

This submission supports the use of Energy from Waste (EfW) technology as a method of waste disposal in NSW & Australia.

EfW is very well established in the United Kingdom and Europe, but Australia is behind the times. This submission is in favour of the use of EfW technology in Australia.

An EfW facility involves burning residual waste at high temperatures without the addition of any extra fuel, and under controlled conditions. Heat from the combustion process is used to produce steam, which drives a turbine to generate electricity. Emissions are cleaned to meet rigorous air quality standards before being released into the atmosphere.

Experience in Europe shows that modern, well run EfW facilities have many benefits, such as:

- Generating a range of full time jobs, construction jobs, apprenticeships and indirect jobs
- Diverting millions of tonnes of waste away from landfill per annum
- Reducing greenhouse gas emissions
- Reducing the use of fossil fuels
- Improving energy security
- Helping to reach renewable energy targets
- Supporting recycling
- Effective recovery of metals and mineral from bottom ash

EfW technology should be established in Australia for the following reasons:

1. Supports the legislative framework

The [NSW Energy from Waste Policy Statement](#) encourages the recovery of energy from waste. The Environment Protection Authority (EPA) recognises that the recovery of energy and resources from the thermal processing of waste has the potential, as part of an integrated waste management strategy, to deliver positive outcomes for the community and the environment such as reducing the use of fossil fuels.

The waste hierarchy lays down the priority order of what constitutes the best overall environmental option for managing waste and is reflected in national planning policy. EfW technology is in line with both the NSW and European waste hierarchy, both supporting energy recovery over disposal in landfill.

2. Energy from Waste complements recycling

EfW complements resource recovery. Even with continued advancement in recycling technology, there are technical and commercial reasons why not all waste can be recycled. Waste should be reduced as much as possible through prevention, re-use and recycling, but when it is not possible to prevent waste generation or recover material, the preferred option is energy recovery.

EfW technology unlocks the energy from residual waste leftover after the recycling process has been exhausted. In Australia, this residual waste is currently being landfilled, creating methane (CH₄) which is around 26 times more potent than carbon dioxide (CO₂).

Evidence from Europe indicates that high recycling rates can be sustained alongside high energy recovery rates. The fact that Sweden, Denmark and the Netherlands have the highest contributions from EfW in Europe, but also show the highest recycling rates is proof that both recycling and EfW can co-exist.

3. Energy from Waste mitigates climate change

EfW has a low carbon footprint by avoiding methane emissions from landfill and offsetting the use of fossil fuels. This will play a role within a climate change mitigation strategy.

EfW facilities generate energy (in addition to what it uses to run itself). This energy is a substitute for energy that would otherwise need to be generated by a conventional gas or coal-fired power station. The minimal carbon dioxide released by an energy from waste facility is offset by the saving from the coal fired power station, reducing the overall impact completely. The more efficiently the energy from waste plant converts the waste to energy, the greater carbon dioxide being offset and the lower the net emissions.

Waste incineration in Sweden produced as much energy in 2007 as 1.1 million m³ tonnes of oil, which reduces CO₂ emissions by 2.2 million tonnes per year, as much as 680,000 petrol-powered cars emit each year (Avfall Sverige, 2013).

4. Boosts the economy and employment

EfW exploits a resource that would otherwise be wasted, whilst producing green energy and providing a secure, long-term solution to Australia's energy demands. An EfW industry in Australia will generate thousands of full time jobs, construction jobs, apprenticeships and indirect jobs.

EfW supports investment in renewable energy technologies that will assist Australia to become a low carbon economy and reduce pressure on landfill. The combined efforts of waste management strategies will promote high rates recycling and re-use of materials, as well as energy generation.

5. Modern EfW facilities operate with the Best Available Technology

In Europe, Best Available Technology (BAT) have been evaluated, defined and documented in the “Reference Document on the Best Available Techniques for Waste Incineration (August 2006)” (in short BREF). Modern EfW facilities in Australia must fulfil all design, emission and energy efficiency requirements to ensure BAT.

In Europe, there are more than 400 operational EfW facilities which demonstrate consistently low emissions, no demonstrable adverse health or environmental impacts and high rates of energy recovery.

6. Strict environmental regulations and stringent air pollution controls mean that modern EfW facilities do not pose a threat to public health.

EfW facilities are subjected to strict environmental regulations. Modern EfW facilities are fitted with advanced technologies that control and monitor emissions and as such they have the lowest emission rates in the industrial sector. Modern EfW facilities that are well managed and regulated do not pose a threat to public health. Waste is treated at high temperatures and, due to advanced flue gas cleaning treatment, dioxin emissions are no longer a concern.

Diverting waste from landfills means methane produced during decomposition is not released to the atmosphere where it is a major greenhouse gas. Methane released to the atmosphere is 25 times more potent than carbon dioxide which traps heat and contributes to climate change.

EfW facilities are not dangerous because of their emissions. Therefore they are placed in the immediate neighbourhood of residential areas in most European cities. Research has found that 87% of EfW facilities in Switzerland that are located in the city or in the immediate neighbourhood of residential areas. (VSBA, 2017)

7. Ongoing monitoring and enforcement

Modern EfW are tried and proven technologies. New facilities in Australia must be built to comply with the relevant standards set by the EPA and the stringent European Union standards.

Operations and emissions will be monitored and regulated on an ongoing basis by the EPA with real-time online air quality data available 24 hours a day, seven days a week. The facilities will publish their emissions statistics on a regular basis to maintain the transparency of operations.

Breaching any limits or environmental permit conditions will result in investigation by the permitting authority and may result in action ranging from a warning for minor breaches providing they are rapidly corrected, to the facility being shut down.