



Advanced waste processing

Metropolitan Regional Business Case
Background



METROPOLITAN
WASTE AND
RESOURCE RECOVERY
GROUP



About the Metropolitan Regional Business Case

The Metropolitan Waste and Resource Recovery Group (MWRRG) was funded by the Sustainability Fund to prepare a business case for infrastructure that can process Melbourne's municipal waste instead of sending it straight to landfill.

The Metropolitan Regional Business Case provides a detailed assessment of advanced waste processing. It evaluates the viability of these technologies to deal with Melbourne's growing municipal waste.

WHAT IS ADVANCED WASTE PROCESSING?

Advanced waste processing solutions are sophisticated technologies that recover more resources from waste compared to landfill or basic recycling sorting.

These technologies bridge the current gap between recycling and sending kerbside waste to landfill.

Different technologies have been used successfully overseas to recover recyclables and produce energy such as heat, gas or electricity.

WHY ADVANCED WASTE PROCESSING IS BEING EXPLORED

By 2046, 7.5 million people will call Melbourne home, and municipal residual waste (garbage collected from households) will grow by 65%.

The 10 year The Metropolitan Waste and Resource Recovery Implementation Plan outlines a vision to keep annual landfill at 2.8 million tonnes in 10 years' time, with a long term view to reduce annual landfill below 2016 rates.

If we recover more resources from waste, we won't need to build new landfills and we can use our existing landfills to manage the waste that can't be avoided or recycled.

WHAT THE REGIONAL BUSINESS CASE FOUND

- Advanced waste processing can recover more resources from waste currently sent to landfill and help keep more waste out of landfill.
- Food and garden organics recycling is important but some form of energy recovery will be required to achieve the objectives to:
 - divert enough waste by 2026 to limit the amount of municipal waste sent to landfill to 2016 levels
 - recover 25% of resources from municipal residual waste collected through collaborative procurement.
- Advanced waste processing will deliver better environmental and social outcomes compared to landfill.
- Experience overseas has shown that advanced waste processing is an effective, proven and safe solution to recover materials in waste.

No decisions have been made yet regarding the types or locations of advanced waste processing facilities in Melbourne. The Business Case recommends that councils partner with MWRRG to investigate these alternative solutions further.

The Advanced Waste Processing Regional Business Case is online at www.mwrrg.vic.gov.au/advancedwasteprocessing

Statements

Metropolitan Waste and Resource and Recovery Group Chief Executive Officer Rob Millard:

“Landfills are essential infrastructure for Melbourne, but with our growing population we can’t rely on landfill as the only way to manage our household waste.”

“Melbourne needs a smarter solution for our waste that will do more with the valuable resources that are being put in landfill.”

“Our analysis shows that advanced waste processing is a viable alternative to deal with Melbourne’s growing municipal waste and can reduce the city’s reliance on landfill.”

“Advanced waste processing has great potential, but we still need to keep recycling and find ways to avoid waste in the first place.”

“We want to partner with metropolitan Melbourne councils to realise the benefits that advanced waste processing can provide.”

FAQs

Why do we need an alternative waste solution in Melbourne?

Melbourne’s growing population means we’re sending more waste to landfill every year. By 2046, the amount of waste going to landfill each year will have grown by 65%.

This means we’ll need two more landfills to handle the volume if we keep going the way we currently are.

What are the benefits of an advanced waste processing solution?

The potential benefits are economic, environmental and social such as:

- increased recovery of recyclables from waste that would previously have gone to landfill
- reduce the need for new landfills
- greenhouse gas emissions from landfill will be substantially decreased
- additional jobs will be created during construction and once a facility is operating
- energy produced from waste can be used and sold.

What about the existing facilities we have to manage waste?

Advanced waste processing solutions have a place as part of a total approach to managing the waste we produce. Other critical parts include:

- household kerbside collections and community drop-off points
- the transfer stations that sort and combine waste and recyclables before further reprocessing
- the material recovery facilities that sort recyclable materials, such as paper, cardboard, steel, aluminium, plastics and glass for reuse
- the processing facilities that take food and garden waste and turn it into compost
- the landfills that manage the residual waste that can’t be viably avoided or recycled

Will we have to stop recycling once these facilities are up and running?

No. Advanced waste solutions should only be used for the material we can't recycle. We will still need to keep sorting and recycling paper, glass, plastics, tins and food. In fact the technology used by these alternative solutions can help us recover even more resources from what is currently going to landfill.

Will we be able to stop sending rubbish to landfill once these facilities are up and running?

No. We will still need landfills. But by recovering more resources from waste we can reduce the need to build new landfills and instead rely on the existing landfills to manage the waste that can't be avoided or recycled.

We can get better environmental and economic outcomes for Victorians by minimising our waste, reusing or recycling the resources found in our waste, or, where those options are not possible, using waste to energy technology.

What technology is presented in the Regional Business Case?

The Regional Business Case does not recommend a specific solution, but it does model a range of resource recovery options to illustrate whether advanced waste processing can reduce our reliance on landfill, recover more resources and deliver better environmental and social outcomes.

Technologies considered in the Regional Business Case are:

- Composting of food and garden waste
- Combustion to produce electricity
- Mechanical biological treatment (mechanically separates recyclables from waste, and composts or digests organic material)
- Gasification (where waste is broken down using heat with a limited amount of air to produce a gas that can be used for energy).

It will be up to councils to choose a technology, based on their preferred balance of financial, social and environmental outcomes that an advanced waste processing facility will need to achieve. The processing solutions will be safe, proven, effective and tailored to recovering resources from our waste.

Why does the Regional Business Case recommend some form of energy recovery?

The Regional Business Case modelled scenarios based on different combinations of technologies to see which scenarios can achieve the objectives to:

- divert enough waste by 2026 to limit the amount of municipal waste sent to landfill to 2016 levels
- recover 25% of resources from municipal residual waste collected through collaborative procurement.

The scenarios that can achieve these objectives all include some form of energy recovery. The scenarios that didn't include energy recovery (such as food and garden organics recycling only or mechanical biological treatment only), were not able to achieve the objectives, and resulted in the lowest reduction in CO₂e emissions.

Where will facilities be located?

At this stage, sites for facilities have not been selected. Sites will need to be in industrial zones like other waste and recycling processing facilities.

How many facilities will there be?

At this stage, the number of facilities has not been determined.

How long before we can see facilities operating?

Establishing advanced waste processing solutions takes time. It takes time to consider the merits of individual options, select a provider to build the facility, find a suitable site, consult with the community, secure the necessary approvals and then build and commission the facility.

Overall it could be at least five - seven years before a facility is up and running.

How safe are these facilities?

Many advanced waste processing facilities are in use in Europe and North America. The facilities are highly regulated, and they are inspected and tested regularly to ensure safety standards are achieved.

As with other large industrial facilities, there are risks of air pollution or land pollution. The Environment Protection Authority (EPA) has strict requirements for new waste to energy facilities that protect human health and the environment.

Are advanced waste solutions better for the environment than landfill?

Landfill will always have a role as part of an overall approach to managing our waste. But much of what we throw away to landfill can be recycled and energy can be harnessed from what is left.

Establishing processing capacity of 300,000 tpa can reduce greenhouse gas emissions from landfill by up to 290,000 tonnes of CO₂e each year.

Why is the Victorian Government looking at waste to energy now?

Over the past few years we have heard the calls from industry looking to invest in this sector and from our community who have told us they want new and innovative ways to reduce, reuse, recycle and recover energy from waste.

Waste to energy allows us to extract further value from our waste in the form of energy and helps us reduce our reliance on landfill (for waste disposal) and fossil fuels (for energy generation). It can encourage economic and employment growth in the State, including in regional Victoria.

Are there any waste to energy facilities already operating in Victoria?

Several facilities operate in Victoria, mainly using organic waste such as woodchips and saw dust from a saw mill. Yarra Valley Water has installed a facility to handle food waste and effluent in Wollert.

Visy Paper has a waste to energy plant at Coolaroo that runs on paper waste and produces heat and electricity needed to run the paper mill.

Will the community have an opportunity to have their say?

Yes. Community input will play an important role in any future planning and design phases for new infrastructure.