Submission No 236

INQUIRY INTO PROPOSED ENERGY FROM WASTE FACILITIES

Organisation: Hunter Joint Organisation

Date Received: 31 October 2025

HUNTER JOINT ORG.

COLLABORATION OF HUNTER COUNCILS

Submission:

NSW Legislative Council Select Committee on Proposed Energy from Waste Facilities

31 October 2025

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The Hon. Nichole Overall, MLC
Chair, Select Committee on Proposed Energy from Waste Facilities
NSW Parliament House
6 Macquarie Street
Sydney NSW 2000

31 October 2025

Re: Submission to NSW Legislative Council Select Committee on Proposed Energy from Waste Facilities

The Hunter Joint Organisation (Hunter JO) is the statutory local government entity established by the NSW Government, under the *NSW Local Government Act 1993,* to support the ten member Councils of the Hunter Region to work together for better rural and regional outcomes, and to enhance the way local and state governments work together to plan and deliver important regional infrastructure and investment.

Member Councils of the Hunter JO are:

- Cessnock City Council
- Dungog Shire Council
- Lake Macquarie City Council
- Maitland City Council
- MidCoast Council
- Muswellbrook Shire Council
- City of Newcastle
- Port Stephens Council
- Singleton Council
- Upper Hunter Shire Council

The Hunter JO also serves as the voluntary regional waste group under the NSW EPA's Regional Networks for Effective Waste Management (RENEW) program, which is comprised of the ten Member Councils, as well as Central Coast Council.

The Hunter JO welcomes the opportunity provided by the NSW Legislative Council to provide feedback to the Select Committee on Proposed Energy from Waste Facilities.

The following submission has been developed based on consultation with the Hunter JO Regional Waste Managers Network (i.e. waste managers from the member councils) and other key member council staff. Thank you for the opportunity to be able to comment on this important issue for the future of NSW's waste management system.

Should you have any further queries please don't hesitate to contact Chris Dart, Circular Economy Program Lead, Hunter JO at or on

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Yours sincerely,

Mayor Sue Moore
Chair Hunter Joint Organisation

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Hunter Joint Organisation submission

NSW Legislative Council Select Committee on Proposed Energy from Waste Facilities

Position on Energy from Waste

The Hunter JO Member Councils broadly consider that Energy from Waste (EfW), including incineration, is a necessary part of the future waste management infrastructure mix in NSW. If deployed correctly, it can provide a modern processing solution for some forms of non-recoverable, residual waste, that extracts more energy and has a lower overall environmental impact than landfill.

Landfill infrastructure in NSW is under immense pressure, jeopardizing our ability to effectively and safely manage the state's waste. The NSW Government's targets under the Waste and Sustainable Materials Strategy (WaSM) – including an 80% recovery rate by 2030 – will likely be unachievable without the addition of EfW in the waste management infrastructure mix. With 10 of the 11 councils of the Hunter Central Coast Regional Waste Group operating at least one landfill, Hunter JO Member Councils are well aware that landfills are increasingly expensive to construct and operate and present numerous environmental problems including significant carbon emissions and pollution risks.

Earlier in 2025, the Hunter JO made a submission on the NSW EPA's *Energy from waste – options paper*, expressing overall support for the addition of the Tomago site in Port Stephens as a permissible precinct for EfW. A modern EfW facility would have the scale to replace several individually council owned landfills in our region, offering better environmental performance and maximising the extraction of valuable outputs including the supply of electricity and heat.

However, in line with that submission we continue to emphasise that any EfW projects must be subject to robust environmental assessment and planning approval processes that ensures effective controls are put in place to manage any impacts on the surrounding environment and community. Investment in EfW should also be complemented by investment in resource recovery infrastructure to ensure materials are extracted and recirculated at their highest and best use, so that only residual wastes are used as incinerator feedstocks.

Community concerns

It is recognised that concerns about EfW may be flagged by local communities, particularly those located in close proximity to where EfW facilities are proposed. Such concerns are often exacerbated by uncertainty about the potential long-term environmental and health impacts of the proposed technologies, and a significant amount of unreferenced, unreliable,

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and conflicting information that is in circulation about the risks of EfW. To address these concerns, it is recommended that **the NSW Government must support its EfW policies by investigating the risks and mitigation controls and providing honest and impartial information the community**.

It is also acknowledged that opposition to EfW projects in regional areas can occur on the basis that this approach is inequitably transferring the burden of waste processing from metropolitan to regional areas, and that it is unjust to simply relocate the responsibility of processing waste to regional areas at the expense of these communities. While it may be the case that the most suitable location for an EfW facility (or other significant waste facilities) is outside of metropolitan areas, **more work must be done to develop social license in these metropolitan locations for the infrastructure necessary to ensure an effective and efficient waste management system**.

Benefits of EfW

Generally, the consensus from academic literature and government policy suggests that EfW, including incineration of residual waste, can form part of an effective and economical waste management system.[1]

Despite ongoing efforts to reduce waste generation and increase resource recovery rates, NSW still produces a significant amount of residual waste. The recently released NSW Waste and Circular Infrastructure Plan estimates that NSW produces 7.7 million tonnes of residual waste per annum, with generation rates expected to grow into the future.[2] With the expected closure of several landfills currently servicing Sydney, EfW facilities are earmarked by the Plan to replace a large portion of the current residual waste processing capacity.

Landfills are increasingly expensive to construct, operate and remediate, and present numerous environmental problems including significant greenhouse gas emissions and pollution risks. Furthermore, landfills are difficult to locate and challenging to obtain social license for, evidenced by the dearth of new landfills constructed in recent decades and the "landfill crisis" looming over Greater Sydney. Smaller, older, and less sophisticated landfills – many of which are owned and operated by councils – generally have poorer environmental performance, but operators often lack the financial capacity to upgrade these facilities.

Academic research shows that deploying a mix of EfW technologies – such as anaerobic digestion for organic wastes and incineration for combustible residual waste – can achieve

[1] B. Dastjerdi, V. Strezov, R. Kumar, M. Behnia (2019) "An evaluation of the potential of waste to energy technologies for residual solid waste in New South Wales, Australia", *Renewable and Sustainable Energy Reviews*, vol. 115.
[2] NSW EPA, above n 1, pg. 6.

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better environmental outcomes across its lifecycle when compared to landfilling.[3] These technologies enable recovery of energy embodied in waste through generation of electricity, supply of heat, or production of fuels such as hydrogen, that can be used to replace fossil fuel derived energy sources while also avoiding the methane generated by landfilled waste.[4] EfW also enables recovery of materials from the solid residues such as metals and aggregates from incinerator bottom ash. Emerging, advanced processes, such as the co-pyrolysis of biomass and plastic wastes, have been shown to achieve greater yield and quality of outputs, demonstrating potential to overcome limitations in current reuse and recycling processes.[5]

While it seems unlikely that EfW will replace landfill completely – as some wastes are not suitable for processes like anaerobic digestion or incineration – it does offer the ability to reduce reliance on landfill by reducing the mass of material that eventually needs to be disposed of (e.g. incinerator bottom ash and air pollution control residues).[6]

Modern EfW facilities, particularly incinerators, are generally large in scale – the proposed Woodlawn and Parkes facilities will have the capacity to process 380,000 and 600,000 tonnes of waste per annum. Facilities of this size would have the ability to process all of the municipal solid waste currently landfilled in the Hunter region, potentially replacing numerous landfill sites with one consolidated facility with stricter environmental controls.

It is therefore considered that EfW, including incinerators for residual waste, can provide a more modern, sophisticated, and less environmentally harmful means of processing waste as compared to current landfilling practices.

Health and environmental impacts of EfW

A major concern often raised about EfW, particularly incineration, are the impacts upon human and environmental health, especially from the atmospheric fallout of harmful contaminants. It is known that early waste incinerators operating in various locations internationally in the 20th century have produced toxic substances including dioxins, furans

[3] Dastjerdi et al, above n 2; B. Dastjerdi, V. Strezov, R. Kumar, He. J, M. Behnia (2021) "Comparative life cycle assessment of system solution scenarios for residual municipal solid waste management in NSW, Australia", *Science of the Total Environment*, vol. 767.
[4] NSW Government (2023) "Factsheet: Energy from Waste", https://www.nsw.gov.au/regional-nsw/regional-business-and-economy-nsw/resources-library/energy-from-waste, pg. 1.
[5] Chiun Chao Seah, Chung Hong Tan, N.A. Arifin, R.S.R.M. Hafriz, A. Salmiaton, Saifuddin Nomanbhay, A.H. Shamsuddin (2023) "Co-pyrolysis of biomass and plastic: Circularity of wastes and comprehensive review of synergistic mechanism" *Results in Engineering*, vol. 17.
[6] Parkes Energy Recovery (2025) "Parkes Energy Recovery Community Q&A", www.parkesenergy.com.au/wp-content/uploads/2025/07/Parkes-Energy-Recovery-Community-QA_July-2025.pdf, pg. 8.

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and heavy metals[7], and that these substances are known to accumulate in food chains[8]. However, it should be noted that other industrial sources also emit these pollutants, including cement kilns and power plants.

It should also be noted that most contemporary sources, including the NSW Government,[9] suggest that modern EfW facilities are safe, with significant advancements in technology and environmental controls resulting in very few emissions. Proponents point to the numerous, sophisticated facilities operating around the world, including the Amger Bakke plant in Copenhagen, Shenzhan East Waste to Energy Plant in China, and Kwinana and East Rockingham (under construction) projects in Western Australia. Many modern facilities are in or near population centres to take advantage of the proximity to waste sources and offtake markets for energy and heat.

The NSW EPA's Energy from Waste Policy Statement sets emissions standards for various pollutants that all EfW facilities must comply with.[10] These standards appear to be identical to the EU standards set in EU Directive 2010/75/EU,[11] regarded as best practice internationally. For reference, the NSW EfW emissions standards are generally more stringent than those limits imposed on coal power stations in NSW.[12]

Some modern EfW plants, including those in Copenhagen[13] and Dublin[14] have demonstrated that they can operate consistently with emissions at significantly lower levels than these standards. This is supported by research showing that all 124 EfW incinerators operating in France operated below the EU standard for dioxin emissions of 0.1ng/m^3, the same level adopted by the NSW EPA.[15]

A further study, however, has noted that while well-designed and operated facilities pose a low risk to human health, there are few studies into the health risks of exposure from EfW plants.[16] Therefore, any facilities should be subject to comprehensive health risk

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[7] Nzihou A., Themelis N., Kemiha M., Benhamou Y. (2012) "Dioxin emissions from municipal solid waste incinerators (MSWIs) in France", Waste Management, vol. 3, no. 12, pg. 2273-2277.
[8] World Health Organisation (2023), "Dioxins" (factsheet), https://www.who.int/news-room/fact-sheets/detail/dioxins-and-their-effects-on-human-health.
[9] NSW Government, above n 5, pg. 2
[10] NSW EPA (2021) "NSW Energy from Waste Policy Statement", pg. 6.
[11] EU (2010) "EU Directive 2010/75/EU of the European Parliament and of the Council", *Official Journal of the European Union*, L334:68-69
[12] NSW EPA (2018) "Review of Coal Fired Power Stations Air Emissions and Monitoring", published by NSW EPA, pg. 10.
[13] IEA Bioenergy (2021) "Waste-to-Energy and Social Acceptance: Copenhill WtE plant in Copenhagen", pg. 11.
[14] NSW Government, above n 5, pg. 2.
[15] Nzihou A. et al, above n 7.
[16] Cole-Hunter T., Johnston F., Marks G., Morawska L., Morgan G., Overs M., Porta-Cubas A. and Cowie C. (2020) "The health impacts of waste-to-energy emissions: a systematic review of the literature", *Environmental Research Letters* vol. 15. No. 12.

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assessments prior to approval and rigorous ongoing monitoring to ensure that contaminant emissions levels remain below the relevant thresholds. The study also noted that the composition of feedstocks is one of the key factors affecting contaminant emissions. It recommended that waste must be sorted to control the nature of EfW feedstocks, and the impact of feedstock composition and combustion specifications on emissions must be monitored and studied.

It is therefore considered that modern EfW technologies can operate within the limits of international best practice emissions standards and pose a low overall risk to human and environmental health. However, because of the limited long-term health studies into exposure to EfW emissions, a precautionary approach must be taken.

Based on the above information it is recommended that:

- Any proposed EfW facilities in NSW must be subject to rigorous health risk assessment prior to approval and must be closely monitored during operation to ensure that contaminant levels do not exceed the thresholds set in NSW Energy from Waste Policy Statement or any other relevant thresholds.
- EfW facilities must be required to sort feedstocks, removing any materials that may cause unacceptable contaminant emissions.
- EfW facilities must monitor and report how the composition of feedstocks and combustion conditions affect contaminant emission levels.

EfW must be complemented by circularity

While the Hunter JO Member Councils are broadly supportive of EfW as a means of replacing landfills and modernising residual waste processing, it must be stressed that any investment in EfW must be complemented by investment in resource recovery infrastructure and efforts to increase circularity within the economy.

Energy recovery is far from the most preferable outcome for waste and sits at the lower end of the waste hierarchy.[17] Similarly, while EfW can have a net carbon emissions benefit where it displaces fossil fuel energy sources, it still produces a significant amount of greenhouse gas emissions and so as the electricity grid (and other forms of energy) decarbonise, its impact as a "cleaner" energy source will diminish.[18] As such, EfW should not be viewed as a good resource recovery, circularity, or renewable energy outcome. Rather, it should be treated as a means of processing residual waste for which there is no higher order option.

[17] See: Australian Government (2018) "National Waste Policy, less waste more resources" pg. 9.
[18] Dastjerdi B., Strezov V., Kumar R., Behnia, M., (2022) "Environmental Impact Assessment of Solid Waste to Energy Technologies and Their Perspectives in Australia" *Sustainability* vol. 14 no. 23.

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In some cases internationally, the uptake of EfW has resulted in falling recycling rates.[19] This has been attributed to the fact EfW facilities operate most efficiently when at full capacity and therefore demand feedstocks that could otherwise be recycled. To avoid a similar situation in NSW, **EfW facilities should only be constructed to meet residual waste processing needs, and be complemented by planning, facilitating and investing in resource recovery processes that extract greater value from waste materials**. The NSW Government's FOGO mandate is an excellent example.

Building social license

Building social license and acceptance for waste facilities in NSW is always challenging, but this is currently being exacerbated by an absence of leadership by a trusted body to facilitate the debate, investigate the benefits and impacts, and provide honest, impartial and reliable information to stakeholders.

It is therefore recommended that **the NSW Government must play a greater role in supporting implementation of its EfW policy objectives by engaging and consulting with the community**. Not doing so to date has contributed to community resistance and left other parties such as local government and the project proponents to respond to community concerns. This has the significant potential to create widespread community opposition and barriers to EfW and other waste infrastructure options that will be integral to modernising and improving NSW's waste management system to meet Government waste reduction targets.

It is therefore recommended that The NSW Government:

- Undertake a comprehensive review of the role, benefits, and impacts of EfW facilities and publish its findings for the public to access. This should include (but not be limited to) context about why EfW is being considered, the health and pollution risks and mitigation strategies, performance as opposed to other options (e.g. landfill), and case studies from other jurisdictions.
- Lead community consultation in the affected communities about the Energy from Waste Framework and Energy from Waste Policy Statement.

[19] Kinnaman T. (2018) "China's garbage ban upends US recycling – is it time to reconsider incineration?" *The Conversation*, https://theconversation.com/chinas-garbage-ban-upends-us-recycling-is-it-time-to-reconsider-incineration-98206.