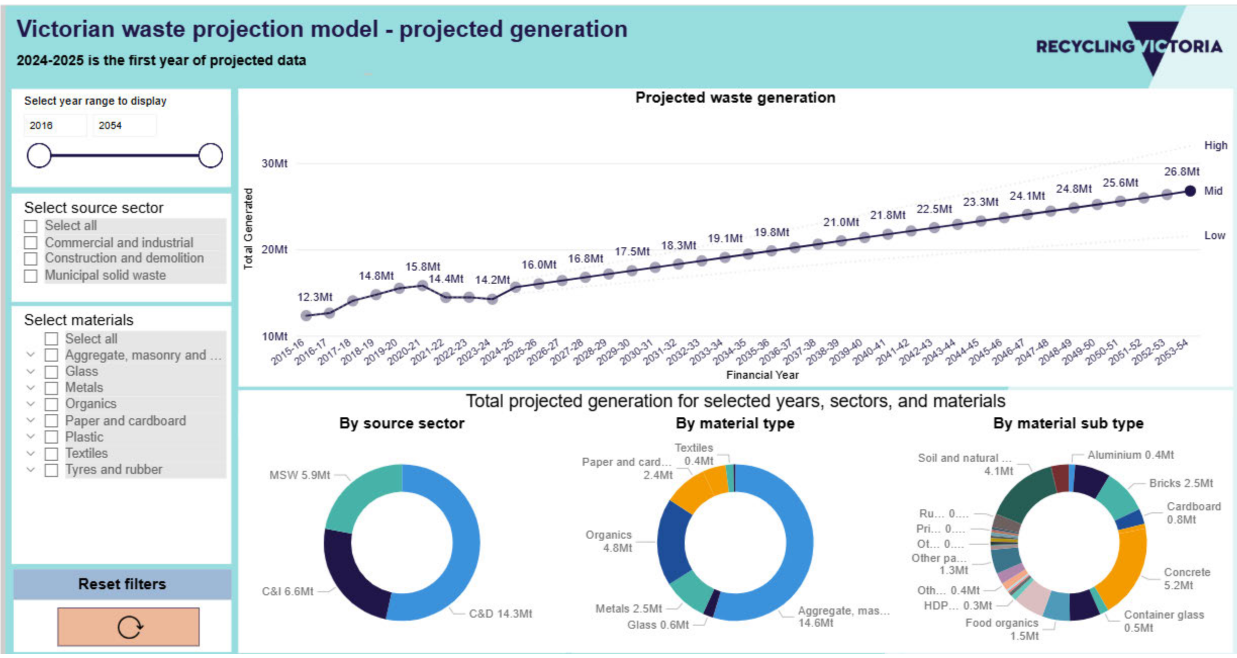
The Committee should therefore consider recommending strengthened consultation requirements, including provisions for independent expert support for communities, and minimum standards for transparency and engagement.

8. ALTERNATIVE WASTE MANAGEMENT APPROACHES AND EMERGING TECHNOLOGIES

Victoria is facing a genuine and pressing challenge in relation to landfill capacity, driven by continued population growth and increasing waste generation. At the same time, the state has committed to ambitious circular economy and climate objectives, including **targets to divert 80% of waste from landfill, reduce per capita waste generation, and significantly cut organic waste to landfill.**

In this context, the policy question is not whether Victoria requires alternatives to landfill - it clearly does - but rather **which combination of approaches can reduce landfill dependence while preserving materials at their highest value and minimising environmental harm**. The evidence suggests that no single technology can replace landfill. Instead, a **portfolio of complementary approaches**, aligned with circular economy principles, provides the most effective and sustainable pathway forward.

We fully acknowledge Victoria has a landfill problem. The state's own waste projection dashboard[xxvii] sees waste generation on an upwards trajectory projected out to 2053–54 (see below), and the latest VRIP progress report says residual waste disposal capacity remains a challenge.



At the same time, Victoria's climate and circular-economy settings are pushing in the opposite direction: divert 80% of waste from landfill by 2030, cut per-capita waste generation by 15%, halve organics to landfill, and ensure all households have access to food and garden organics services or local composting by 2030. That means the real policy question is not "landfill or incineration?" but "what combination of measures reduces landfill dependence while preserving materials at their highest value?"

The 2020 inquiry and the government response already point in that direction: kerbside reform, separate glass collection (though we acknowledge that local councils are currently advocating against this due to cost, and favouring expansion of the Container Deposit Scheme), container deposits, FOGO, product stewardship, repair and reuse, improved data, better market development, and planning for the right mix of infrastructure. Even the government's response to the 2020 inquiry[xxviii] framed waste-to-energy as something to be considered only after valuable recyclables are removed: *"Recycling Victoria contains measures to ensure that we* *reduce, reuse and recycle waste in the first place before we resort to energy recovery"* - and said biological treatments such as anaerobic digestion would be particularly needed as organics recovery grows. In other words, the policy architecture already implies that the best landfill alternative is a layered circular system, not simply more combustion capacity.

8.1 Recycling Resources from Waste – WE NEED TO DO MORE

In 2020 the Victorian Government introduced *Recycling Victoria: A new economy (the circular economy policy)*.[xxix] This 10-year policy and action plan aims to reduce waste, increase recycling and transition Victoria to a circular economy.

The VAGO 2025 audit report[xxx] on Department of Energy, Environment and Climate Action shows:

✅ The agencies are on track to deliver the target for every Victorian household to have access to a food organics and garden organics waste service by 2030. This progress has helped to increase household organic waste recovery.

❌ **They are not on track to deliver the target to divert 80 per cent of waste going to landfill by 2030. The proportion of waste going to landfill has not changed in the 4 years since the circular economy policy started.**

❌ It is also not clear if the government is on track to halve the amount of organic material that goes to landfill. Although data shows much organic material is recovered from landfill, the department does not have accurate data to fully understand how much organic waste still goes to landfill.

We need more ambitious targets and actions to divert waste from landfill.

8.2 Waste avoidance and reduction as a core capacity strategy

The most direct way to relieve pressure on landfill infrastructure is to reduce the total volume of waste generated. Victoria's own policy settings recognise this, with targets to reduce waste generation per person and to embed circular economy principles across production and consumption systems.

Waste avoidance measures, including **packaging reduction, procurement reform, product redesign, reuse systems, and extended producer responsibility**, should be understood not as peripheral initiatives, but as **core infrastructure strategies**. Every tonne of waste avoided is a tonne that does not require collection, transport, processing, combustion, or disposal. In this sense, waste reduction directly contributes to landfill capacity management while also reducing emissions and system costs.

8.3 Organics diversion and processing as a major alternative pathway

Organic waste represents one of the largest and most impactful components of the residual waste stream currently sent to landfill. When landfilled, organic material generates methane, a potent greenhouse gas, and contributes significantly to the waste sector's emissions profile.

Victoria's strategy to expand Food and Garden Organics (FOGO) services and achieve widespread access to organics collection reflects the importance of this stream. Diverting organics from landfill through composting and anaerobic digestion delivers multiple benefits:

- Reduces landfill volumes
- Cuts methane emissions
- Supports soil health and agricultural productivity
- Enables low-emissions energy generation in the case of anaerobic digestion

Importantly, these pathways are consistent with circular economy principles, as they **retain value within biological systems**, rather than destroying it through combustion.

Anaerobic digestion as a more aligned "energy from waste" pathway

Where energy recovery is considered appropriate, anaerobic digestion represents a more circular alternative to thermal WtE, particularly for **source-separated organic waste streams**.

Unlike incineration, anaerobic digestion depends on clean, separated feedstock and therefore reinforces upstream sorting and contamination reduction. It produces biogas, which can be used for energy, and digestate, which can be returned to soil where appropriate.

While not without its own challenges, anaerobic digestion aligns more closely with circular economy objectives because it **supports material recovery and nutrient cycling**, rather than relying on mixed-waste combustion.

8.4 Strengthening sorting, recycling and materials recovery systems

Victoria already has a base of recycling and reprocessing infrastructure across multiple material streams, including construction and demolition waste, plastics, metals, glass, and e-waste. However, the effectiveness of these systems depends on continued investment, system resilience, and contamination reduction.

Improved sorting and materials recovery represent a critical alternative to both landfill and WtE. Enhancements may include:

- Strengthening materials recovery facilities (MRFs)
- Improving regional infrastructure and access
- Supporting precinct-based aggregation and logistics
- Developing domestic markets for recovered materials

Where recycling systems are weakened, for example, through the loss of regional MRF capacity, pressure shifts toward disposal pathways. Conversely, strengthening recovery systems reduces reliance on both landfill and thermal treatment.

(a) Construction and demolition waste recovery

Construction and **demolition (C&D) waste represents a significant proportion of total waste volumes and offers substantial opportunities for recovery.** Materials such as concrete, brick, asphalt, metals, and timber can often be recovered at high rates when effective source separation and processing systems are in place.

The latest available data from DEECA[xxxi] shows C&D in Victoria is the largest waste by weight component sent to landfill.

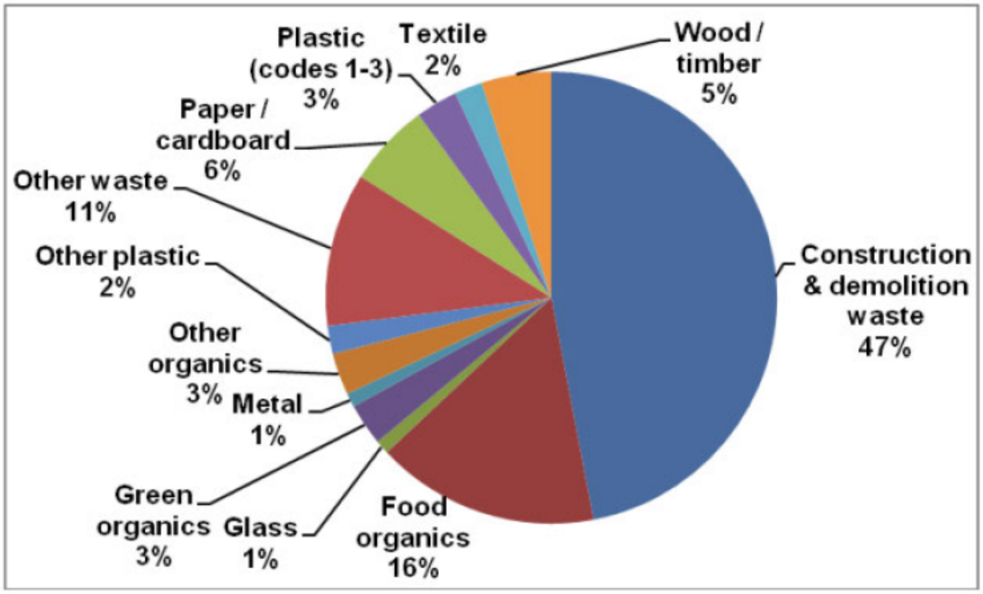
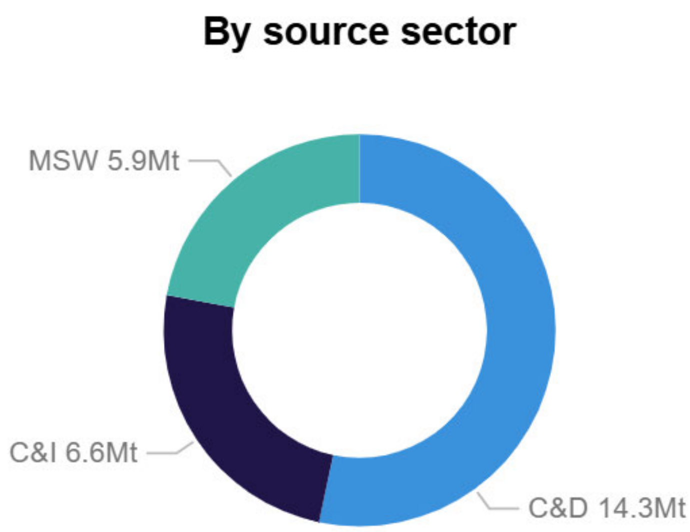


Figure 10-4 Composition of waste to landfill in Victoria by weight (2005, 2008)

And (below) Victoria's projections to 2054 show the C&D sector still being the largest source of waste generation:



Expanding recovery in this sector can significantly reduce landfill demand without resorting to combustion, while also supporting the use of recycled materials in construction and infrastructure projects. This represents a **high-impact, practical alternative** within the broader waste system.

(b) Kerbside reform, container deposit schemes and source separation

Recent reforms to kerbside collection systems including four-stream services, separate glass collection (we acknowledge council objections[xxxii]), and container deposit schemes, play a crucial role in improving material separation and reducing contamination.

These systems are not ancillary to landfill management; they are central to it. Effective source separation:

- Improves the quality and value of recovered materials
- Reduces contamination in recycling streams
- Shrinks the residual waste fraction requiring disposal

In this way, stronger kerbside systems directly reduce pressure on landfill and diminish the need for alternative disposal technologies.

(c) Product stewardship, repair and reuse

Upstream interventions such as **product stewardship schemes, repair initiatives, and right-to-repair policies** address waste before it is generated.

By extending product lifespans, improving product design, and ensuring responsible end-of-life management, these approaches reduce the volume and complexity of waste entering the system. They are particularly important for complex and hazardous waste streams, including batteries, e-waste, tyres, and solar panels.

From a circular economy perspective, these measures represent **higher-order solutions** than either landfill or WtE, as they prevent materials from becoming waste in the first place.

(d) Transitional measures and landfill management

It is acknowledged that Victoria cannot eliminate residual waste in the short term, and that landfill will continue to play a role during the transition to a more circular system. This necessitates careful planning for:

- Transfer and logistics infrastructure
- Hazardous waste management
- Landfill gas capture and emissions reduction

However, these should be understood as **transitional and supporting measures**, rather than long-term solutions. The focus of policy should remain on reducing the residual waste stream over time.

(e) A systems-based approach to landfill alternatives

The evidence indicates that the most effective response to landfill constraints is not the substitution of one disposal technology for another, but the development of a **systems-based approach** that integrates multiple complementary strategies.

This includes:

- Waste avoidance and reduction
- Organics diversion and processing
- Anaerobic digestion for appropriate streams
- Strengthened recycling and materials recovery
- Product stewardship, reuse, and repair

- Improved kerbside separation and logistics

Together, these approaches reduce landfill dependence while preserving material value, lowering emissions, and supporting a more resilient and sustainable waste system.

CONCLUSION

Victoria's landfill constraints are real, but they do not necessitate a reliance on large-scale thermal WtE infrastructure as the primary solution. The state's existing policy framework and strategic direction already point toward a more comprehensive set of circular alternatives.

The most effective pathway forward is one that **shrinks the residual waste stream**, improves material recovery, and prioritises higher-order solutions in the waste hierarchy. In this context, WtE - if used at all - should be tightly constrained to genuinely residual waste, rather than forming a central pillar of the state's waste management strategy.

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