Submission
No 14

INQUIRY INTO PROPOSED ENERGY FROM WASTE FACILITIES

Name: Name suppressed

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

5 September 2025

To the Select Committee,

Please consider this submission in response to the Inquiry into Proposed Energy from Waste (EfW) Facilities.

I am offering some information and relevant lines of inquiry from what I have found in my job as it relates to EfW and PFAS/PFOA. I work in government, but I am not a scientist.

I am responding primarily to items (b) and (h) in the Committee Terms of Reference.

Over the past 9 months, I have become increasingly curious about EfW technology, and in particular, how good this technology is at completely destroying PFAS/PFOA (such that molecules are not detected above background levels in emissions from scrubbers and stacks).

What I have found through publicly available information online:

1. **There are no published journal articles/peer-reviewed studies that definitively prove PFAS/PFOA and strongly bonded carbon-fluorine substances are completely destroyed during real-world EfW incineration at various locations.** It seems that incineration temperatures theoretically required to achieve the level of destruction needed to 'break' strongly bonded carbon-fluorine is many orders of magnitude hotter than what is proposed for Australian EfW facilities or what currently occurs at other EfW facilities around the world. Further, PFAS/PFOA and incompletely destroyed carbon-fluorine bonded substances have been detected in real-world EfW incinerators in bottom ash, fly ash, and in flue treatment systems of scrubbers[1]. There is limited air monitoring of these substances at the emissions point at EfW facilities, and it is therefore difficult to know with certainty the extent to which PFAS/PFOA and incompletely destroyed carbon-fluorine bonded substances persist in the air, after 'treatment'.

[1] Liu, S et al. (November 2021). Perfluoroalkyl substances (PFASs) in leachate, fly ash, and bottom ash from waste incineration plants: Implications for the environmental release of PFAS. *Science of the Total Environment*, vol 795. Retrieved 5 September 2025: https://www.sciencedirect.com/science/article/abs/pii/S0048969721035403 ; Björklund, S., Weidemann, E. & Jansson, S. (May 2024). Distribution of Per- and Polyfluoroalkyl Substances (PFASs) in a Waste-to-Energy Plant–Tracking PFASs in Internal Residual Streams. *Environ Sci Technol*. 14;58(19). Retrieved 5 September 2025: https://pmc.ncbi.nlm.nih.gov/articles/PMC11097385/

2. **There is no mention of PFAS/PFOA or carbon-fluorine (CF3) in minimum emissions monitoring** in the NSW chief scientist report to NSW EPA on recommended monitoring of EfW facilities[2].

3. The updated March 2025 NEMP from the Federal Dept of Climate Change, Energy, the Environment and Water[3] acknowledges that "[PFAS] *sampling of air (including gaseous phase, condensed phase, and particulates such as dust), particularly where there is a high potential for airborne emissions… is not routine. Information on air sampling is covered in documents prepared by the Interstate Technology Regulatory Council (ITRC) (2018b).*" The NEMP is the premier document referred to by the likes of the NSW Environment Protection Authority.

    a. A check of the ITRC website[4] states the following in its chapter on "Sampling and Analysis":

    11.1.7.12 Air Emissions to Air and Ambient Air:

    There is an increasing need for the measurement of PFAS in emissions from stationary sources *(for example, chemical manufacturing, industrial use, combustion and thermal treatment and other treatment systems not originally designed to treat PFAS from exhaust), as well as in ambient air. Due to the diverse nature of PFAS, multiple measurement approaches are needed to measure polar and nonpolar, volatile, semivolatile, and nonvolatile (particulate-bound) PFAS…* ***As of the date of this publication, there are no multilaboratory-validated sampling methods for PFAS in air emissions (for example, from thermal treatment in manufacturing plants or incinerators).*** *In their absence, emissions measurements have been performed using modifications to USEPA SW846 Method 0010 (Modified EPA Method 5 Sampling Train)…"*

What outstanding questions remain:

4. A question was asked by NSW MP Wendy Tuckerman on PFAS monitoring and best practice for EfW[5] in June 2024. Part of the answer (July 2024) given by the relevant Minister was: "*DPHI and the EPA are funding an independent expert review of PFAS in energy from waste emissions. This review is expected to be commissioned by the DPHI and will inform the assessment of current and future energy from waste proposals.*"

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[2] https://npd-web.matrix.squiz.cloud/__data/assets/pdf_file/0009/1431/FINAL-Report_EFW-with-additional-advice.pdf (November 2020)
[3] PFAS NEMP 3.0 https://www.dcceew.gov.au/environment/protection/publications/pfas-nemp-3
[4] https://pfas-1.itrcweb.org/11-sampling-and-analytical-methods/ (updated 2023)
[5] https://www.parliament.nsw.gov.au/la/papers/pages/qanda-tracking-details.aspx?pk=100073

a. The status of this independent expert review is unknown (not able to be found through publicly available documents online).

b. It is not known from publicly available information whether the proposed Woodlawn EfW facility is being/will be assessed against said "independent expert review" findings. I mention the Woodlawn EfW proposal as it exists as an actual Development Application, able to be tracked on the NSW Planning Portal (https://www.planningportal.nsw.gov.au/major-projects/projects/woodlawn-advanced-energy-recovery-centre). This is different to the Parkes EfW project, which to my knowledge, has not yet been formally lodged as a Planning Proposal or Development Application with the State Government.

c. **Questions should be put to the Minister for Planning (Paul Scully), who oversees the NSW Department of Planning, Housing and Infrastructure (DPHI), on the status of this independent expert review.**

5. Given that the Federal Departmental guidance of the NEMP 3.0 on PFAS monitoring does not adequately canvass air-based monitoring – and refers instead to a different international institute's sampling guidelines for air-based monitoring (and that sampling guideline further articulates the lack of established methodology in air-sampling from industrial facilities of any kind) – **how will NSW EPA ensure that PFAS/PFOA and strongly bonded carbon-fluorine substances are actually monitored at stack emissions sources such as at the Parkes EfW facility?**

So what?

6. High levels of PFAS/PFOA have been detected in soils and waterways, originating from industrial pollutants (e.g. firefighting foam). Recent investigations by EPA into origins for PFAS contamination of the Belubula River in Central West NSW have included potential sources such as the Blayney Waste Facility, ANL composting facility, and mining operations[6]. PFAS/PFOA is included in the manufacturing of many everyday items – textiles, appliances, and food packaging. As many of these items are disposed of in landfill presently, **it is safe to assume that future feedstock to EfW will contain detectable levels of PFAS/PFOA.**
7. An industrial facility, accepting municipal or other waste for incineration/energy generation, that does not adequately monitor or abate PFAS/PFOA emissions to air, is likely to contribute to point source PFAS/PFOA contamination of nearby soils and water bodies.

[6] https://www.abc.net.au/news/2025-04-10/nsw-epa-traces-belubula-river-pfas-contamination/105159960 (April 2025)

8. The global scientific community has come to the consensus that PFAS/PFOA tend to bioaccumulate in animals. It is not yet known what the short, medium, and long-term health impacts of PFAS/PFOA accumulation in humans will be. It is suspected that PFAS/PFOA contributes to thyroid disorders, kidney and liver disease, and reproductive cancers[7]. Over time, if PFAS/PFOA is allowed to accumulate in the surrounding environment from waste incinerator unabated emissions, a significant hazard to human and animal health emerges.
9. Indeed, one of the core arguments the Parkes community has communicated to Tribe Group and Government has been "if EfW is so safe, why are there only a few restricted sites allowed to operate as EfW across the state, and none are in Sydney?". Admittedly, this is an intriguing line of questioning, considering this excerpt of the EPA's Draft Waste and Circular Infrastructure Plan[8]:

   > *NSW prohibits the thermal treatment of waste that involves or results in energy recovery, unless the activity is exempt under the Protection of the Environment Operations (General) Regulation 2022. The primary exception is if the activity is carried out in one of four regional precincts:*
   > *• Parkes Special Activation Precinct*
   > *• Richmond Valley Regional Jobs Precinct*
   > *• Southern Goulburn Mulwaree Precinct*
   > *• West Lithgow Precinct.*
   > *This regional precinct model is intended to apply a strategic approach to the role and location of energy-from-waste facilities in NSW. Under the NSW Energy from Waste Infrastructure Plan, energy-from-waste facilities should:*
   >
   > *• improve certainty for communities and industry about acceptable locations and facilities*
   >
   > ***• adhere to the precautionary principle where there is a greater risk of harm to human health because the site is near areas of high population (both now and in the future)****, and in areas where there are regular exceedances of air quality standards from existing sources*
   > *• maximise efficiency in infrastructure, waste management, innovation and energy recovery.*
   > *These principles are important to ensuring energy-from-waste facilities deliver positive outcomes for the community and the environment.*

10. If the above Draft Plan from the State Government can acknowledge that EfW site selection has been informed by the "precautionary principle", **much more information is needed as to *why* the State Government believes the**

[7] https://www.cancer.org/cancer/risk-prevention/chemicals/teflon-and-perfluorooctanoic-acid-pfoa.html
[8] https://hdp-au-prod-app-nswepa-yoursay-files.s3.ap-southeast-2.amazonaws.com/6217/4925/1672/25p4590-draft-waste-infrastructure-plan.pdf (May 2025)

precautionary principle applies in the case of EfW. In short, if the potential health impacts from EfW are not known and thus not 'worth the risk' for denser population centres (the definition of the "precautionary principle"), what assurances can be made for the community of Parkes? And for food produced on farms in proximity to EfW, destined to be consumed by people from across Australia?

Conclusion

I recommend to the Committee pursuing my above lines of inquiry with the relevant authorities and the EfW lead proponent (Tribe Infrastructure Group).

At the very least, any EfW facility looking to operate in Australia should be required to incinerate waste at extremely high temperatures that are proven to destroy PFAS/PFOA compounds[9].

Given that PFAS/PFOA persists in nearly all products and waste streams, feedstocks to EfW should be categorised as "hazardous waste", to facilitate more stringent incineration methods, temperatures, and air monitoring.

[9] Refer to work being done by CSIRO: https://www.csiro.au/en/news/All/News/2025/March/International-research-team-decodes-how-to-safely-incinerate-forever-chemicals