



# Waste-to-energy: the future of waste management, or just plain greenwashing?

Communities are pushing back against waste-to-energy projects as questions emerge over health, emissions and social license. Janina Waldmann reports.



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**A**ustralians produce a lot of waste. More precisely, we produced 2.88 tonnes of waste per person in the 2022/23 financial year, adding up to 75.6 million tonnes of waste between us<sup>1</sup>. Not only is that number staggeringly high, it's been on an upward trajectory and has seen Australia rank among the worst-performing nations when it comes to waste reduction<sup>2</sup>.

The total amount of waste created per person per year has increased by 10kg since 2016/17 and needs to be reduced by about 300kg per person by 2030 for Australia to meet its National Waste Policy Action Plan targets<sup>3</sup>.

Of the waste we collectively produce, about 35% ends up in 'disposal', the term used when no productive use can be found for the waste product.

This begs the question: what do we do with it? Current waste management systems rely heavily on landfills as the final destination for waste, but these are not without health and environmental risks. While landfill management has improved with technologies like methane capture, it's far from a perfect system. In 2022/23, only 42% of landfill

gas was captured across Australia<sup>4</sup>. Landfills come with other risks, too. Leachate, water that has been contaminated by its filtering through solid waste, risks contaminating groundwater; exposed waste is easily swept into local waterways, and open landfills can attract vermin, bringing disease and impacting local wildlife<sup>5</sup>.

One option that is being explored and planned for in parts of Australia is thermal waste-to-energy generation. This process involves burning waste, with the resulting heat used to generate electricity by producing steam and activating turbines<sup>6</sup>.

#### **Waste-to-energy in the Australian context**

Several energy-from-waste facilities are currently planned for Australia, with proponents considering them a vital step on Australia's journey towards a circular economy, and detractors arguing that they pose an unacceptable risk to human health and the environment.

Waste-to-energy facilities process municipal solid waste, and, in the case of the recently built Western Australian Kwinana waste-to-energy facility, rely on households to separate waste appropriately. This means that despite recycling efforts, plastic will end up in incinerators, where it

1 <https://rb.gy/638y3t>

2 <https://shorturl.at/uWGy6>

3 <https://shorturl.at/SmF7m>

4 <https://short-link.me/1dxs6>

5 <https://www.epa.vic.gov.au/landfills>

6 <https://short-link.me/1dxsG>



Parkes Clean Future Alliance organisation.



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is burned, producing hazardous gases known as persistent environmental pollutants, including dioxins, furans, and polychlorinated biphenyls (PCBs).

Gayle Sloan is the CEO at Waste Management and Resource Recovery Association Australia and says waste-to-energy is a "safe, proven, accepted technology globally" that Australia is only now catching up on. "We are actually catching up on how you manage materials, how you reduce emissions, how you make products last. And on the waste management hierarchy, energy recovery is higher than disposal," she explains.

"We really need to work out a way to deal

with poorly designed products and residual products, and it's far better that we capture energy than create methane," says Sloan. "So recovering that energy is something that we'd much rather do than put material into landfill and leave it for the next generation to deal with forever."

However, not everyone is convinced. Nicole Blinco is a committee member with Parkes Clean Future Alliance, a community group opposed to the waste-to-energy facility planned for Parkes, New South Wales, and has a professional background in renewable energy engineering. She says not enough information has been forthcoming from waste-to-energy

proponents on the environmental impacts the facility would have, particularly when compared to best-practice landfill technology.

"There's lots of new technologies now that landfills can use and the methane emissions from landfill do come from green waste, which is not meant to be going to this incinerator," she says. "They haven't provided any sources or figures to say how much the plant will be emitting compared to how much a landfill would or what kind of landfill, and whether it's a landfill that has methane capture technology or not."

### **A pressing need for circularity**

What both proponents and detractors of waste-to-energy have in common is a desire to see Australia move towards a zero-waste, circular economy. They differ in opinion on whether waste-to-energy facilities should be part of that journey.

The NSW Environmental Protection Agency (EPA) broadly supports waste-to-energy as a form of energy recovery, but makes its stance on where energy recovery sits on the waste management hierarchy clear: "The NSW Government supports energy recovery where it makes sense to do so and where it is used to manage genuine residual waste, not as an

alternative to waste reduction or recycling.”

Sloan agrees that Australia's goal should be to establish a system in which materials circulate for as long as possible, but she notes that even the most considerably produced materials have a finite lifespan. “Even if we can repair and reuse, eventually everything reaches end of life. You get to a point that you can only fix that dress so many times, even if it's well done.”

Others argue that the development of waste-to-energy facilities disincentivises waste reduction as the incinerators require large volumes of waste to operate and remain profitable.

Jane Bremmer has been campaigning against waste incineration in Australia for the better part of 25 years. She's concerned the proposed waste-to-energy facilities will undermine Australia's path towards zero waste production and a circular economy. “What the incineration industry does...is they've tilted our whole waste management system towards the disposal outcome,” she says.

“So we now have, in Western Australia, residual waste bins everywhere. We have local governments that are refusing to implement the [food organics and garden organics program], recalcitrant councils that want to simply send all that organic waste to the incinerator.”

“It's undermined better waste management outcomes that are cheaper and more effective.”

Bremmer is not alone in her concerns. In 2020, the Victorian Greens Party produced a fact sheet on waste incineration that stated, “incinerators rely on a high volume of waste, perpetuating the linear model of resource extraction, single use and disposal.” Similarly, the City of Sydney's 2019 decision on waste-to-energy facilities notes that “waste to energy plants contribute to emissions and are not renewable as they depend on single use waste for fuel.”

### Lessons from overseas

Gayle Sloan explains that it's partly due to Australia's vast size that we're behind European countries on waste material management. Smaller and more densely populated countries, she says, “don't have the same land space that we have either for resource extraction, but also for landfill management. And so we've not really had to think about how we dispose of materials ... in Australia. So we're a long way behind. Globally, this technology is being used because landfill really hasn't been an option.”

There are just under 500 waste-to-energy facilities currently operating in Europe. Germany alone has 91 facilities, including in major cities like Hamburg and Munich, and several are located on the outskirts of Paris, Europe's most densely populated city. The

most well-known European waste-to-energy facility is undoubtedly Amager Bakke, or CopenHill in Copenhagen, which not only has an annual capacity of 560,000 tonnes<sup>7</sup>, but also features a ski slope and other recreational activities on its roof and surrounds.

CopenHill, which began operations in 2017, has not been free from controversy. The facility's capacity outstrips the volume of waste produced by the five municipalities it services, which has led Denmark to import waste from as far afield as the UK to keep the incinerator fed. The Danish Ministry of Climate, Energy, and Utilities Climate Programme 2020 notes that the country should be striving for “less incineration and less import of waste for incineration.” The capacity of incinerators like CopenHill “must be reduced to match Denmark's waste volumes, which are expected to decrease once Danes separate more waste for recycling.”

### Social license to operate in Australia

At present, many of Australia's planned waste-to-energy facilities seem to be facing similar challenges: no clear social license to operate, which centres on an ongoing positive relationship with the affected community or communities.

The Parkes Clean Future Alliance surveyed Parkes residents to gauge community acceptance of the planned waste-to-energy facility. It was circulated via social media and received 452 responses, of which 93% said they did not support the development of a waste-to-energy facility in Parkes, and only 4.6% said they were in favour of the development. Just under 80% of respondents said the construction of the facility in Parkes would make them consider moving away from the area. Concerningly, of those who indicated they would consider leaving, 11.1% worked in education and 10.8% in the health and aged care sector.

### Unclear impacts on human health

In 2022, the New South Wales Government banned waste incineration facilities in Greater Sydney. This move has left communities in regions where waste-to-energy facilities are planned questioning why a waste management method deemed unfit for Sydneysiders will be allowed to operate near their homes, schools, and farms.

Not only are waste-to-energy facilities banned in Greater Sydney, but proposed facilities have been rejected by the Independent Planning Commission (IPC) in

the past. In 2018, the IPC rejected a proposal for a waste-to-energy facility in Sydney's Eastern Creek. The reasons cited for the rejection included unknown impacts on air quality and risks to human health, as well as the facility's potential to undermine efforts to minimise waste production<sup>8</sup>. Notably, the project's environmental impact statement received 990 submissions during its exhibition period, of which 963 were objections, including from Blacktown and Penrith Councils, three local members for the affected electorates, the EPA, NSW Health, and the general public.

A 2020 article in *The Australian and New Zealand Journal of Public Health* examining the health impacts of waste incineration found that newer incinerators reported fewer ill effects on human health, but noted that this may be because not enough time has passed for adverse effects to emerge. The same report stated that new incinerators should not be located in areas of food production, and that food grown near an incinerator should be avoided<sup>9</sup>.

Waste-to-energy facilities are far from the first controversial waste management projects scrapped due to community backlash. Earlier in 2025, the NSW IPC rejected a planned plastics recycling facility in Moss Vale in the Southern Highlands due to significant community backlash. The community's concerns centred on air pollution, truck movement, and noise.

The planned facility would have processed 120,000 tonnes of plastic per year.

It's not just community groups that are opposed to waste-to-energy facilities, either. Randwick Council, for example, strongly opposed the building of an incinerator in Matraville due to community concerns around health and environmental impacts<sup>10</sup>.

Only time will tell how the debate about waste-to-energy facilities plays out in Australia. Still, one thing is clear—without deeper community engagement, proponents of waste-to-energy facilities will continue to butt heads with concerned community groups who feel scapegoated to an industry deemed unsafe for Australia's most populated city. How best to gain and keep a social license to operate will be among the waste-to-energy industry's biggest ongoing challenges. ■

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8 <https://short-link.me/18--G>

9 <https://www.sciencedirect.com/science/article/pii/S132602002300732X>

10 <https://short-link.me/1dxvf>