WASTE AUTHORITY

Waste to Energy Position Statement

(Thermal Treatment)

MAY 2013

WASTE AUTHORITY
WA...TOO GOOD TO WASTE

In April 2013, the Environmental Protection Authority and the Waste Authority provided advice to the Minister for Environment on the environmental and health performance of waste to energy (WtE) technologies. The advice was provided under Section 16e of the *Environment Protection Act 1986* and contained recommendations relating to waste to energy in Western Australia.

This WtE Position Statement complements the Section 16e advice and presents additional matters of interest for the Authority that are outside the scope of that advice. The Position Statement addresses WtE in the context of the Authority's efforts to reduce waste to landfill and increase resource recovery in Western Australia.

This WtE Position Statement focuses on the thermal treatment of waste with energy recovery and does not directly consider other forms of waste management that use mechanical and biological treatment to produce energy or fuels.

Waste Generation in Western Australia

Waste generation in Western Australia is growing, largely as a result of increasing population and economic growth. In 2011/12 it was estimated that total solid waste generation in the Perth and Peel regions was 5.23 million tonnes, increasing to 5.6 million tonnes in 2014/15 and 6.1 million tonnes in 2019/20.

Legislation and Policy

The Western Australian Government is committed to reducing waste and increasing resource recovery. The *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) and the Western Australian Waste Strategy *'Creating the Right Environment'* are the key legislative and policy documents that support this commitment.

The WARR Act establishes the Waste Authority and its functions, including a requirement for the Waste Authority to prepare a waste strategy for Western Australia.

The Western Australian Waste Strategy aims to move the State to a low waste society. The strategy contains landfill diversion targets for the three main waste streams:

- Municipal Solid Waste: 65% diversion of metropolitan waste from landfill by 2020 (50% diversion from major regional centres)
- Construction and Demolition Waste: 75% diversion from landfill by 2020
- Commercial and Industrial Waste: 70% diversion from landfill by 2020

The Waste Hierarchy

A waste hierarchy is set out in Section 5 of the WARR Act and the Waste Authority supports its application.

The waste hierarchy ranks waste management options in order of their general environmental desirability. It is developed from a life cycle viewpoint, and is consistent with approaches to risk management. Generally, the higher waste is managed up the hierarchy, the lower the impact – and therefore risk - to the environment and communities.

The waste hierarchy, or variations thereof, is internationally recognised as a best practice waste management tool. It is a key feature of the EU Waste Framework Directive, and is applied by the US EPA.

The waste hierarchy places energy recovery ahead of disposal.

The waste hierarchy is intended to be used alongside other assessment tools such as cost benefit analysis to help guide decision making.

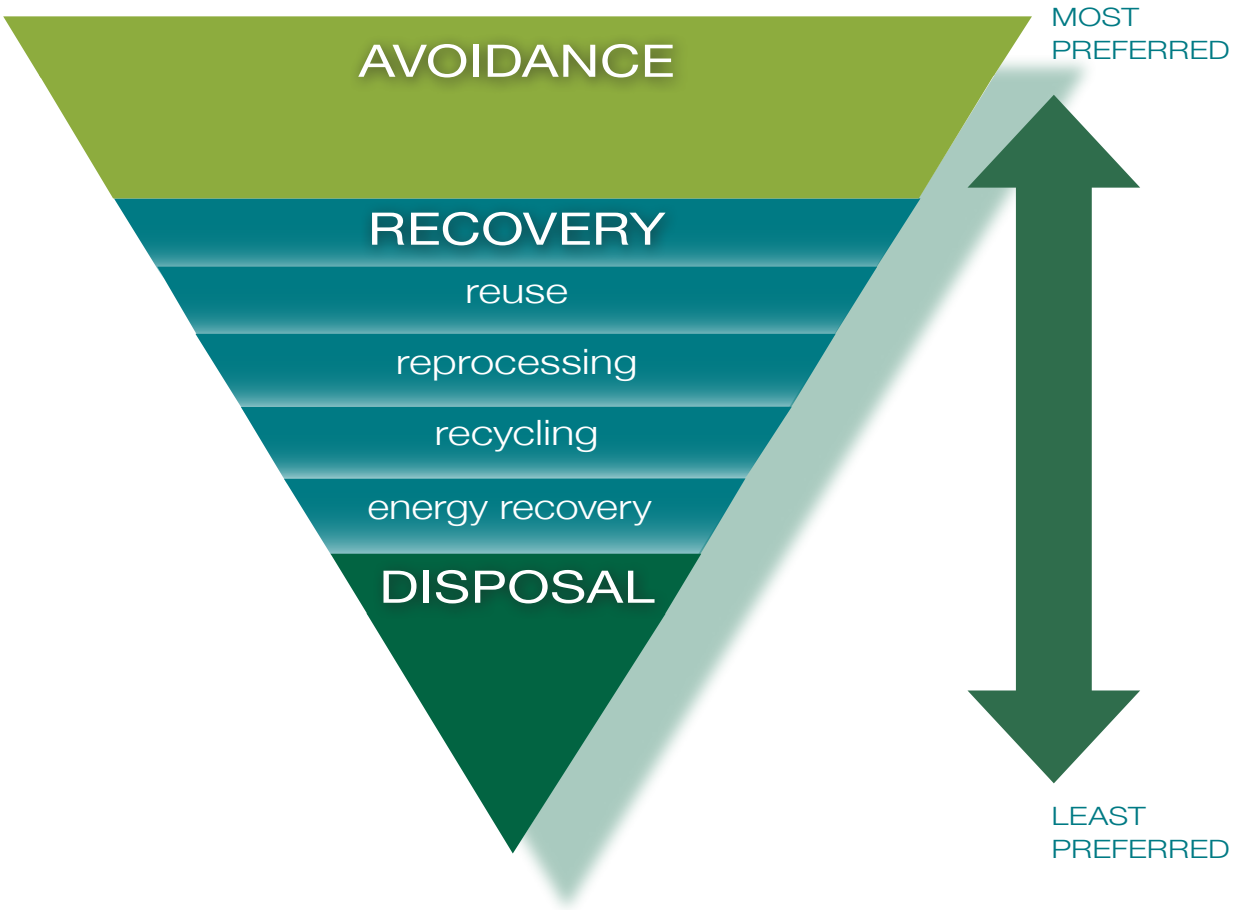

Figure 1 Waste hierarchy based on the WARR Act

No single waste management process or technology is suitable for all waste streams and all circumstances. In order to deliver the objectives and targets in the Waste Strategy, there is a need to utilise a range of waste management processes and technologies along different points of the waste hierarchy.

Energy recovery is a recognised option at the lower end of the waste hierarchy, which may be suitable for residual waste. Energy recovery is more favourable than disposal to landfill, but less favourable than the options of avoidance, re-use, reprocessing and recycling.

Residual waste generally refers to material that is left over after processing (through a processing facility and/or a source separation system), and which would otherwise be sent to landfill. The composition of residual waste streams may vary from region to region and over time, depending on the availability of recycling and recovery options.

Considerable volumes of residual waste are currently being disposed to landfill. The Waste Authority considers best practice WtE processes to be a preferable option to landfill for the management of residual waste but not at the expense of reasonable efforts to avoid, reuse, reprocess or recycle waste. WtE has the potential to divert substantial volumes of waste from landfill (and thereby support the delivery of Waste Strategy targets) and produce a beneficial product.

Waste Governance Arrangements

WtE facilities rely on a certain volume of feedstock (waste) to ensure viability over the long-term. However, long-term waste supply arrangements have the potential to undermine the application of the waste hierarchy; long-term supply arrangements can 'lock up' residual waste streams for a specific use thereby undermining the viability of future higher value waste management options (such as recycling).

The Waste Authority promotes waste management practices that are consistent with the waste hierarchy. This requires flexibility in waste collection and processing arrangements to allow waste to flow to its 'best' (highest value and lowest environmental impact) use over time. Current waste collection and processing arrangements may not readily accommodate this level of flexibility.

> *The Waste Authority promotes governance arrangements that accommodate flexibility in waste management and processing. Flexibility is important for ensuring that waste is managed consistently with the waste hierarchy, and can accommodate changing waste streams, technologies and processes.*

Siting Considerations

The Section 16e advice recommends that *Waste to energy plants must be sited in appropriate current or future industrial zoned areas with adequate buffer distances to sensitive receptors. Buffer integrity should be maintained over the life of the plant* (Recommendation 20). The Waste Authority considers that the location of WtE facilities in industrial areas in the early stages of waste to energy processing in Western Australia is an appropriate approach, however each case must be considered on its merits and other siting options are possible, depending on the circumstances.

The Waste Authority recognises the benefits in siting waste infrastructure close to the source of waste generation. Benefits include reduced transport impacts from the movement of waste, such as greenhouse impacts, traffic congestion and community amenity.

Given the advances in pollution control technology and architectural design, the Waste Authority provides in principle support for more flexible siting arrangements for WtE facilities into the future. Flexible siting arrangements may help to reduce the overall impacts to the environment and community.

The Waste Authority also understands that WtE operations require long-term certainty. The Waste Authority supports the buffers for WtE operations being within a facility's site to help protect long-term siting. The Waste Authority encourages the development of precincts where compatible uses are incorporated into the buffer boundary of WtE facilities and would ensure that tracts of land are not locked up unnecessarily as empty buffer areas.

The Waste Authority supports appropriate siting arrangements for WtE facilities into the future to harness the benefits of locating waste facilities close to the source of waste generation. The Waste Authority also considers that WtE buffers should be contained on site or within waste management precincts to protect the site over the longer term, to maximise the utility of the buffers, and to avoid impacts on other land owners.

5. CONCLUSION

The Waste Authority is a co-signatory (with the Environmental Protection Authority) to the WtE advice provided to the Minister for Environment under Section 16e of the *Environment Protection Act 1986*. This position statement sets out additional matters of interest to the Authority beyond the scope of the Section 16e advice.

The waste hierarchy is set out in Section 5 of the *WARR Act 2007* and the Waste Authority supports its application. Energy recovery is preferred over disposal to landfill, and the Waste Authority agrees it can play an important role alongside other waste management options to achieve waste strategy targets and minimise environmental impacts.

The Waste Authority believes that waste to energy should only be used for genuine residual waste that could not with reasonable efforts be reused, reprocessed or recycled, and would otherwise go to landfill. The Waste Authority also supports siting arrangements for WtE facilities into the future that harness the benefits of locating waste facilities close to the source of waste generation.

Waste to energy is relatively new to Western Australia. The Waste Authority recognises there may be significant developments in waste to energy (for example, policy, regulation, technologies) into the future. The Waste Authority may review the position statement in light of these changes.