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Dear Members of the Victorian Parliamentary Inquiry,

Zero Waste Europe welcomes the opportunity to contribute to the Inquiry into waste-to-energy infrastructure in Victoria.

We are concerned that current policy directions risk locking Victoria into a high-emission, resource-destructive form of waste management at a time when global best practice is shifting toward waste prevention, circular economy systems, and climate-aligned residual waste treatment.

Waste incineration is a greenhouse gas-intensive and inefficient technology. It generates significant fossil carbon dioxide emissions due to the combustion of mixed waste streams, particularly plastics, while recovering only a limited share of the energy embedded in materials. Recent CE Delft analysis found that, on average, around 1.11 tonnes of CO_2 are emitted for every tonne of waste incinerated, and for the EU ETS countries assessed the average is about 1.22 tonnes of CO_2 per tonne of waste.

In practice, electricity generation efficiencies are typically low. Zero Waste Europe's assessment of EU incinerators shows that electricity-only facilities commonly operate in the tens to low-20s, with the upper end of gross electricity efficiency only in the mid-20s percent and net efficiency in the low-20s. National examples in the report include Germany at 14.3% gross and 10.9% net electricity efficiency, the Netherlands at about 19.5% gross, and Spain at about 24.1% gross. Even where some facilities perform better, these figures compare poorly with conventional fossil power generation, which the same report notes is around the upper-30s percent for coal and mid-50s for gas.

Reflecting this poor climate performance, several European countries have introduced carbon pricing for incineration, and the European debate has shifted toward bringing municipal waste incineration under emissions trading. CE Delft's 2025 update finds that including incineration in the EU ETS would drive waste prevention, sorting and recycling, and would cut emissions by at least 4 to 7 million tonnes in 2030 and 18 to 32 million tonnes in 2040 within the EU ETS system alone. Those figures are minimum estimates because they exclude wider life-cycle reductions outside Scope 1, including avoided virgin plastic production.

Crucially, incineration does not eliminate waste. It transforms it into large volumes of solid residues. Zero Waste Europe's EU residues report estimates that, across all wastes, incineration and combustion generate between 23.7 and 28.1 million tonnes of bottom ash and between 4.8 and 5.1 million tonnes of air pollution control residues each year, for a total of 28.7 to 32.9 million tonnes of residues annually. Of this, between 11.3 and 16.7 million tonnes are estimated to be landfilled. For municipal waste incineration alone, the report estimates around 12.5 million tonnes of bottom ash and around 2 million tonnes of air pollution control residues annually, with around 6.5 million tonnes landfilled.

These residues contain toxic substances, including heavy metals and persistent organic pollutants, which can leach into soils and water and pose long-term risks to ecosystems and human health. The Toxic Fallout report finds that modern incinerator bottom ash contains appreciable quantities of toxic elements and persistent organic pollutants, and warns that these substances can leach from bottom ash into surrounding environments over

time. It also notes that many substances present in bottom ash are of high concern under EU REACH, including arsenic, cadmium, chromium, copper, lead, mercury, nickel, antimony and zinc.

Recent European evidence also links waste incinerators to toxic contamination in surrounding environments, including soils and vegetation, raising serious concerns about cumulative impacts on communities living near these facilities:

The proposed development of large-scale incineration capacity in Victoria -under a cap of 2.5 million tonnes per year, with multiple facilities each exceeding 700,000 tonnes- raises fundamental questions about overcapacity and long-term lock-in. Such infrastructure requires a guaranteed and continuous feedstock of waste over decades, creating structural disincentives for waste reduction, reuse, recycling, and the separate collection of organics.

This is particularly problematic in the context of policies to expand food and organic waste diversion. Incineration competes directly with these efforts by requiring combustible material, undermining investments in composting, biowaste treatment, and circular economy systems.

From a regulatory and public health perspective, the generation of hazardous residues and the risks of environmental contamination raise serious questions about long-term liabilities, monitoring, and the adequacy of safeguards for surrounding communities. European evidence shows that air pollution control residues are mostly hazardous in nature, and that even bottom ash, often presented as benign, can contain toxic substances capable of leaching into soil and groundwater if not properly managed.

There are more effective and climate-aligned alternatives available. Advanced residual waste treatment systems- such as Mechanical Recovery and Biological Treatment (MRBT), combined with improved sorting -can significantly reduce environmental impacts. Zero Waste Europe's 2024 analysis concludes that MRBT, by combining additional recovery of recyclables with biostabilisation before landfill, reduces the climate impact of both landfilling and incineration, avoids fossil-derived CO_2 emissions from combustion, and can outperform incineration in all years when methane generation is largely eliminated through prior biological treatment. The report also notes that roughly 200 kg of additional material per tonne of leftover mixed waste can be extracted for recycling through leftover mixed waste sorting.

These approaches stabilise waste prior to landfilling, minimise methane generation, avoid fossil carbon emissions from combustion, and increase material recovery. They are more consistent with circular economy principles and reduce both climate and pollution impacts.

In light of the above, Zero Waste Europe urges the Inquiry to critically assess whether expanding waste incineration capacity is compatible with Victoria's climate targets, circular economy commitments, and public health responsibilities.

The evidence indicates that incineration is a high-emission, low-efficiency technology that generates hazardous by-products, leaves behind millions of tonnes of toxic residues, and risks locking the state into outdated waste management practices. Policy should instead prioritise waste prevention, reuse, recycling, separate collection of organics, and improved residual waste treatment systems such as MRBT that deliver better environmental, social, and economic outcomes.

We remain at your disposal for any further information.

Yours sincerely,

Zero Waste Europe