Submission
No 271

INQUIRY INTO PROPOSED ENERGY FROM WASTE FACILITIES

Organisation: Toxics Free Australia

Date Received: 31 October 2025

Toxics Free Australia

Submission to the NSW Select Committee on Proposed Energy from Waste Facilities

Contact: Ms Jane Bremmer
Chair, Toxics Free Australia

Toxics Free Australia (TFA) is a not for profit, non-government organization (NGO) working for pollution elimination, protection of environmental health and environmental justice for all. Established in 2024 after the retirement of the National Toxics Network (and their 30 year history of environmental justice advocacy and research in Australia), TFA is a member of the International Pollution Elimination Network (IPEN) and is committed to a toxics free future.
As TFA's chair, Jane Bremmer also coordinates the Zero Waste Australia campaign, has participated in more than 10 years of civil society representation on the Federal Governments Industrial Chemicals regulatory committee, and works with a number of national and international organisations to support the objectives of a range of International Conventions, including the Stockholm, Basel and Rotterdam conventions as well as the Global Treaty on Plastic.

TERMS OF REFERENCE

(1) That a select committee be established to inquire into and report on proposed energy from waste facilities, and in particular:

(a) the performance of the technologies proposed for the Tarago and Parkes Energy Recovery Facilities as compared to leading thermal technologies employed in "state of the art" facilities internationally, noting such technologies as proposed are not employed anywhere else on the Eastern seaboard

(b) the spread of the emissions predicted and the quality of emissions to be generated

(c) health impacts from currently operating older technology waste incinerators as compared to the proposed newer technology

(d) impacts on human health including on regional town drinking water, rainwater harvesting and soil contamination

(e) the impact on agriculture locally and across the wider region

(f) alterations to the Parkes Special Activation Precinct specifically in relation to the proposed Energy Recovery Facility in that region

(g) impacts of waste-dumping over a number of decades in the Tarago region

(h) the methodology of emission monitoring employed by leading large scale waste-to-energy facilities in Australia and across the world

(i) alternative solutions to reduce and manage residual waste produced by Greater Sydney, and

(j) any other related matters.

1. The operational performance of waste incinerators proposed for Tarago, Parkes and other nominated NSW regions and locations.

The technology proposed for Tarago and Parkes is a moving grate mass combustion technology. This technology is the preferred waste incineration technology around the world. However, claims of "world's best practice" or "state of the art" technology are simply promotional semantics of the waste incineration industry. The fact remains that these technologies have been operating for decades in Europe and around the world. There is nothing new about the technology. The only new part of any mass combustion waste incinerator relates to the Air Pollution Control (APC) systems which have been required to be constantly upgraded to address the increasing evidence of toxic air pollution.

Our latest report Waste Incineration and the Environment explores these claims and the actual operational performance of waste incineration around the world. It finds that waste incineration is in fact driving the triple planetary crisis.

On the claims that “state of the art” waste incinerators exist and operate to pollution free standards, our report finds:

“Waste incineration facilities are not a cutting-edge technology” or “equipment with safe filters, as is sometimes claimed because they are associated with numerous negative impacts, as discussed in Chapter 3.5.3. This is related to the fact that proponents of incineration plants often respond to pollution-related questions by claiming that ”emissions” into the air are under control in the latest generation of ‘ ”most modern waste incineration plants. ” Behind their claims lie three unsubstantiated assumptions: Firstly, that there are acceptable emission levels for all pollutants emitted by incineration plants (see Chapters 3.1.6 and 5.1.1.1); secondly, that incineration plant emissions into the air are now precisely measured (see Chapter 3.5.3 and 3.1.1.1); and thirdly, that if emissions are measured, they fall within limits currently defined as “acceptable ” (see 3.5.5, etc.).

Indeed, the history of waste incineration regulation in Europe demonstrates that over time the regulation of incineration has had to change and account for the serious air pollution (i.e. dioxins) that waste incinerators released for many years with impunity. In 2006 the EU Commission amended the EU Waste Incineration Directive’s Best Available Technology Reference document (EU BREF et al 2006) to address the fact that the industry had been releasing dangerous levels of dioxins. Incinerators now require Advanced Pollution Control units which represent a significant and major cost to new and existing operations to control (but not eliminate) their toxic and hazardous air emissions and residues. While these new regulations are often quoted by the industry to expand and develop in many other countries (particularly in the global south) as evidence that they are now safe and non-polluting, by utilizing these ‘modern high technology’ advanced air pollution control units, the following chapters in this report reflect a different reality.”

Our opinion is that claims of “state of the art” or “best practice technology”, relates solely to the increasing upgrades of Air Pollution Control systems needed to control their pollution and not the technology itself or its business model. It is expected that the APC systems will continue to be upgraded, demonstrating the difficult nature of regulating a technology that emits the most complex and dangerous range of pollutants of any combustion industry due to the fact that incinerating residual wastes involves the full spectrum of materials in commerce, including glues, paints, adhesives, composite materials, inks and thousands of complex chemical mixture’s that have the potential to reform into novel entities.

2. The true operational performance of "Best Practice" waste to energy incinerators.

2a. Greenwashing in Australia.

While the global waste incinerator lobby promotes itself as a proven and effective way to make energy and manage waste, in Australia the degree of industry greenwash, seemingly allowed to be promoted through regulatory agencies, the media and all levels of government, has been astounding. I attach our submission to the federal Greenwash Inquiry where we highlight the extent of waste incineration greenwashing in Australia. This includes factsheets from the NSW government comparing the emissions of waste incinerators with leaf blowers. This is deliberately misleading and seriously concerning behaviour for any regulatory agency. The truth is that the emissions from the waste to energy incinerator sector are so serious that they are referred to in at least 3 UN Conventions. The UN Stockholm Convention identifies waste incineration as a prime source of persistent organic pollutants (POPs) such as Dioxin for which there is no safe level of exposure. The Minamata Convention identifies waste incinerators as being in the top 5 sources of Mercury pollution globally and the Basel Convention identifies waste incinerators as prime sources of hazardous waste generation (ie toxic ash that meets intl hazardous waste classification). Australia is a signatory to these conventions and therefore obliged to uphold their decisions to reduce and eliminate these sources of globally recognised toxic pollution.

2b. The true operational performance of "best practice" waste incinerators in Europe and the UK.

Waste incineration is not a safe industry as is often claimed. Even if you could ensure that every incinerator complied with their license conditions 100% of the time, they would still emit dangerous pollution. This is because some of the most dangerous pollution from incinerators is created outside the APC systems and stack. As the "cleaned" emissions exit the stack and cool down, they undergo a process known as the 'De Novo Synthesis', where dioxins reform in the cooling gases. This is one of the very reasons, along with *Other Than Normal Operating Conditions* (OTNOC) events (also known as start-up, shut-down and APC bypass events) why Europe has discovered the True Toxic Toll of waste incineration.

The widespread contamination of the environment by the waste incineration industry in Europe has caused civil society to demand an urgent moratorium on this industry.

In Paris, 12 million people have been prohibited by the French Health authorities from eating their backyard produce as a result of the discovery of widespread dioxin contamination and more recently also PFAS caused by their 'Best Practice' waste incinerator. Following these revelations in Paris of excessive Dioxin emissions and surrounding contamination of the environment, alarmingly they also found PFAS, Dioxin and PAH’s in the dust and air filters of neighbouring schools. Please see attached report which details this evidence: ***PFAS, Dioxins and PAH in Primary School Air Filters, Ivry-sur-Seine (suburb of Paris, France), 2024 – 2025. Toxicowatch.***

Similar scenarios were found in the Netherlands where the local municipality immediately placed a moratorium on the industry. You can find more on the biomonitoring projects conducted by Toxicowatch in Europe here. The evidence generated by Toxicowatch is free of industry and regulatory bias and demonstrates widespread Dioxin, PFAS, heavy metal and other contamination of the environment within 15kms of waste incinerators.

In the UK – home to Veolia and the many incinerator plant references they promote – the story is just as alarming and more damning.

The true operational performance of the waste incinerator sector in the UK is a story of endless breaches of emissions limits and non-compliance. Yet Veolia continue to claim that their operations emit only clean air, steam and a bit of particulate matter, scandalously promoted by state regulators.

The reference plant for Tarago – the Staffordshire plant – publishes its daily average (and monthly) emissions limits. https://www.staffordshire.veolia.co.uk/w2r-staffordshire-energy-recovery-facility/w2r-emissions-air-data

This data shows that despite averaging, the levels of hydrogen chloride, sulphur dioxide and oxides of nitrogen remain high. This is highly suggestive that the true emissions that the surrounding community will be exposed to are much higher than these averaged samples. People are not exposed to “averaged data” but to whatever is in the air at the time of exposure. If the averaged figures are so high, then the raw data must contain emissions recorded at much higher levels. This fact correlates with the regulatory non-compliance reports of many incinerators in the UK that are breaching their nitrogen oxide emissions limits and points to a serious pollution problem that this industry is unable to control.

The UKWIN – a civil society environmental justice organisation in the UK- - have long been documenting the non-compliance and regular emissions breaches that this industry is causing in the UK which include many Veolia plants.

The ongoing non-compliant operations of the waste incineration industry is increasingly being reported publicly.

1. http://www.merton.tv/incinerator-breaches/ (details 78 incidents of non-compliance 2019 – 2025)
2. https://insidecroydon.com/2025/08/27/polluting-viridor-exposed-over-nearly-1000-licence-breaches/ (details nearly 1000 breaches)
3. https://www.bbc.com/news/articles/c627evk7yrzo

4. https://observer.co.uk/news/national/article/toxic-fumes-from-waste-incinerators-breach-legal-limits-emissions (across the UK) *"The network of 53 incinerators in England breached their environmental permits 352 times last year. Annual performance documents obtained under freedom of information laws reveal that some incinerators were in violation of their permits more than 30 times in just one year."*
5. https://ukwin.org.uk/incinerators/library/Hull/237 (even plants using RDF – which is residual waste processed into a fuel – have significant emissions breaches as a result).
6. https://ukwin.org.uk/facts/ The carbon pollution especially is high with civil society paying significantly for these costs.

More on the UK's waste incineration non compliance over a decade can be found here and the adverse impact of waste incineration on UK's recycling sector here.

2c. Non-Compliance in the US.

The Energy Justice Network has long documented the non-compliance, climate, environment and health impacts of waste incineration in the US. Attached to this submission is a good analysis by EJN of the claims made by US incinerator proponents about expected emissions, compliance and safety.

Please see:

Quantitative Analysis of Projected Emissions from Proposed Miami-Dade County Trash Incinerator, *An Evaluation of Miami-Dade County's Claims that a New 4,000 Ton/Day Mass Burn Incinerator will Result in No Unacceptable Pollution Impacts, January 24, 2025*.

3. The impact of waste incineration emissions on the environment and implications for the agricultural sector.

Waste incinerators emit a range of toxic and hazardous pollutants to the atmosphere and also into the ashes and wastewater produced. Please see chapter 3 of our report, Waste Incineration and the Environment which details these emissions and provides the EU and US current emissions limits in tables for the range of pollutants that are covered by the EU BREF and WID.

Unfortunately, there are a range of significant pollutants known to be emitted from waste incinerators for which there are no regulatory standards or APC methods to capture. PFAS is known to be emitted to the air and found also in the APC residues and bottom ash especially. This is significant in that that Veolia and other incinerator proponents claim to simply reuse this bottom ash in construction materials. This will be a direct pathway to widespread PFAS contamination in the environment as has occurred in the Netherlands and other cities in Europe.

The quantities and fate of EU incinerator residues can found here and demonstrate that industry proponents (and some gov regulators) are deliberately downplaying the real volumes of this hazardous waste and its toxicity. This is a significant and underestimated hazardous waste stream that the NSW government currently has no regulatory framework for. It also demonstrates that waste incinerators do not eliminate landfill…they create hazardous waste landfills. The Basel Convention identifies waste incineration ash as a hazardous waste requiring specific regulatory oversight. It does not support the dilution of ash residues through cementation or other chemical/polymer treatments as is being promoted by the incinerator industry in Australia as a solution to their ash waste problem. The Australian government urgently needs to uphold the Basel Convention to protect the Australian environment and human health from waste incinerator ash.

In addition to the absence of regulatory controls for PFAS, Brominated Dioxins have also been identified as a major persistent organic pollutant found in the emissions and ash. There are currently no regulatory controls for brominated dioxins in the emissions or ash of waste incinerators.

Micro and Nano plastics are also known to be emitted from waste incinerators and again these dangerous pollutants have no regulatory controls for their emissions to air or deposition in the ash residues.

Thes significant pollutants of global concern cannot be ignored by government regulators. To accept that these pollutants are emitted from waste incinerators with no regulatory controls and despite this, open up the whole of NSW to this industry, is reckless.

You can find more on the toxicity and dangers of waste incineration ash in chapter 3.3 of our report Waste Incineration and the Environment. More reports and evidence can be found about the incompatibility of using waste incinerator ash in the Circular Economy-

1. https://ipen.org/news/toxic-ash-poisons-our-food-chain
2. https://www.researchgate.net/publication/314458332_After_Incineration_The_Toxic_Ash_Problem
3. https://zerowasteeurope.eu/library/toxic-fallout-waste-incinerator-bottom-ash-in-a-circular-economy/

4. Health impacts of waste incineration

As detailed above, waste incinerator emissions to air and ash residues pose significant health and environmental impacts. The evidence in Europe of the widespread Dioxin, PFAS and heavy metal contamination of eggs, meat, dairy, soils, moss, vegetation and waterways, as well as the evidence of pollution in of the air and indoor environments of schools within the vicinity of largescale best practice waste incinerators in Paris, demonstrates that this industry inherently comes with serious pollution that will imperil the environment and livelihoods of farmers and the agricultural industry. This will bring significant trade risks for Australia's meat, dairy and poultry industry especially, as Dioxin is lipophilic and attaches to fats.

The Public Health Association of Australia has twice reported on the waste incineration industry. Firstly, in a systematic review of the health impacts and secondly through an economic, environmental, and socio-political framework. The PHAA systematic health review found adverse health outcomes associated with waste incinerators, including increased adverse reproductive outcomes, neoplasia, congenital abnormalities, pre-term delivery, increased bowel cancer risk, soft tissue sarcoma and increased Non-Hodgkin Lymphoma. PHAA reports that, *"New incinerators should be located away from areas of food production"*, and that, "*Food grown near an incinerator should be avoided."* The review concludes that, "*While the results were not consistent across the literature, based on a precautionary principle there is insufficient evidence to conclude that any incinerator is safe."*

The second PHAA and Australian National University review found that, *"The transition to a circular economy with renewables-derived electricity attenuates the benefits of WtE-I. This, combined with grassroots opposition to WtE-I and its violations of social justice, renders future WtE-I projects unjustifiable. Public health practitioners need to promote primary waste reduction, recycling/composting, and other non-incinerator waste management practices in Australia."*

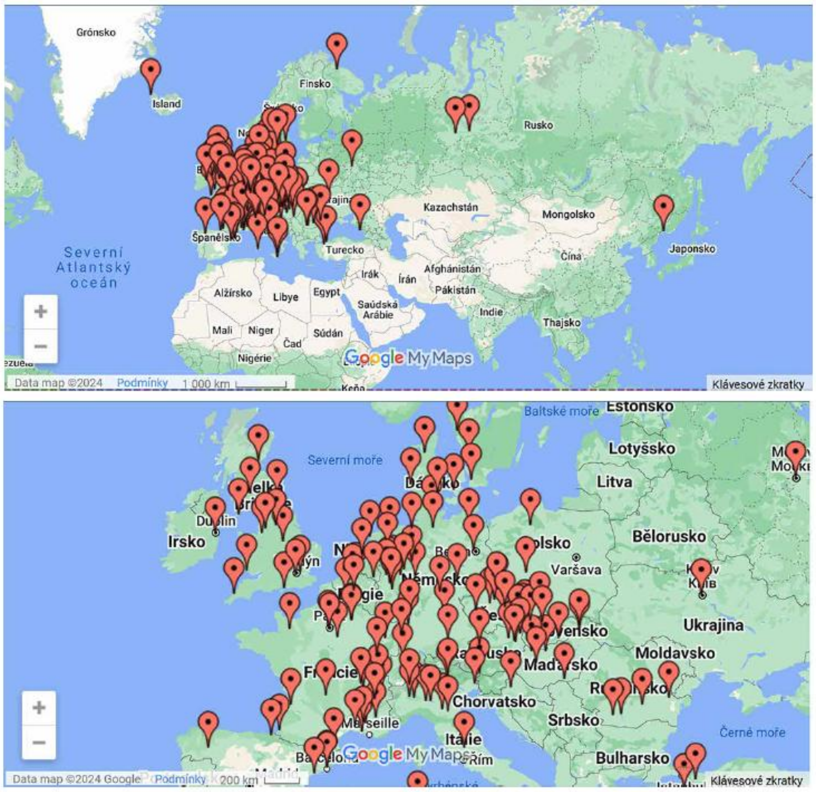
You can find more evidence and references to the public health impacts of waste incinerators in chapter 6 of our report Waste Incineration and the Environment.

5. The threat of fires and explosions.

In addition to the environment and health impacts of waste incinerator emissions and discharges, this industry is known to be associated with significant fires and explosions. This represents a unique and dangerous scenario for any host community.

The high volumes of plastic waste and the complete unknowns of "residual waste" make waste incinerator fires particularly hazardous. Our materials production systems are increasingly embedded with petrochemicals, plastics and electronic wastes containing toxic components, including batteries. When these burn uncontrolled in largescale waste incinerator fires, deadly pollution is generated.

European civil society organisations like Arnika have long documented fires and explosions in the waste incinerator sector. This evidence is alarming and shows that this is an industry prone to fires and explosions. Yet the NSW government and waste incinerator industry continue to ignore this issue or provide any regulatory framework to reduce the risk and address the emergency response needs. Please see chapter 7 of our report Waste Incineration and the Environment which provides extensive evidence of the harm waste incinerator fires are causing all over the world, especially in Europe.



Figures 7.5 and 7.6: *Screenshots of the map on Arnika's website with Google map showing waste incineration accident cases across Europe. This map is available also in English on Arnika's English website (https://arnika.org/en/our-topics/waste-plastics/incinerator-accidents-in-european-countries) (Source: Arnika 2022).*

The Accidents | 179

6. Waste Incineration and climate impacts.

The waste incinerator industry highly promotes itself as a solution to the climate pollution caused by landfills and poor waste management. However, the EU Commission's own BAT reference document say otherwise:

The energy production of waste-to-energy incinerators is low, according to the Best Available Techniques (BAT) Reference Document for Waste Incineration. It states that, *"the waste to electricity efficiency is very low, at η ≤ 0.3, essentially meaning that at* *least 70% of the chemical functionality in waste is lost in the process of 'converting to cinders' (Neuwahl et al., 2019)."*

See *Van Neuwahl et al., 2019, chapter 3, 3.5 Energy consumption and production.*

In addition, published studies demonstrate that waste incineration is the highest carbon polluting energy source.

In Europe the high carbon pollution contribution of waste incinerators caused the EU Commission to remove all renewable energy subsidies for this sector in their Sustainable Finance Taxonomy, placing this industry in the same category as coal and nuclear. The EU is also considering including waste incineration in their Emissions Trading Scheme.

Please see chapter 4 of our report on waste incineration and the planetary ecosystem which demonstrates that waste incineration is driving the Triple Planetary crisis including climate change.

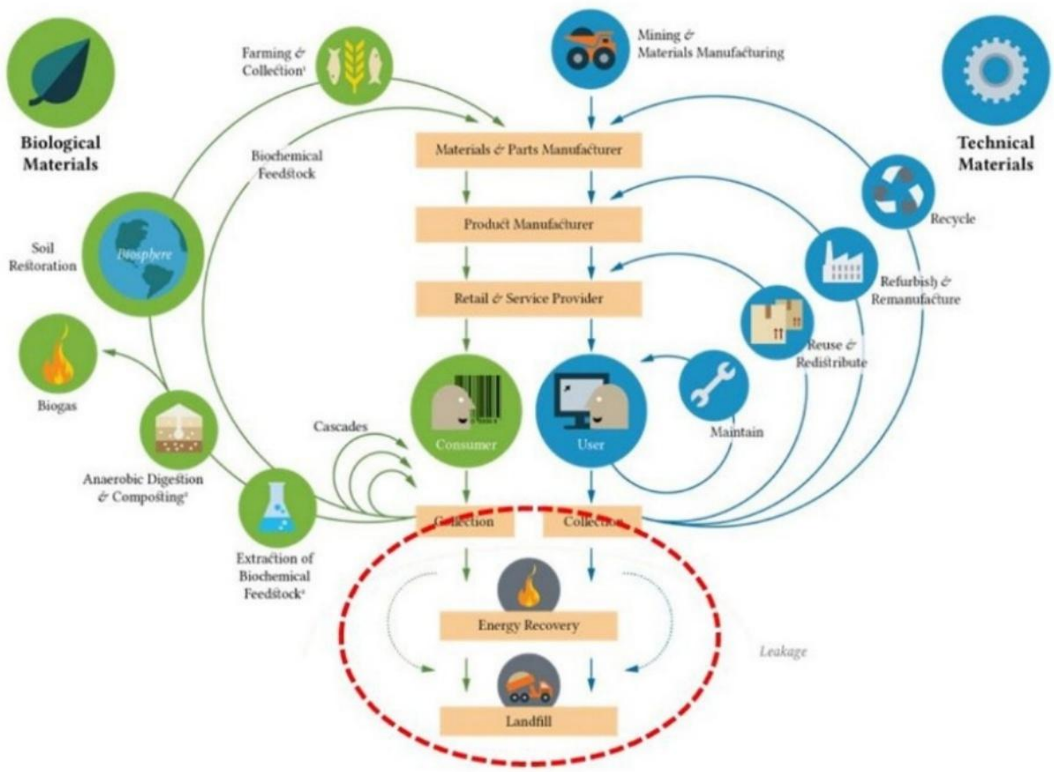
You can read more on the climate impacts of European waste incinerator here.

7. Solutions

Waste incinerators are heavily promoted in Australia as an essential and pragmatic part of a sustainable waste management system and Circular Economy.

We vehemently reject this claim based on:

1. Waste incineration is a linear process. Once the waste resources are burnt for negligible amounts of energy, they are lost to the atmosphere as climate and toxic air pollution and hazardous waste ash permanently. These finite resources will never be retrieved. Hazardous waste ash should never be reused or recirculated into the Circular Economy due to its significant chemical toxicity and the potential for widespread and permanent contamination of the environment. Global Circular Economy experts, The Ellen MacArthur Foundation confirm that waste incineration is leakage from the Circular Economy.



Reference: https://www.ellenmacarthurfoundation.org/towards-a-circular-economy-business-rationale-for-an-accelerated-transition

2. Residual waste represents our entire material production systems, reflecting back to us the design failures that have caused these materials and finite resources to end up in the residual (disposal) waste stream. Yet there is a direct correlation between how much residual waste we generate and how we collect, and source separate our waste. Australia's waste management system has been designed by and for the waste disposal sector, at the expense of the sustainable zero waste sector.

   Australia generates significant volumes of residual waste simply through a lack of waste collection services, a lack of waste sorting infrastructure and an over investment in waste disposal infrastructure. Residual waste bins are promoted in public places and at events, and businesses and industries still do not have to separate their waste streams. The Construction and Demolition sector and the Commercial and Industrial sector, as such drive large volumes of residual waste simply through the use of mixed waste skip bins and other large residual waste bins, which lead to the contamination of the entire waste stream and prevention of more sustainable waste outcomes.

   Municipal residual waste audits show that 60-70% of residual waste is actually compostable, reusable or recyclable. Humanity is currently using the finite resources on our planet as if we had another four planets worth available to us.

Therefore, there is an urgent ethical imperative to preserve what we have, keep our waste streams clean and uncontaminated so that they can contribute to a safe, toxic free and regenerative circular economy.

3. There are safer, more effective ways to manage our residual waste and achieve a circular economy than investing in the most expensive and polluting way to make energy or manage waste. Zero Waste city models are growing globally, with Europe and the Asia Pacific region, leading the charge. The Zero Waste model prioritises upholding the waste hierarchy and investing in robust, dedicated waste collection and source separation services that create clean waste streams for composting, recycling and reuse. You can find more on Zero Waste city models here.

8. Recommendations

We recommend that the NSW government invests in sustainable Zero Waste infrastructure as opposed to the current NSW Waste and Circular Economy Infrastructure plan which invests in waste disposal technologies and infrastructure such as Waste Transfer Stations – which merely bales residual waste prior to export for disposal. This plan represents an investment in a single waste disposal technology – waste incinerators – at the expense of the many more technologies, services and industries that support more sustainable waste management outcomes. In effect, this plan is anti-competitive and locks in a single technology when Europe and the US are diversifying and investing in Advanced Waste Sorting to reduce reliance on waste disposal, reduce climate pollution and the associated toxic air pollution and ash and meet their countries ambitions for a true circular economy.

We recommend that the NSW government invests in:

1. Mechanical Recovery Biological Treatment - for both residual waste treatment prior to landfill/storage, and as a way to generate energy. More here and attached.

2. Advanced Waste Sorting - is the direction that Nordic countries are now taking after overly investing in waste incineration….this is how they will reduce residual waste and avoid incineration. More here and here

3. Non combustion technologies can safely dispose of both residual wastes and hazardous wastes, while also generating energy. Australia urgently needs this technology to safely manage the fastest growing waste stream - hazardous waste. Australia's plans to further invest in mining and extractive industries should come with a plan to safely manage their inevitable hazardous wastes.

9. Final Comments and references.

Despite waste incineration being heavily promoted in NSW and across Australia, it appears that no state government (or federal agency) has investigated the best options for Australia's residual waste management.

Our organisation undertook this work, engaging an independent consultant to investigate the best options for Australia's residual waste management. This investigation found that waste incineration was the worst option for Australia in terms of climate, air pollution and health costs. It found that landfill with full pre-treatment (such as MRBT or other advanced waste sorting and residual waste treatment) was the best option. Please see our report and webinar with experts explaining the investigation and results.

In 2025, no waste should be going to landfill that has not been pre-treated to remove organic wastes and their methane generating potential, as well as stabilisation of remaining putrescibles and chemical contamination, reduction and stabilisation of all plastics, so as to render residual waste benign and safe for disposal in landfill or containerisation.

Investment in zero waste practices has the potential to significantly reduce the volumes of residual waste requiring disposal. Once this is implemented there is no justification for waste incinerators while safer and more effective waste disposal technologies described above, exist.

Given non-recyclable plastic waste is the predominant material found in the residual waste stream and that burning this waste is merely burning fossil fuels, addressing the proliferation of soft plastics and other non-recyclable plastic waste should be a priority.

Residual waste research facilities should be attached to every Materials Recovery Facility or Resource Recovery Facility, so as to generate the data and evidence needed to make producers design their materials, packaging and products for circularity. Continuing to ignore our residual waste and hide it in landfills and incinerators, is a pathway to more climate pollution, more wasted finite resources and a more contaminated environment.

We urge the NSW Government to bring the expertise to the table in designing a truly sustainable and effective zero waste city model for Sydney and across NSW. It's time to put the waste disposal sector to the back of the room and let the zero waste and circular economy industries and advocates be heard upfront and supported by government to implement what NSW and Australia can afford and deserve - a sustainable zero waste city model.

We would welcome the opportunity to provide the inquiry with the contact details of scientists and experts working on Zero Waste city models and investigating the true toxic toll on European Best Practice waste incinerators.

The Food Organics and Garden Organics programme has already been a great success, but in Western Australia where two incinerators have been approved, shows that investment in waste incineration undermines these basic and more effective waste management strategies. Numerous local governments who have signed up to send their waste to incinerators are now refusing to implement FOGO policy, choosing instead to send this organic waste to the incinerator. What a terrible waste!

The benefits of a Zero Waste city model include significant improvements for the climate, environment and human health in Australia and globally. Methane generation is a major climate pollution threat, with the waste sector contributing nearly a third of all global methane emissions.

The European Commission understood this many years ago when in 2017 they issued their Directive to Member States on the role of waste incineration in the Circular Economy. Despite the industry PR promoting the EU as evidence that waste incinerators are high tech solutions that every OECD country should be embracing, their advice to their member states was to decommission old incinerators and not build new ones. The EU Commission instead urged member states to invest in sustainable Zero Waste models instead.

Please find more resources and references to support this submission:

1. Waste Incineration and the environment.
2. Greenhouse gas and air quality impacts of incineration and landfill.
3. Burning waste for energy: it doesn't stack up.
4. Biomonitoring evidence of dioxin and other contamination in Europe. (see webinar with experts)

Please also see the available evidence in abundance on these websites:

Zero Waste Europe

The Global Alliance for Incinerator Alternatives.

UK Waste Incineration Network

Toxicowatch

Energy Justice Network