Submission No 362

INQUIRY INTO PROPOSED ENERGY FROM WASTE FACILITIES

Organisation: Waste Contractors and Recyclers Association of NSW (WCRA)

Date Received: 31 October 2025

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Submission to the NSW Legislative Council Select Committee

Inquiry into Proposed Energy from Waste Facilities

October 2025

Cover Letter

The Chair
Select Committee on Proposed Energy from Waste Facilities
Parliament of New South Wales
Macquarie Street
Sydney NSW 2000

Dear Committee Members,

Please find enclosed the submission from the Waste Contractors and Recyclers Association of NSW (WCRA) in response to the Inquiry into Proposed Energy from Waste (EfW) Facilities.

WCRA represents more than 200 companies across collection, transport, processing, recycling and disposal operations throughout NSW and the ACT. Our members employ over 18,000 people and manage approximately 90% of licensed waste and recycling vehicles operating in NSW.

We appreciate the Committee's focus on evidence-based policy and thank you for the opportunity to contribute. This submission builds on WCRA's response to the NSW EPA's *Energy from Waste Options Paper* (December 2024) and references the independent economic analysis conducted by the Centre for International Economics (CIE, 2022) commissioned by WCRA to assess the economic and environmental implications of EfW regulation in NSW, copies of these documents have also been supplied with this submission.

Yours sincerely,
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Executive Summary

Energy from Waste (EfW) represents an essential component of a balanced and sustainable waste management system. When properly designed, EfW facilities reduce landfill dependence, lower greenhouse gas emissions, and create reliable, dispatchable energy from residual materials that cannot otherwise be recycled.

NSW faces a looming landfill capacity crisis by 2030, coupled with a growing residual waste challenge. The 2022 CIE report commissioned by WCRA estimated that NSW produces approximately 23 million tonnes of waste annually, of which 3.5 million tonnes are suitable for energy recovery. Without additional EfW infrastructure, these residuals will continue to be landfilled, generating methane equivalent to around 2.5 million tonnes of CO_2 emissions each year.

WCRA's policy position, as outlined in our 2024 submission to the EPA, remains consistent:

- EfW should be available as a residual-only treatment option after reuse and recycling.
- NSW's current regulatory framework is overly restrictive, creating unnecessary transport emissions, higher costs, and lost investment.
- EfW policy should be criteria-based rather than precinct-based, allowing assessment on technology, environmental performance, and proximity to waste generation.
- EfW should meet or exceed the European Union Industrial Emissions Directive (2010/75/EU) and the 2019 Waste Incineration Best Available Techniques (BAT) Conclusions.

According to CIE's modelling, limiting EfW development to four regional precincts results in up to $25 million per year in unnecessary transport costs, over $2 billion in lost private investment, and increased greenhouse gas emissions due to inefficient waste flows. A reformed, evidence-based policy would better align with NSW's Net Zero Plan and Circular Economy Strategy, while protecting environmental and community outcomes.

This submission responds directly to the Inquiry's Terms of Reference (a–j) and provides clear, practical recommendations for a modern, safe, and sustainable EfW framework for NSW.

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Responses to Terms of Reference

(a) Performance of the technologies proposed for the Tarago and Parkes Energy Recovery Facilities compared to leading international facilities

Both the proposed Tarago (Woodlawn Advanced Resource Recovery Centre) and Parkes Energy Recovery Facility utilise moving-grate combustion with high-temperature boilers and multi-stage flue gas treatment. These are proven, mature technologies operating safely in thousands of facilities across Europe and Asia.

Under the EU Industrial Emissions Directive (2010/75/EU) and the Waste Incineration BAT Conclusions (2019), modern EfW plants achieve the following performance ranges:

- Total dust: <2–5 mg/Nm³
- Hydrogen chloride (HCl): <2–6 mg/Nm³
- Nitrogen oxides (NOx): 50–120 mg/Nm³ (lower end achieved with selective catalytic reduction)
- Dioxins/furans: 0.01–0.04 ng I-TEQ/Nm³

These benchmarks have been met or exceeded in leading facilities such as Högdalenverket (Stockholm), Malmö, and Amsterdam AEB.

NSW proponents have committed to equivalent or better performance, incorporating selective non-catalytic reduction (SNCR) or SCR systems, dry scrubbing, activated carbon injection, and high-efficiency bag filters. The challenge is not technology availability, but ensuring regulatory frameworks require and verify this level of performance through design, commissioning, and continuous monitoring.

(b) The spread and quality of predicted emissions

Dispersion and deposition modelling should use NSW EPA's Approved Methods (2022) and internationally recognised models such as AERMOD or CALPUFF, incorporating local meteorology, terrain, and cumulative sources.

Experience from Europe shows ground-level concentrations of pollutants from compliant EfW facilities are typically orders of magnitude below ambient air quality standards. For example, $PM_{2.5}$ increments are generally less than 1% of background levels.

Air quality impacts must be contextualised with real-world data demonstrating that BAT-compliant EfW contributes negligible risk compared to diffuse combustion sources such as vehicles and wood heaters.

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(c) Health impacts from currently operating older incinerators compared to proposed newer technology

The health literature consistently finds that modern EfW facilities operating within BAT-AELs (emission levels associated with BAT) do not pose measurable health risks to surrounding populations. Reviews by Public Health England (2019), the UK Health Security Agency (2023), and Imperial College London (2019) concluded there is no consistent or causal evidence of adverse outcomes associated with modern municipal EfW plants.

By contrast, historic incinerators, often pre-1990, lacked modern controls and contributed to legitimate community concerns. These legacy examples should not be used to characterise the performance of present-day BAT-compliant facilities.

WCRA supports ongoing, independent health and environmental monitoring to maintain transparency and public confidence, but evidence clearly supports EfW's safety under strict regulatory regimes.

(d) Impacts on human health including drinking water, rainwater harvesting, and soil contamination

Deposition pathways to soil and rainwater are well-understood and can be effectively managed. BAT requires comprehensive flue gas cleaning to capture acid gases, metals, and dioxins before discharge. Studies of roof water and soil downwind of modern EfW plants consistently show concentrations within background variation.

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

Deposition modelling should inform agricultural risk assessments, particularly for forage-to-livestock and apiculture (honey) pathways. European experience shows that once emissions are controlled to BAT-AELs, metal and dioxin deposition rates are too low to influence agricultural product safety.

(f) Alterations to the Parkes Special Activation Precinct relating to the proposed facility

The Parkes Special Activation Precinct (SAP) provides a well-planned industrial framework with existing zoning, buffer areas, and infrastructure. The integration of an EfW facility within this precinct aligns with the precinct's industrial ecology vision and circular economy objectives.

WCRA supports Parkes as an appropriate host region due to its access to rail and freight networks, renewable energy integration opportunities, and existing approvals pathway. The Committee should ensure any precinct alterations continue to uphold transparency, buffer maintenance, and cumulative impact assessment requirements.

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(g) Impacts of waste dumping in the Tarago region

The Woodlawn precinct near Tarago, has played a long-standing and important role in the management of NSW's residual waste. Over this time, the precinct has progressively evolved, incorporating improved environmental controls, bioreactor gas utilisation and rehabilitation initiatives aligned with contemporary regulatory expectations.

Stakeholders in the surrounding district have, at times, expressed concerns relating to the long-term management of waste in the region. WCRA acknowledges these concerns and supports continued collaboration between industry, regulators and the local community to ensure ongoing transparency, continuous improvement and shared positive outcomes.

The proposed EfW facility presents a pathway to further reduce the region's reliance on landfill, minimise landfilled organic content, enhance the capture and beneficial use of biogas, and improve resource recovery outcomes. These benefits can be realised while leveraging existing infrastructure, environmental controls and monitoring already established at Woodlawn.

(h) Methodology of emission monitoring at leading EfW facilities

Best practice for emission monitoring is continuous measurement of key pollutants, periodic testing of trace compounds, and transparent public reporting. The EU BAT Conclusions require continuous measurement of NOx, SO_2, CO, HCl, HF, dust, TOC, O_2, and flow, with long-term sampling for mercury and dioxins.

WCRA recommends NSW adopt the Western Australian Continuous Emission Monitoring System (CEMS) Code as a reference, requiring:

- Quality assurance levels (QAL2 and QAL3) for calibration and drift control.
- Continuous public access to validated emission data.
- Independent annual audits by accredited providers.

Ambient monitoring networks (minimum three sites) should measure $PM_{2.5}$, NO_2, and metals, supplemented by deposition gauges and meteorological data. This framework ensures both environmental performance and public transparency.

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(i) Alternative solutions to reduce and manage Greater Sydney's residual waste

EfW complements, not competes with, recycling and resource recovery. Residual waste will always remain even under high recycling rates. Alternatives such as advanced MRFs, commercial FOGO expansion, anaerobic digestion, and enhanced product stewardship must continue in parallel, but EfW remains the most viable method to eliminate landfill reliance for unrecyclable residues.

The CIE report found that EfW could divert approximately 3 million tonnes of residual waste per year from landfill, avoiding substantial greenhouse emissions and providing energy equivalence to over 200,000 homes. Without EfW, NSW risks missing its waste diversion and emissions targets under the Net Zero Plan.

(j) Other related matters

The safe management of residual waste is a fundamental requirement of NSW's essential service network. Residual waste streams still contain combustible, heat-generating and otherwise hazardous materials that create operational risk across collection, transport, transfer, and processing environments.

EfW facilities operate within highly controlled, engineered and monitored conditions, significantly reducing risks associated with:

- uncontrolled decomposition
- subsurface hotspots
- fire propagation at landfill
- longer-term emissions from legacy residues

EfW also supports system resilience. Waste must continue to move during natural disasters, landfill closures, industrial action or other disruptions. EfW ensures continuity by providing an additional dispatchable treatment pathway within the state's critical infrastructure system.

To maintain community confidence, transparent governance is essential. WCRA recommends:

- contemporary regulatory settings that support global best practice
- continuous emissions monitoring with real-time public reporting
- independent environmental audits
- embedded community engagement through a formal Community Reference Group
- timely incident notification and response protocols
- clear alignment with NSW planning, infrastructure and emergency frameworks

EfW strengthens the safety and reliability of NSW's waste management network, reduces legacy environmental risks, and enhances community protection while supporting broader circular economy and climate outcomes.

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Recommendations

1. Transition from fixed-precinct to criteria-based assessment of EfW proposals.
2. Mandate compliance with EU BAT (2019) and IED (2010/75/EU) emission and monitoring standards.
3. Require continuous emissions monitoring for key pollutants and independent public reporting.
4. Integrate EfW into NSW's Circular Economy and Net Zero strategies as a residual-only solution.
5. Recognise EfW's contribution to energy resilience and regional investment, particularly at Parkes and Tarago.
6. Require independent health and environmental baseline studies pre-construction.
7. Develop clear planning guidance for transport, safety, and waste feedstock logistics.

Appendices

Appendix A – Technology Comparison

Parameter	Tarago (Woodlawn ARC)	Parkes ERF	EU BAT Benchmark
Furnace Type	Moving grate	Moving grate	Moving grate (BAT)
Flue Gas Treatment	Dry/semi-dry scrubber, activated carbon, baghouse, SNCR	SCR, lime scrubber, carbon filter	Multi-stage FGC, SCR preferred
Energy Efficiency	~25% net electrical	~25% net electrical	22–30% typical
Availability	8,000 hrs/yr	8,000 hrs/yr	8,000+ hrs/yr
ELV Performance	As per EIS	As per EIS	Dust <5 mg/Nm^3; NOx <100 mg/Nm^3; HCl <6 mg/Nm^3; PCDD/F <0.04 ng I-TEQ/Nm^3

Appendix B – Emission Limits

Pollutant	BAT-AEL Range (2019)	Averaging Period
Total Dust	2–5 mg/Nm^3	Daily
HCl	2–6 mg/Nm^3	Daily
HF	1–4 mg/Nm^3	Daily
SO_2	10–40 mg/Nm^3	Daily
NOx	50–120 mg/Nm^3	Daily
CO	10–50 mg/Nm^3	Half-hour
TOC	3–10 mg/Nm^3	Daily
Hg	5–20 µg/Nm^3	Long-term
Cd+Tl	5–20 µg/Nm^3	Periodic
PCDD/F	0.01–0.04 ng I-TEQ/Nm^3	Long-term

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Appendix C – Environmental Monitoring Framework

- Continuous emission monitoring (NOx, SO_2, CO, HCl, HF, dust, TOC, O_2, flow).
- Periodic analysis for metals and dioxins/furans.
- An appropriately designed ambient air monitoring network, informed by dispersion modelling
- Annual independent audit and public reporting.

Appendix D – Summary of Health and Environmental Literature

Study	Jurisdiction	Findings
Public Health England (2019)	UK	No evidence of increased health risk near modern EfW plants
Imperial College London (2019)	UK	No causal relationship between EfW exposure and infant mortality or birth outcomes
UK Health Security Agency (2023)	UK	Reinforces low risk from BAT-compliant EfW
EU Joint Research Centre (2021)	EU	BAT-AEL compliance ensures negligible contribution to local air quality impacts

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