Submission
No 30

INQUIRY INTO PROPOSED ENERGY FROM WASTE FACILITIES

Name: Name suppressed

Date Received: 16 September 2025

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

Dear Committee,

Introduction

I am writing to provide my submission to the NSW Legislative Council Select Committee on Proposed Energy from Waste (EfW) Facilities. This submission focuses on the proposed Parkes Energy Recovery Facility.[1]

I am married to a fourth-generation farmer who was born and raised in Parkes NSW. I moved to Parkes in 2014 when we married and lived there for 10 years. I have worked for several private businesses in town as well as the Parkes Shire Council. My husband and I own investment properties in Parkes. Though we moved away recently, we continue to maintain strong ties to the Parkes community – visiting frequently and staying up to date with community news. We love Parkes and its people.

I support the proposed Parkes Energy Recovery Facility because it would help to address the waste crisis in NSW and is likely to yield significant economic benefits to Parkes, including creating local jobs and attracting greater private and public sector investment in the town. The evidence, both from Australian and international experts, demonstrates that modern EfW facilities can be operated safely, with little impact to human health and the environment.

However, I acknowledge there is strong opposition to the proposed Parkes Energy Recovery Facility from sections of the community who are fearful of the potential human health and environmental impacts. To alleviate these valid concerns, I support Parkes Mayor Neil Westcott's request (by letter dated 21 August 2025) that the NSW Minister for Planning and Public Spaces refer the proposed EfW Facility to the Independent Planning Commission (IPC) from the outset. A ministerial referral to the IPC would send a strong message to the Parkes community that the NSW Government is taking the community's concerns seriously and is committed to arriving at the most robust planning decision.

I also hope the Minister will be gracious and generous to agree to the Parkes Mayor's request for the public exhibition period for the proposed Parkes Energy Recovery Facility's Environmental Impact Statement (EIS) to be extended from 28 days to 8 weeks. While 28 days is the minimum timeframe required by law, granting a longer timeframe for public comment on the EIS would show government empathy for the community's fears and concerns.

The need to address NSW's waste crisis

It is well-documented that NSW is experiencing a waste crisis. Accounting for increases in population and waste generation, landfill capacity in Greater Sydney is projected to run out by 2030.[2] The NSW Environment Protection Authority (EPA) warns that if urgent action is not taken, 'household waste management costs [could increase] by 20% on average, intensifying cost-of-living pressures… [and] also put[ting] huge cost pressures on councils and industry'.[3]

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[1] The terms 'EfW facilities' and 'energy recovery facilities' are used interchangeably in this submission.

[2] NSW Environment Protection Authority, *Sydney Landfill Shortage*, 27 June 2025, https://www.epa.nsw.gov.au/Working-together/Community-engagement/updates-on-issues/Sydney-landfill-shortage (accessed 23 August 2025); NSW Environment Protection Authority, *Energy from waste–options paper*, December 2024, p. 1.

[3] NSW Environment Protection Authority, *Sydney Landfill Shortage*, 27 June 2025, https://www.epa.nsw.gov.au/Working-together/Community-engagement/updates-on-issues/Sydney-landfill-shortage (accessed 23 August 2025).

Other potential consequences include 'greater risk of illegal dumping and environmental harm', 'delays to build critical infrastructure such as new housing' and 'disruption to waste management services in extreme weather events or emergencies'.[4]

The *NSW Waste and Sustainable Materials Strategy 2041* (WSM Strategy 2041) outlines that 'a mix of potential solutions is needed' to address the waste crisis (see figure below).[5]

Figure 6: Potential mix of residual waste infrastructure needs by region

Region	Potential mix of residual waste infrastructure needs* 2030	2040 (if 2030 needs are met)
Greater Sydney	Additional non-putrescible landfill capacity to accept >3 million tonnes per annum (tpa) Additional putrescible landfill capacity to accept >500,000 tpa At least one large-scale regional energy recovery facility and medium-scale 'dirty MRF' required to reduce the need for additional landfill capacity in this decade	Additional non-putrescible landfill capacity to accept >1.2 million tpa Additional putrescible landfill capacity to accept >1.1 million tpa At least three large-scale regional energy recovery facilities and one medium-scale 'dirty MRF' required to reduce the need for additional landfill capacity in this decade
Hunter	Nil	Additional landfill capacity to accept >300,000 tpa or a medium-scale energy recovery facility
Northern Rivers	Additional landfill capacity to accept up to 100,000 tpa) or an equivalent medium-scale energy recovery facility	Nil
Coffs Harbour	Additional landfill capacity to accept up to 25,000 tpa	Nil

* Note: infrastructure may be located outside the region

Source: NSW Department of Planning, Industry and Environment, *NSW Waste and Sustainable Materials Strategy 2041*, June 2021, p. 21.

[4] NSW Environment Protection Authority, *Sydney Landfill Shortage*, 27 June 2025, https://www.epa.nsw.gov.au/Working-together/Community-engagement/updates-on-issues/Sydney-landfill-shortage (accessed 23 August 2025).

[5] NSW Department of Planning, Industry and Environment, *NSW Waste and Sustainable Materials Strategy 2041*, June 2021, p. 21.

As indicated in the above figure, regional energy recovery facilities can play an important part in meeting NSW's waste infrastructure needs. The WSM Strategy 2041 explains:

> *Regional precincts that are located on arterial transport routes have enormous potential to become circular economy precincts, where energy recovery sits at the centre of a network of complementary industries that can create jobs and drive innovation. The first of these is located in the Parkes Special Activation Precinct, which sits alongside the Inland Rail route, the 1,700 km freight network that will connect Victoria, NSW and Queensland.*[6]

Parkes is uniquely positioned to host an energy recovery facility because of its strategic location at the 'only junction of Australia's two rail spines, the Inland Rail and the Trans-Australian Railway'.[7] This means that, from Parkes, 'up to 80 per cent of Australia's population [can be accessed] within 12 hours by road or rail' (see figure below).[8]

Source: NSW Government, *Parkes Special Activation Precinct*, https://www.nsw.gov.au/regional-and-primary-industries/regional-business-and-economy-nsw/special-activation-precincts/parkes-activation-precinct (accessed 23 August 2025).

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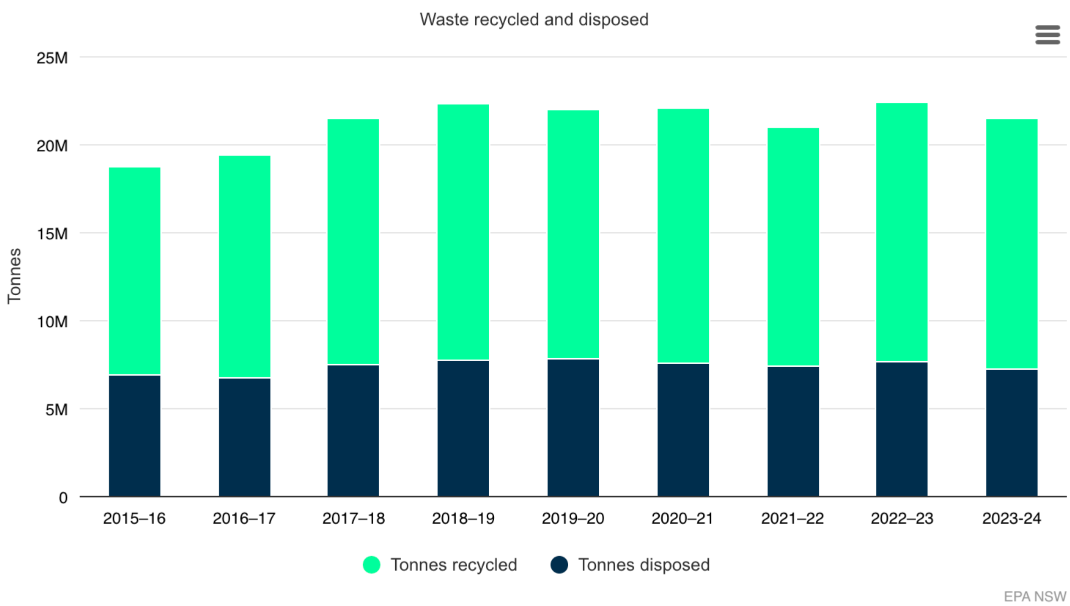
[6] NSW Department of Planning, Industry and Environment, *NSW Waste and Sustainable Materials Strategy 2041*, June 2021, p. 22.
[7] NSW Government, *Parkes Special Activation Precinct*, https://www.nsw.gov.au/regional-and-primary-industries/regional-business-and-economy-nsw/special-activation-precincts/parkes-activation-precinct (accessed 23 August 2025).
[8] NSW Government, *Parkes Special Activation Precinct*, https://www.nsw.gov.au/regional-and-primary-industries/regional-business-and-economy-nsw/special-activation-precincts/parkes-activation-precinct (accessed 23 August 2025).

Energy from waste as a key plank in NSW's circular economy

EfW facilities can play a key role in transitioning NSW to a circular economy by diverting residual waste from landfill. In a circular economy, materials never become waste, because 'waste' is instead recognised as a 'resource'. While all efforts should be taken to reuse, repair and recycle materials where possible, there will unavoidably be some amount of residual waste that cannot be recovered by those methods.

The limitations of recycling are well-known, including issues with contamination, challenges with recycling soft plastics and products comprised of mixed materials, and the degradation in the quality of materials that have been recycled ('downcycling'). NSW's recycling rates have remained largely stable since 2015-16, and in 2023-24 the overall recycling rate of 66% was identical to the previous year (see figure below).[9] This shows there is a significant proportion of waste that is still ending up in landfill.

Figure 1



Source: NSW Environment Protection Authority, *NSW waste and recycling performance data: 2023–24 financial year*, 8 July 2025, https://www.epa.nsw.gov.au/Your-environment/Waste/waste-overview/waste-performance-data#:~:text=Waste%20generation%20per%20capita,been%20stable%20since%202019%E2%80%9320. (accessed 23 August 2025).

[9] NSW Environment Protection Authority, *NSW waste and recycling performance data: 2023–24 financial year*, 8 July 2025, https://www.epa.nsw.gov.au/Your-environment/Waste/waste-overview/waste-performance-data#:~:text=Waste%20generation%20per%20capita,been%20stable%20since%202019%E2%80%9320. (accessed 23 August 2025).

According to the CSIRO, the bioenergy produced by EfW facilities is a type of 'renewable energy produced from biomass materials' which 'has the potential to be highly significant in a circular economy':

> *There are big opportunities to further develop our bioenergy capability to help decarbonise Australia's energy sector, and contribute to a circular economy while offering reliable supply of electricity and reducing the amount of waste ending up in a landfill.*[10]

While a variety of initiatives are needed, targeting each stage of the product lifecycle (including design, manufacturing, consumption, reuse and repair), to support the transition to a circular economy, EfW can act as the last link in the chain after all other materials recovery strategies have been exhausted, to avoid residual waste going to landfill.

The economic opportunity for Parkes – An energy recovery facility within the Parkes Special Activation Precinct

The Parkes Special Activation Precinct (SAP) presents an enormous economic opportunity for Parkes. The NSW Government states that its vision behind the SAP framework is 'to create jobs and fuel economic development across regional NSW'.[11] The SAP framework has bipartisan support, having been originally proposed in 2018 by the former NSW Liberal Government as part of its 20-Year Economic Vision for Regional NSW.[12]

The proposed EfW facility has always been a vital aspect of the vision for the Parkes SAP. Since June 2019 when the urban planning consultancy firm, Jensen PLUS, prepared the Draft Structure Plan for the Parkes SAP, an EfW facility was said to 'offer the opportunity for high volume electricity and waste heat export, and carbon sequestration to … businesses' in the adjoining Livestock Agriculture Sub Precinct within the SAP.[13] Similarly, the finalised Master Plan for the SAP explains that 'a proposed energy from waste facility will provide a reliable energy source for businesses in the Parkes precinct.'[14] The EfW facility would therefore support and enable the effective operation of other businesses within the SAP.

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[10] CSIRO, *Biomass and waste-to-energy,* https://www.csiro.au/en/research/technology-space/energy/Decarbonising-Industry-Transport/Energy-in-the-circular-economy/Biomass-to-energy (accessed 23 August 2025).
[11] NSW Government, *Special Activation Precincts: regional NSW,* https://www.nsw.gov.au/regional-nsw/regional-business-and-economy-nsw/special-activation-precincts (accessed 23 August 2025).
[12] Liberal Party of Australia, NSW Division, *20-year vision for a thriving regional NSW*, https://nswliberal.org.au/news/20-year-vision-for-a-thriving-regional-nsw (accessed 23 August 2025).
[13] Jensen PLUS (prepared for NSW Department of Planning, Industry and Environment), *Parkes Special Activation Precinct Draft Structure Plan*, June 2019, p. 46.
[14] NSW Government, *Parkes Special Activation Precinct*, https://www.nsw.gov.au/regional-and-primary-industries/regional-business-and-economy-nsw/special-activation-precincts/parkes-activation-precinct (accessed 23 August 2025).

The Master Plan also highlights the importance of the inclusion of an EfW facility in establishing the Parkes SAP as Australia's first eco-industrial park:

> *… an area with direct rail access that enables an energy from waste facility, along with recycling and repurposing uses, that champions circular economy principles … will form a key component of a true eco-industrial precinct.*
>
> *… An energy from waste facility forms a key component of the Precinct to be able to achieve behind-the-meter energy solutions and other circular economy opportunities.*[15]

I do not believe that any alterations to the Parkes SAP are needed in relation to the proposed EfW facility. The EfW facility would enhance and synergise with the other businesses within the Parkes SAP.

Potential impacts on human health and the environment

Compared to older waste incinerators, the EPA will ensure that modern EfW facilities must meet stringent regulations and are designed to minimise impacts on human health and the environment:

> *WtE plants have been the subject of much controversy due to the emissions of pollutants including polychlorinated dibenzodioxins (PCDDs) and dibenzofurans (PCDFs), nitrogen oxides, sulphur oxides, particulate matter, and others. These concerns were not unfounded since old incinerators were running few, if any, flue gas cleaning systems. Modern WtE plants are required to meet very stringent emission standards specified by the EU's Waste Incineration Directive (2000) (3). As a result, today the plants are operating sophisticated systems for cleaning and monitoring flue gasses making thermal treatment of waste a viable and environmentally friendly option for generating electricity and heat.*[16]

A 2020 systematic review of the literature on the health impacts of EfW facilities found that although there was 'a dearth of well-conducted epidemiological studies', the existing literature:

> *… suggests that the risks to human health from emissions of appropriately designed, properly managed (including feedstock), state-of-the-art WtE [waste-to-energy] incineration plants are relatively lower compared to prevailing alternative waste management practices, including incineration of unsorted waste (without energy recovery) and land fill.*
>
> *… While WtE practice might be a reasonable option for mitigating waste management and energy security issues, its implementation requires proper design, operation, and emissions management (monitoring) and control, as well as ongoing environmental and health monitoring and surveillance to maximise both economic and environmental benefits while minimising health impacts or risks. With respect to planning and design of WtE facilities, it is important that health risk assessments supported by comprehensive exposure monitoring, and robust modelling (e.g. detailed emissions modelling plus atmospheric modelling and real population data) be conducted for proposed WtE facilities to ensure that protective measures are optimally designed and emissions criteria appropriately implemented.*[17]

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[15] NSW Government, *Parkes Special Activation Precinct Master Plan*, June 2020 (amended August 2022), pp. 20 and 24.
[16] Luka Traven, 'Busting the myth: waste-to-energy plants and public health', *Archives of Industrial Hygiene and Toxicology*, 2023, https://doi.org/10.2478/aiht-2023-74-3733.
[17] Tom Cole-Hunter et al, 'The health impacts of waste-to-energy emissions: a systematic review of the literature', *Environmental Research Letters*, 2020, https://doi.org/10.1088/1748-9326/abae9f.

Government actions to safeguard human health and the environment

The NSW Government has recently become aware of these community concerns but has been slow to react to the misinformation and scare tactics used by the "No Incinerator Campaign" thus allowing widespread fear to proliferate.

There is an urgent need for the NSW Government to actively address these community concerns.

In response to Recommendation 19 of the 2018 NSW Legislative Council inquiry into EfW technology,[18] in 2019 the NSW Minister for Environment asked the Chief Scientist and Engineer to provide independent expert advice on energy recovery facilities to ensure that any NSW facilities would align with international best practice for the protection of human health and the environment.[19] The detailed report by the Chief Scientist and Engineer, published in 2020, benchmarked the NSW regulatory framework against leading jurisdictions such as the European Union (EU) and United States of America (USA) and made a range of recommendations including regarding air emission limits and waste input plans.[20] The NSW Government supported all of the report's recommendations.[21]

The NSW Government updated its *Energy from Waste Policy Statement* to reflect the Chief Scientist and Engineer's recommendations on air emission limits.[22] Additionally, the Policy Statement sets out other technical criteria that proposed EfW facilities must meet, such as monitoring and reporting standards and thermal efficiency and resource recovery criteria.[23]

The NSW EPA expects that 'EFW plants will generally be categorised as State significant developments (SSD)' and will therefore be subject to numerous stringent regulations.[24] Proposed EfW facilities in NSW will be subject to 'numerous statutes, regulations, policies, plans and other documents', including the *Protection of the Environment Operations Act 1997* and the regulations under that legislation.[25] For example, the Protection of the Environment Operations (Clean Air) Regulation 2010 sets 'maximum industrial source emissions' that EfW facilities can emit.[26]

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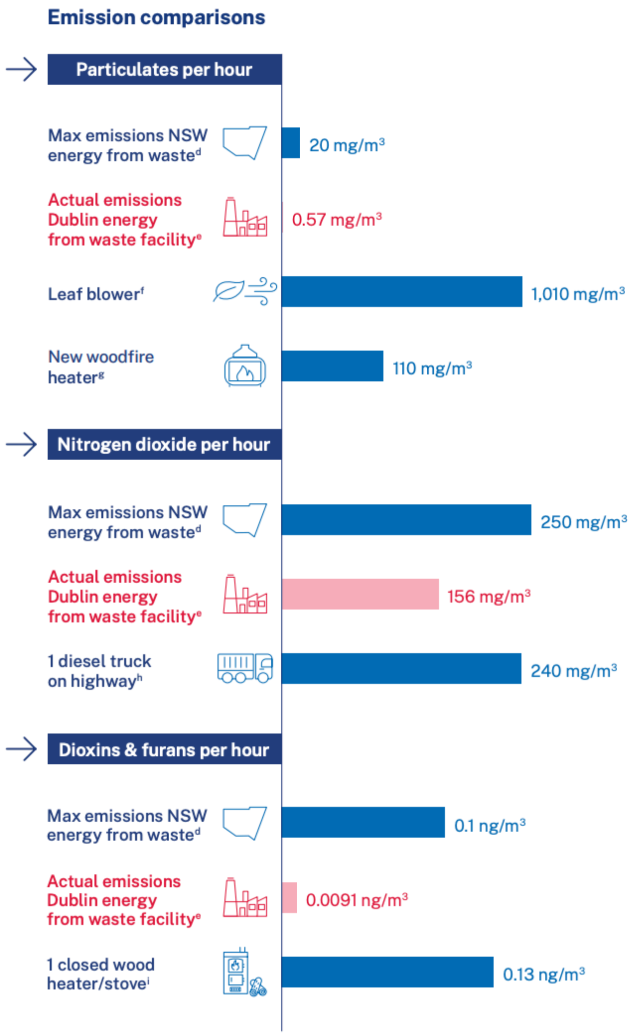
[18] NSW Legislative Council Portfolio Committee No. 6, *'Energy from waste' technology*, March 2018, pp. xiii-xiv.
[19] NSW Environment Protection Authority, *Energy recovery facilities*, 18 January 2023, https://www.epa.nsw.gov.au/Your-environment/Waste/waste-facilities/energy-recovery (accessed 23 August 2025).
[20] NSW Government, *Energy from Waste: Report from the NSW Chief Scientist & Engineer*, May 2020 (with additional advice as at November 2020).
[21] NSW Department of Planning, Industry & Environment, *Energy from Waste: Response to the Chief Scientist and Engineer's report*, March 2021.
[22] NSW Environment Protection Authority, *Energy recovery facilities*, 18 January 2023, https://www.epa.nsw.gov.au/Your-environment/Waste/waste-facilities/energy-recovery (accessed 23 August 2025).
[23] NSW Environment Protection Authority, *NSW Energy from Waste Policy Statement*, June 2021.
[24] NSW Environment Protection Authority, *Guide to the NSW Energy from Waste Framework*, September 2021, p. 3.
[25] NSW Environment Protection Authority, *Guide to the NSW Energy from Waste Framework*, September 2021, p. 3.
[26] NSW Environment Protection Authority, *Guide to the NSW Energy from Waste Framework*, September 2021, p. 9.

The Chief Scientist and Engineer provided further advice to the NSW Government following new developments in the EU in 2023 and 2024 (including the adoption of a revised Industrial Emissions Directive applying to waste incineration plants). That advice confirmed that 'emission limits in NSW for energy-from-waste facilities remain among the most stringent, compared to other jurisdictions'.[27]

The stringency of NSW's emission limits is demonstrated in the figure below which compares NSW's emission limits with the actual emissions from the Dublin Waste to Energy Ltd. facility and other common sources.



Source: NSW Government, *Energy from Waste factsheet*, p. 2.

Proponents of EfW facilities must also submit a Human Health Risk Assessment which will be assessed by the NSW Government, with reference to the available scientific literature.[28] A variety of potential pollutants and exposure pathways are assessed:

[27] NSW Government, *Draft NSW Waste and Circular Infrastructure Plan*, May 2025, p. 18.
[28] NSW Environment Protection Authority, *Guide to the NSW Energy from Waste Framework*, September 2021, p. 7.

> *An important input to the HHRA is the air quality impact assessment. This assessment, as well as performance data from the reference plant, helps to identify pollutants of concern and potential exposure levels. This information helps to ensure the HHRA focuses on the main contributors to health risk. Potential exposure pathways for these pollutants are considered, including inhalation, contact with soil, contact and ingestion of groundwater, drinking water (water from rainwater tanks or water reservoirs) or ingestion of home-grown food. Risks from multiple exposure pathways are also assessed. For each pollutant, both acute and chronic exposure is assessed. Safety margins are usually applied to threshold values to ensure those most sensitive are protected.*[29]

Further, the CSIRO is conducting research in collaboration with the Commonwealth, state and local governments to 'reduce the risks associated with feedstock quality and variability' and make EfW technologies cleaner, safer and more efficient.[30]

The steps taken by the NSW Government to date provide me with reassurance that the government is taking its obligations seriously and is committed to appropriately assessing and regulating any proposed EfW facilities to safeguard human health and the environment.

Nonetheless, I have witnessed first-hand the strong sense of fear and anxiety within many parts of the Parkes community regarding the potential human health and environmental impacts of the proposed Parkes EfW facility. There is a large virtual community hosted by the Parkes Clean Future Alliance, which also hosts well-attended in-person events, where many Parkes residents express strong and valid concerns about the EfW facility. While I personally support the Parkes EfW facility, I can understand their concerns as there has been a dearth of information provided directly to the Parkes community by the NSW Government. This lack of information has allowed the "No Incinerator Campaign" to dominate public perception and incite fear of the EfW facility.

It is important that the EfW facility has a social license to proceed – in order for that to happen, there needs to be clear, direct and transparent messaging from the NSW Government to the Parkes community. Representatives from relevant NSW Government agencies, including the EPA. should hold community forums in Parkes to fill the information vacuum and educate concerned residents about the potential human health and environmental impacts and how the government intends to mitigate those impacts.

Australian and international examples of EfW facilities

Within Australia, there has been limited uptake of EfW technology, with no EfW facilities currently operating. In Western Australia (WA), two facilities are under construction,[31] while in Victoria five are under development.[32]

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[29] NSW Environment Protection Authority, *Guide to the NSW Energy from Waste Framework*, September 2021, p. 7.

[30] CSIRO, *Biomass and waste-to-energy,* https://www.csiro.au/en/research/technology-space/energy/Decarbonising-Industry-Transport/Energy-in-the-circular-economy/Biomass-to-energy (accessed 23 August 2025).

[31] Australian Renewable Energy Agency, *Kwinana Energy Recovery Project*, 15 April 2025, https://arena.gov.au/projects/kwinana-energy-recovery-project/ (accessed 23 August 2025); Australian Renewable Energy Agency, *Second waste-to-energy plant gets green light*, 22 January 2020, https://arena.gov.au/blog/second-waste-to-energy-plant-gets-green-light/ (accessed 23 August 2025).

[32] Harrison Tippet and Natasha Schapova, *ABC News*, 'Five waste-to-energy plants are under development in Victoria. Here's how it works', 21 August 2024, https://www.abc.net.au/news/2024-08-21/waste-to-energy-victoria/104248440 (accessed 23 August 2025).

In WA, rigorous government investigations were undertaken into the safety of the EfW technology before it was adopted. In 2013, WSP Environmental provided a report to the WA Minister for Environment summarising the findings from their investigation into the environmental and health performance of EfW facilities internationally.[33]

The report found that while there was still some uncertainty in interpreting the results of some literature and academic studies:

> *There appears to be little convincing and unequivocal evidence that excess risk of contracting specific illnesses is associated with waste facilities such as Waste-to-Energy plants, especially newer, well operated facilities i.e. those operated in compliance with the relevant regulations and emission standards, which seem to be more effective in mitigating potential risks from exposure to emissions*.[34]

The WA Waste Authority and Environmental Protection Authority issued the following statement:

> *The EPA and Waste Authority are confident that, subject to appropriate regulation, along with the matching of suitable technologies to types of waste input and appropriate plant scale, waste to energy plants employing best practice can be operated with acceptable impacts to our community*[35]

Globally, there has been significant uptake of EfW technology. The EU is often cited as a leader in this space. Below is an overview of the global implementation of EfW facilities:

> *Incineration with energy recovery has been largely adopted in high-income and land-constrained countries. In 2011, nearly 800 thermal WtE [waste-to-energy] projects were functioning in almost 40 countries globally and that 11% of the MSW treated generated up to 429 TWh of power (Dlamini et al., 2019). Due to increased level of technology and better consciousness to environmental concern, more than 1,700 incineration plants with energy recovery are currently in operation worldwide with more than 80 per cent located in developed countries, led by Japan, France, Germany and the United States and more than 200 incineration plants are currently under construction and will be operational between 2020 and 2023 (UNEP, 2019). In Malaysia, only one incineration plant is in operation which can produce 1 MW of electricity from 100 tonnes/day of MSW (Tan et al., 2015). The premier waste incineration plant constructed in Ethiopia with a capacity of 55 MW which is the first of its kind in Sub-Saharan African will process 1,400 tonnes of waste per day (Stafford, 2020). Singapore has a total of five incineration plants (Qazi et al., 2018b).*[36]

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[33] WSP Environmental (prepared for WA Department of Environment and Conservation), *Summary Report – Waste to Energy - A review of legislative and regulatory frameworks, state of the art technologies and research on health and environmental impacts*, January 2013.

[34] WSP Environmental (prepared for WA Department of Environment and Conservation), *Summary Report – Waste to Energy - A review of legislative and regulatory frameworks, state of the art technologies and research on health and environmental impacts*, January 2013, p. 3.

[35] WA Waste Authority, *Waste to Energy,* 22 November 2019, https://www.wasteauthority.wa.gov.au/publications/view/miscellaneous/waste-to-energy (accessed 23 August 2025).

[36] Moshood Akanni Alao, Olawale Mohammed Popoola and Temitope Raphael Ayodele, 'Waste-to-energy nexus: An overview of technologies and implementation for sustainable development', *Cleaner Energy Systems*, 2022, https://doi.org/10.1016/j.cles.2022.100034.

Table 6. Incineration plants across the world and amount of waste incinerated (UNEP,2019)

Countries	Number of incineration plants	Amount of waste incinerated (million tons)
Switzerland	30	4
Sweden	34	6
South Korea	35	5
Italy	41	6
United Kingdom	46	10
Austria	65	4
United States	77	30
Germany	121	26
France	126	14
China	286	5
Japan	754	30
Ethiopia	1	0.35
Total	**1616**	**140.35**

Source: Moshood Akanni Alao, Olawale Mohammed Popoola and Temitope Raphael Ayodele, 'Waste-to-energy nexus: An overview of technologies and implementation for sustainable development', *Cleaner Energy Systems*, 2022, https://doi.org/10.1016/j.cles.2022.100034.

> *The WtE sector is already well established in Europe and provides up to 8% of electricity and up to 15% of domestic heating needs (World Energy Council 2016, Zafar 2018). As of 2008, 475 European WtE plants processed an average of 59 million tonnes of MSW creating revenue of US$4.5 billion each year (Zafar 2018). In Scandinavia, Denmark repurposes 54% of its MSW as RDF (Zafar 2018). Meanwhile Sweden, which has employed WtE since the 1940s, is aiming to match the repurposing of 99% of its local MSW (two million tonnes annually) with an equivalent amount of imported MSW as RDF (Fred´en 2018). In 2012, approximately 600 WtE plants across 35 different countries were estimated to combust 130 million tonnes of MSW (Hoornweg and Bhada-Tata 2012), with the sector growing at a compounded annual rate of nearly 10% (World Energy Council 2016). Outside of Europe, the process is being adopted with eagerness, using the established Waste Incineration Directive (WID 2000/76/EC) of the European Commission as a guide for monitoring and regulating WtE emissions (Clean Energy Finance Corporation 2016). In 2016, the USA alone operated 71 WtE plants generating approximately 14 billion KWh of electricity from 30 million tonnes of RDF (U.S. Energy Information Administration 2018). In the Asia-Pacific region, China is the fastest growing adopter of WtE, recently planning 125 new plants to double national capacity (World Energy Council 2016, Zafar 2018).*[37]

[37] Tom Cole-Hunter et al, 'The health impacts of waste-to-energy emissions: a systematic review of the literature', *Environmental Research Letters*, 2020, https://doi.org/10.1088/1748-9326/abae9f.

The CSIRO has said that 'modern waste-to-energy plants are common in Europe, East Asia and the United States. They are clean, efficient and can significantly reduce emissions of greenhouse gases.'[38]

The widespread adoption of EfW technology across the world, including in densely populated, developed nations, should provide reassurance that the technology can be safely adopted.

The Copenhill/Amager Bakke plant in Copenhagen (Denmark)

The Copenhill/Amager Bakke plant constructed in a residential suburb in Copenhagen demonstrates the capacity for well-designed EfW facilities to not only attain social license but also enhance the surrounding area.

> *Located only 2 km away from the Royal Palace, Copenhill is integrated into urban life with its innovative architectonic design offering a recreational area on the facility rooftop that includes an all year skiing slope, and a champagne bar for those who would like to visit, as well as a climbing wall on the facade.*
>
> *From a technical point of view, Copenhill was conceived from the idea of being a WtE plant showcase that Denmark could export to the world. Therefore, it was built using the best available technology to ensure the highest environmental performance and energy efficiency all in all in the safest environment. In addition, the construction site was used for training apprentices in works associated with the construction of WtE plants, providing economic benefit for the community.*[39]

The Copenhill plant won *World Building of the Year 2021*, with judges praising the building for 'address[ing] the role of architecture in the new world of recycling and zero carbon … [and] treat[ing] infrastructure projects in a way which makes people say "Yes in my back yard" rather than "no"'.[40]

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[38] CSIRO, *Biomass and waste-to-energy,* https://www.csiro.au/en/research/technology-space/energy/Decarbonising-Industry-Transport/Energy-in-the-circular-economy/Biomass-to-energy (accessed 23 August 2025).

[39] IEA Bioenergy, *Waste-to-Energy and Social Acceptance: Copenhill WtE plant in Copenhagen*, March 2021, p. 3.

[40] World Architecture Community, *BIG-designed Copenhill / Amager Bakke wins World Building Of The Year Award for 2021,* 6 December 2021, https://worldarchitecture.org/architecture-news/emcpe/big-designed-copenhill-amager-bakke-wins-world-building-of-the-year-award-for-2021.html (accessed 23 August 2025).

Source: World Architecture Community, *BIG-designed Copenhill / Amager Bakke wins World Building Of The Year Award for 2021,* 6 December 2021, https://worldarchitecture.org/architecture-news/emcpe/big-designed-copenhill-amager-bakke-wins-world-building-of-the-year-award-for-2021.html (accessed 23 August 2025).

Singapore's EfW infrastructure

In Singapore, EfW technology has been safely used for over 40 years. Prior to 2006, I lived, worked and raised my children in Singapore for 15 years – during that time, EfW facilities were already in operation.

Singapore's first EfW plant at Ulu Pandan was constructed in 1979. It was decommissioned in August 2009 after 30 years of operation and replaced by Keppel Seghers Tuas Waste-To-Energy Plant. Four EfW plants are currently in operation in Singapore: TuasOne Waste-To-Energy Plant, Keppel Seghers Tuas Waste-To-Energy Plant, Tuas South Incineration Plant and Senoko Waste-To-Energy Plant.[41]

The Singapore Ministry of the Environment and Water Resources explains that a flue gas cleaning system at Tuas South Incineration Plant helps to safeguard public health:

> *To ensure that harmful gases are not emitted, the flue gas produced from the combustion process passes through an electrostatic precipitator and catalytic fabric filter system. This removes the dust particles, neutralises the acidic contents and breaks down dioxins into harmless gases before it is emitted through two 150 m-tall chimneys.*[42]

Having lived in Singapore for 15 years, I can personally attest that it is one of the cleanest countries and is in many aspects a world leader in science and innovation. Although sites are strategically selected for EfW facilities in Singapore, there does not appear to be any specific requirements for buffer zones between the facilities and residential areas. Indeed, EfW technology was originally adopted in Singapore because of the lack of available land to build landfills. EfW technology was viewed as a space-saving and efficient method of waste management in this land-scarce country.

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[41] Singapore National Environment Agency, *Waste Management Infrastructure,* 29 May 2024, https://www.nea.gov.sg/our-services/waste-management/waste-management-infrastructure/solid-waste-management-infrastructure (accessed 24 August 2025). See also, Singapore Ministry of the Environment and Water Resources, *Zero Waste Masterplan Singapore*, 2019, p. 13.

[42] Singapore Ministry of the Environment and Water Resources, *Zero Waste Masterplan Singapore*, 2019, p. 16.

In comparison, the proposed EfW facility in the Parkes SAP will have appropriate buffer zones to safeguard human health and the environment. The Regional Growth NSW Development Corporation has master planned the SAP taking into consideration the appropriate buffer zone distances.[43]

Recommendations

While I personally support the construction of the proposed Parkes Energy Recovery Facility, I believe the following actions would greatly enhance community trust in, and acceptance of, the project.

- **The NSW Minister for Planning and Public Spaces should refer the proposed Parkes Energy Recovery Facility to the Independent Planning Commission from the outset to undertake an open and transparent assessment of the proposal and make an independent planning decision.**
- **The public exhibition period for the Parkes Energy Recovery Facility's Environmental Impact Statement should be extended from 28 days to 8 weeks, to enable more than adequate community consultation.**
- **Representatives from relevant NSW Government agencies, including the EPA, should hold community forums in Parkes to educate the community on the potential human health and environmental impacts of the proposed EfW facility. Community forums would allow concerned residents to ask questions and hear directly from the experts so that their valid concerns are addressed.**

Yours sincerely,

16 September 2025

[43] Parkes Energy Recovery, *Parkes Energy Recovery Community Q&A*, July 2025, p. 15.