



Environment Protection Authority

Energy from waste – options paper

December 2024



A vertical decorative strip on the left side of the page featuring intricate Aboriginal patterns. These include concentric circles, wavy lines, and geometric shapes in various shades of blue and grey, typical of traditional Indigenous art.

Acknowledgement of Country

The NSW Environment Protection Authority acknowledges the Traditional Custodians of the land on which we live and work, honours the ancestors and the Elders both past and present and extends that respect to all Aboriginal people.

We recognise Aboriginal peoples' spiritual and cultural connection and inherent right to protect the land, waters, skies and natural resources of NSW. This connection goes deep and has since the Dreaming.

We also acknowledge our Aboriginal and Torres Strait Islander employees who are an integral part of our diverse workforce and recognise the knowledge embedded forever in Aboriginal and Torres Strait Islander custodianship of Country and culture.

Aboriginal artwork by Worimi artist Gerard Black

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The waste crisis in NSW

The traditional ‘take, make, dispose’ linear economy model has left us with a waste problem. For, NSW, its large economy and population means we create around one-third of Australia’s total waste. Over the next 20 years, NSW waste volumes are forecast to grow to 27 million tonnes in 2041. At the current rate of waste generation, Greater Sydney is projected to run out of key landfill capacity by 2030. In some regional areas, like Coffs Harbour and Port Macquarie, landfill capacity is also likely to expire this decade.



Credit: Evolving Images/EPA

NSW is making progress towards a circular economy. We are implementing strategies to reduce the volume of waste we generate and to reuse, repair and recycle what we can’t avoid. However, we also need to make sure that we have enough capacity to safely manage our residual waste, material that we cannot recycle.

Our 20-year waste strategy, the *NSW Waste and Sustainable Materials Strategy 2041*, identifies that critical residual waste infrastructure is urgently needed.

The waste strategy identifies that a mix of residual waste infrastructure is needed this decade across NSW. This includes at least one large-scale regional energy recovery facility to reduce the need for additional landfill capacity. The waste strategy then projects that at least three large-scale regional energy recovery facilities will be needed by 2040.

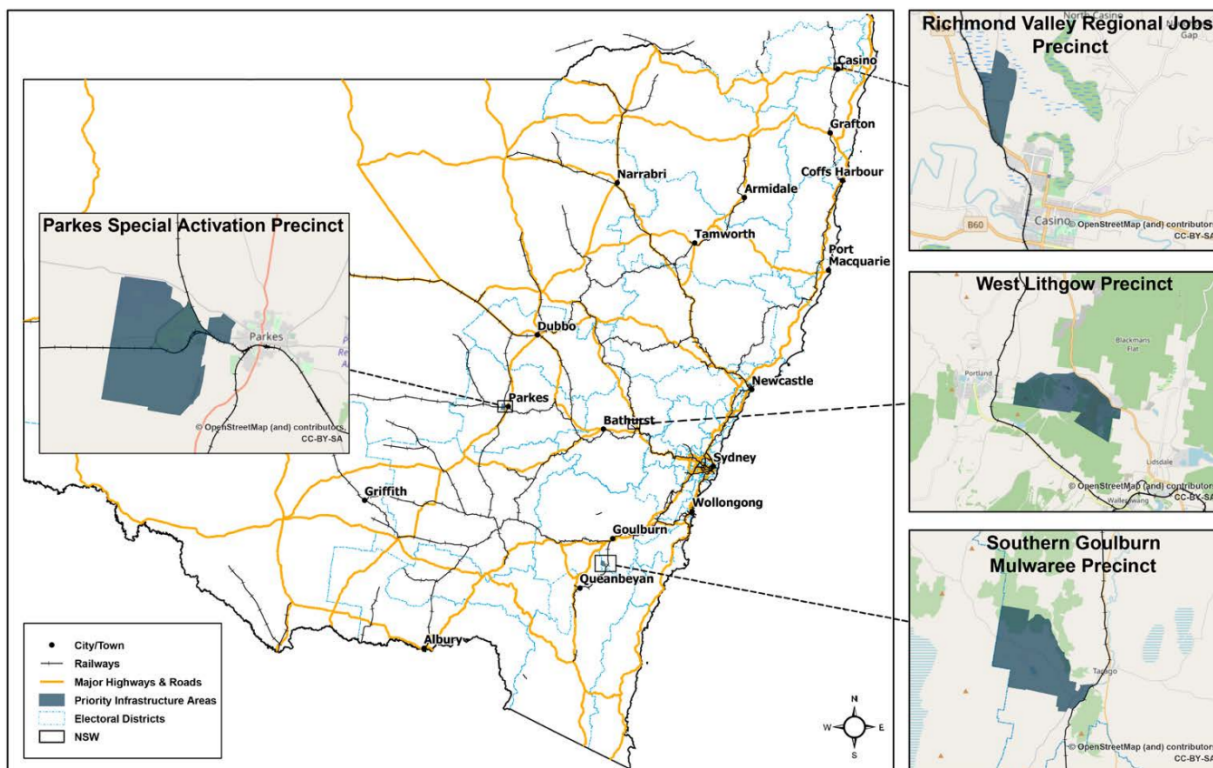
Recovering energy from waste can be a legitimate and necessary residual management option where it can deliver positive outcomes for the community and the environment. It is important to get the settings right for the energy from waste framework so that we can enable this infrastructure and safely manage our residual waste in a more useful way than disposing of it in landfill.

The Environment Protection Authority (EPA) has progressed a review of the energy from waste framework for the NSW Government, made preliminary findings, and identified potential changes to the framework. This paper outlines options for potential changes and invites your views on them. Your feedback on these potential changes is important and will help the EPA to finalise its review and for the NSW Government to decide on any changes to the energy from waste framework.

Overview of the current framework

Energy from Waste precincts

Thermal treatment of waste that involves or results in energy recovery is prohibited in NSW, unless the activity is excepted from the prohibition 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 within boundaries defined by maps published in the NSW Government Gazette: Parkes Special Activation Precinct, Richmond Valley Regional Jobs Precinct, Southern Goulburn Mulwaree Precinct and West Lithgow Precinct.¹



NSW Energy from Waste Infrastructure Plan

The regional precinct model was outlined in the NSW Energy from Waste Infrastructure Plan. The aim is to ensure a strategic approach to the role and location of energy recovery from waste facilities in NSW. The infrastructure plan provides that the following principles guide the location of energy from waste infrastructure in NSW. Energy from waste must:

- improve certainty for communities and industry around acceptable locations and facilities
- adhere to the precautionary principle where there is a greater risk of harm to human health due to proximity to high population areas (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.

¹ The map for West Lithgow Precinct was revoked on 21 October 2022 and so this precinct is undefined and not available.

Protection of the Environment Operations (General) Regulation 2022

The Protection of the Environment Operations (General) Regulation 2022 gives effect to the infrastructure plan. It prohibits the thermal treatment of waste that involves or results in energy recovery and specifies exceptions to the prohibition. The exceptions include:²

- the activity or work is carried out in specified precincts
- the thermal treatment was lawfully carried out before the regulation commenced
- the waste is being treated to recovery energy to power industrial or manufacturing processes at the premises and is replacing a 'less environmentally sound fuel'³
- the activity is excluded from the definition of 'thermal treatment'⁴
- where the waste being thermally treated is 'eligible waste fuel'.⁵

NSW Energy from Waste Policy Statement

The policy statement sets out the technical requirements that an energy from waste facility must meet, such as air emission limits and other operational parameters, and requires operators to demonstrate supply of feedstock is in line with resource recovery criteria.

The policy statement reflects the latest advice on air emissions standards from the NSW Chief Scientist and Engineer.

² Subject to additional criteria set out in the Protection of the Environment Operations (General) Regulation 2022.

³ For the definition of this term see Protection of the Environment Operations (General) Regulation 2022 clause 142.

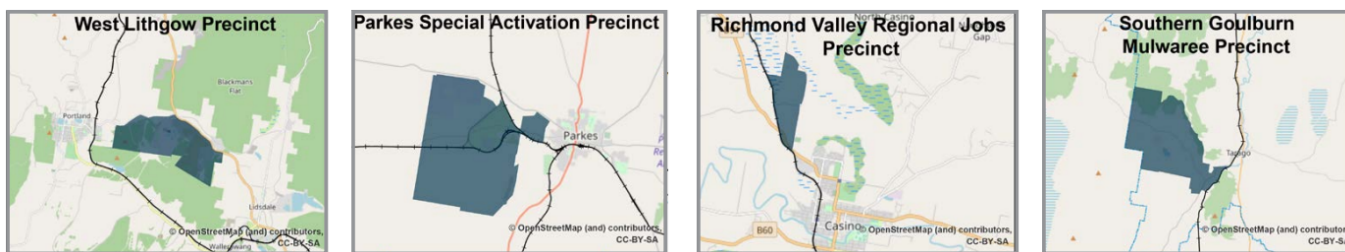
⁴ For the definition of this term see Protection of the Environment Operations (General) Regulation 2022 clause 142.

⁵ A full list of eligible waste fuels can be found in the NSW EPA Eligible Waste Fuels Guidelines.

Proposals for change

1. Changes to precincts

There are currently four precincts identified in the Protection of the Environment Operations (General) Regulation 2022 as areas that permit the thermal treatment of waste to recover energy: West Lithgow Precinct, Parkes Special Activation Precinct, Richmond Valley Regional Jobs Precinct, and Southern Goulburn Mulwaree Precinct. These are identified as priority infrastructure areas in the NSW Energy from Waste Infrastructure Plan in line with the maps below. (The West Lithgow Precinct map was revoked by notice in the NSW Government Gazette on 21 October 2022.)



No large-scale energy recovery from waste facility has been approved for development in NSW in any of the four precincts to date. However, two proposals are mature and progressing:

- Veolia Woodlawn Advanced Energy Recovery Centre within the Southern Goulburn Mulwaree Precinct.
- Regional Growth NSW Development Corporation's expression of interest for a facility within the Parkes Special Activation Precinct.

For the Richmond Valley Regional Jobs Precinct, the Council for Richmond Valley resolved in November 2022 to pause its efforts to develop an energy from waste facility. There are no mature proposals for this area and there are logistical challenges given its distance from Greater Sydney.

The West Lithgow Precinct map was revoked after the withdrawal of Energy Australia's State Significant Development application for a facility in that precinct.

Analysis commissioned by the EPA to assess NSW residual waste needs identified that even if the proposals for the Goulburn Mulwaree Precinct and Parkes Special Activation Precinct were approved and developed, the cumulative capacity would still be insufficient to replace the current throughput of the Lucas Heights Landfill, which is scheduled to exhaust in 2030.

The analysis further identified that outside these two proposals, there are mostly speculative proposals for large-scale energy from waste facilities in NSW. The most defined proposal was a Cleanaway-led consortium proposal for a 400,000 tonnes/year energy from waste facility at the former Wallerawang power station site in the Lithgow area. The other potential opportunity was an energy from waste facility in the Hunter region by Remondis at its Tomago Resource Recovery facility. These sites have been considered against the principles for locations of energy from waste facilities set out in the infrastructure plan, and may be suitable.

However, it is important to note that even if changes to the energy from waste framework were made to enable proposals to be developed in these areas, each proposal would still need to comply with current planning and environmental laws and policy. This includes applying for development consent, which involves a rigorous merit-based assessment process.

Proposed changes to precincts

- Richmond Valley Jobs Precinct no longer identified as a priority infrastructure area and the map revoked.
- West Lithgow Precinct boundaries extended to include the former Wallerawang power station and a map gazetted.
- A new priority infrastructure area is established for Tomago and a map gazetted.
- No changes to Parkes Special Activation Precinct and Southern Goulburn Mulwaree Precinct.

2. Changes to the definition of ‘thermal treatment’

The Protection of the Environment Operations (General) Regulation 2022 [clause 142](#) defines ‘thermal treatment’. This definition is important because it identifies processes that may be prohibited under the regulation.

The regulation specifically excludes some processes from the definition of ‘thermal treatment’. This means those processes are not prohibited by the regulation and are effectively outside the energy-from-waste framework.

A process that is currently excluded from the definition of ‘thermal treatment’ is:

the thermal treatment of waste plastic to produce plastic products, or inputs for plastic products, if at least 65% of the weight of the waste plastic thermally treated in a 12-month period is converted into plastic products or inputs for plastic products.

This exclusion is intended to allow processes that deal with plastic waste in a circular way, i.e. where a significant proportion of the input plastic is converted into plastic products or is used as input to plastic products. The EPA review of the energy from waste framework has made a preliminary finding that only allowing this exception for plastic waste may be too narrow. There is an opportunity to expand this exception to allow for other types of waste to be thermally treated to produce new products or inputs for those products.

A further option is to have an exclusion for processes that result in a clear environmental benefit (the benefit being subject to criteria in the regulation or guidelines). This could allow other thermal treatment activities – for example, generating sustainable aviation fuel – if they could be shown to produce a clear environmental benefit.

Proposed changes to the definition of ‘thermal treatment’

- Expand the exclusions to allow processes that treat waste to produce ‘like for like’ products or inputs for those products, not only for plastic.
- Expand the exclusions to allow for processes that make a product that has a clear environmental benefit in line with criteria specified in the regulation or guidelines.

3. Changes to exceptions for powering onsite industrial or manufacturing processes

The Protection of the Environment Operations (General) Regulation 2022 clause 144 sets out exceptions to the prohibition on thermal treatment of waste to recover energy. The exception in clause 144(4) allows the thermal treatment of waste to recover energy if:

- (a) the activity is carried out to replace the use of a less environmentally sound fuel,⁶ and
- (b) the fuel was, or was lawfully able to be, thermally treated at the premises immediately before 8 July 2022, and
- (c) for fuel thermally treated at the premises in the 12-month period ending immediately before 8 July 2022 – at least 90% of the energy recovered from thermally treating the fuel, including energy generated from the energy, was used in, or to power, industrial or manufacturing processes at the premises during the period, and
- (d) at least 90% of the energy recovered from thermally treating the waste, including energy generated from the energy, is used in, or to power, industrial or manufacturing processes at the premises in a 12-month period.

This exception enables existing facilities who needed to use fuel(s) to power industrial or manufacturing processes onsite, to replace a less environmentally sound fuel with waste.

Feedback from industry on this provision is that it is too restrictive and that with improving technology there is a case to support that waste fuels should be allowed to displace liquefied petroleum gas, natural gas and liquefied natural gas. The use of waste to replace those gas fuels is currently not permitted under the regulation.

The EPA's preliminary finding is that this would need to be considered on case-by-case basis and depend on the evidence in each case to determine if the process proposed for recovering energy from waste to power industrial or manufacturing processes on site results in a more environmentally sound outcome than using liquefied petroleum gas, natural gas and liquefied natural gas fuels. Given that this exception is limited to existing facilities that were lawfully able to thermally treat fuel at the premises to power industrial or manufacturing processes before the commencement of the prohibition on 8 July 2022, it is feasible to potentially expand this exception to enable a case-by-case assessment of proposals to replace gas fuels with waste.

Proposed change to exception for powering onsite industrial or manufacturing processes

- **Adjust the exception under clause 144(4) of the regulation to enable the EPA to consider and allow proposals to replace liquefied petroleum gas, natural gas, and liquefied natural gas with energy recovery from waste, on a case-by-case basis.**

⁶ Means coal, coal-derived solid fuel or petroleum-based liquid fuel, but does not include liquefied petroleum gas, natural gas and liquefied natural gas: Protection of the Environment Operations (General) Regulation 2022 clause 142.

Next steps

Have Your Say

We want to hear from you on what options the NSW Government should be considering for changes to the energy from waste framework.

Visit yoursay.epa.nsw.gov.au to find out more and take our survey.

You can also email a submission to us at

energyfromwaste@epa.nsw.gov.au.



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