

Maryvale Energy from Waste Project

October 2022

Key updates

The Maryvale Energy from Waste (EfW) project continues to make progress with increasing momentum.

- **Maroondah City Council has signed Victoria's first Municipal Solid Waste (MSW) contract for waste supply to an EfW facility.**
- **Victoria's first Bottom Ash Recycling facility, which will be located with the EfW facility, has been approved by EPA Victoria.**
- **The project team is progressing an opportunity for Flue Gas Treatment Residue recycling to achieve 99% landfill diversion, providing best practice outcomes consistent with circular economy principles.**
- **The Australian Government has reaffirmed its commitment to the \$48.2M Modern Manufacturing Initiative (MMI) grant for the Maryvale EfW project.**
- **The EfW project is developer-led, which maximises value for Councils, while minimising risk. There are still some opportunities remaining for Councils to participate under our innovative "Waste Arising" format.**

MAROONDAH MSW CONTRACT

Maroondah City Council has been announced as the first Council to join the Maryvale EfW project.

The EfW project provides Councils with the opportunity to drive up recycling rates and recover maximum value from non-recyclables as part of a more sustainable waste management solution for their communities.

Maroondah City Council will send about 20,000 tonnes of non-recyclable household general waste to the EfW facility per annum.

The announcement of Maroondah City Council as the initial Council waste supplier is testament to Maroondah Council's environmental leadership and forward-thinking approach.

The Maryvale Energy from Waste project provides Councils with the opportunity to drive up recycling rates and recover maximum value from non-recyclables as part of a more sustainable waste management solution for their communities.

Waste Arising

The concept of waste arising enables Councils to contract for the processing of their residual waste without a fixed volume. This means Councils can pursue their own recycling initiatives and strategies to reduce waste without incurring a penalty for supplying lower quantities to the project. This approach is essential to driving outcomes further up the waste hierarchy to more appropriate diversions for re-use and recycling.

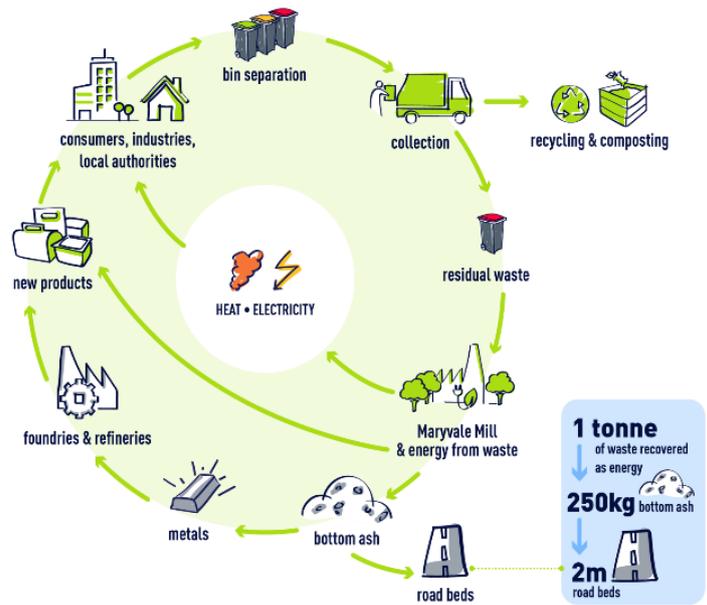
EfW and the Circular Economy

The Maryvale EfW project aligns with the Victorian Government's "Recycling Victoria – a new economy policy".

Our facility is a circular economy solution that offers better environmental outcomes than landfill disposal and sourcing energy from fossil fuels, delivering:

- A carbon negative solution for residual waste.
- A quantity of baseload renewable energy.
- Efficient recovery of metals.
- Recycled aggregates for re-use in road base and construction.

Landfill diversion of 99% is our GOAL.



Maryvale Energy from Waste



Artist image for stage 1

Fast facts

- 325,000 tpa residual waste
- 35MW electricity, 100 tph steam
- GHG reduction ~270,000 tpa CO₂-e
- More than 500 construction jobs
- More than 450 jobs ongoing

East Rockingham Waste to Energy



Construction progress

- Currently at 87% project progress complete
- All economisers and superheaters in place: aiming for boiler pressure test in November
- Pipework and cable pulling underway
- Delay in construction - expected Practical Completion in mid 2023

Representatives of the Maryvale EfW consortium recently travelled to East Rockingham and were impressed at the substantial progress of the facility.

Masdar Sharjah Waste to Energy Project online

The Masdar developed and constructed Sharjah Waste to Energy facility reached a critical milestone in August 2022 - combustion of first waste.

The Sharjah 300,000 tpa facility utilising a *CNIM Groupe SA* designed moving grate technology, finished construction in July 2022 and is currently working through the performance testing required to meet project completion. Sharjah is a critical step in the UAE offset of residual municipal waste to landfill, with two more facilities employing moving grate technology, of capacity in excess of 1 million tpa each, under construction in Dubai and Abu Dhabi.

Abu Dhabi Future Energy Company (Masdar) are the joint parents of Masdar Tribe Australia along with Tribe Infrastructure. Masdar has in excess of 14 GigaWatts (more than 10 times the capacity of Loy Yang B alone) of renewable power projects in operation and construction worldwide.

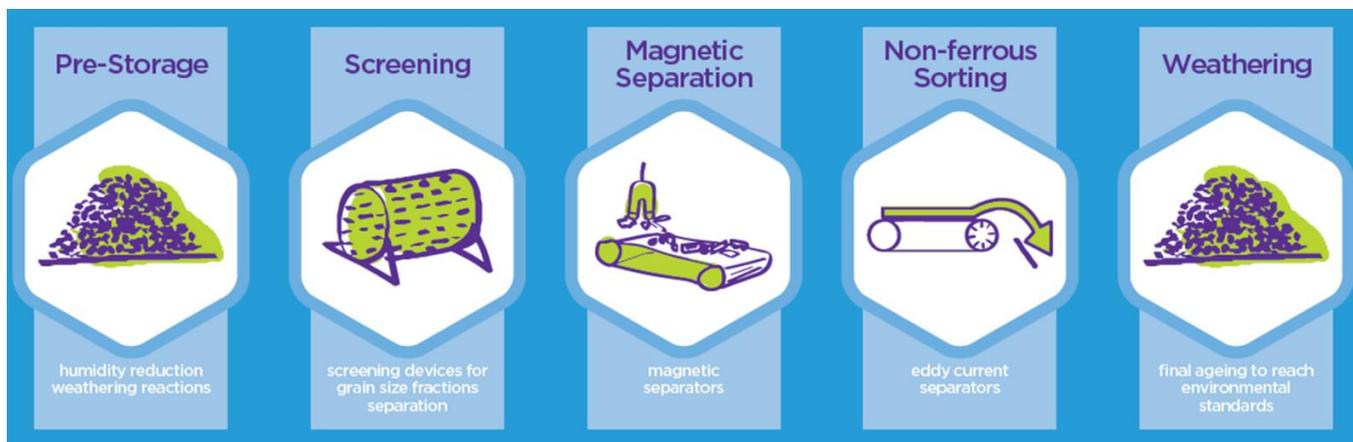
Bottom Ash Recycling facility gets EPA approval

Our regulatory application to incorporate a Bottom Ash Recycling facility with the Maryvale EfW project has been approved and an EPA Amendment to the Development Licence has been issued.

Bottom Ash contains metals which are difficult to recover prior to the EfW process. These metals are separated from other materials and recovered from the bottom ash to be recycled. The remaining materials are screened to produce a recycled aggregate, which can be used in road construction. This material is to be marketed as **Maryvale Recycled Aggregate**.

The Maryvale EfW facility will aim to recover and recycle approximately 60,000 tpa of aggregates and approximately 6,000 tpa of metals.

The recycling facility will feature key equipment:



In Europe the recovery and re-use of bottom ash aggregates and metals is a proven and accepted practice.

UK statistics on EfW

The development of EfW facilities in the UK, like many European countries, is achieving significant reductions in landfilling, which also reduces greenhouse gas emissions.

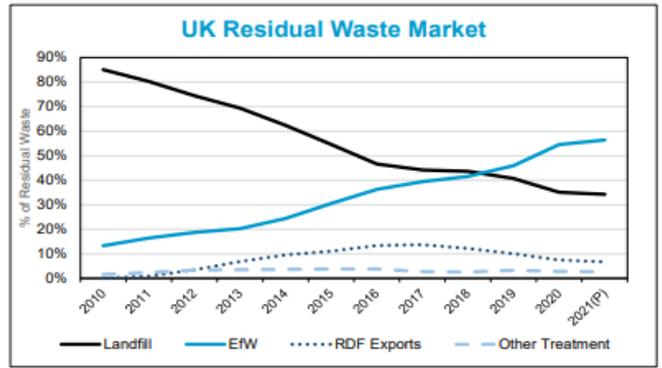


Figure 7: Development of the UK Residual Waste Treatment Source: Tolvik analysis

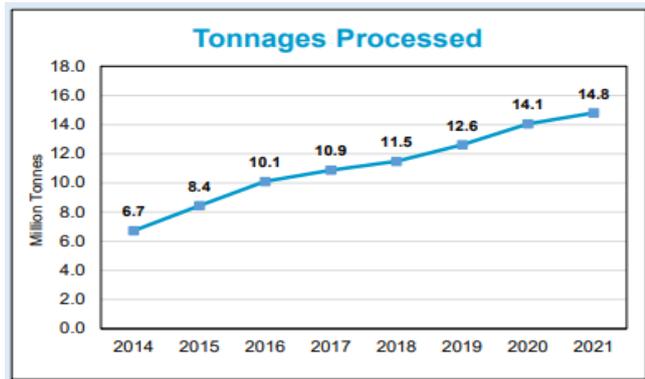


Figure 5: Total Tonnage of waste accepted at EfWs in 2014-2021 Source: APR

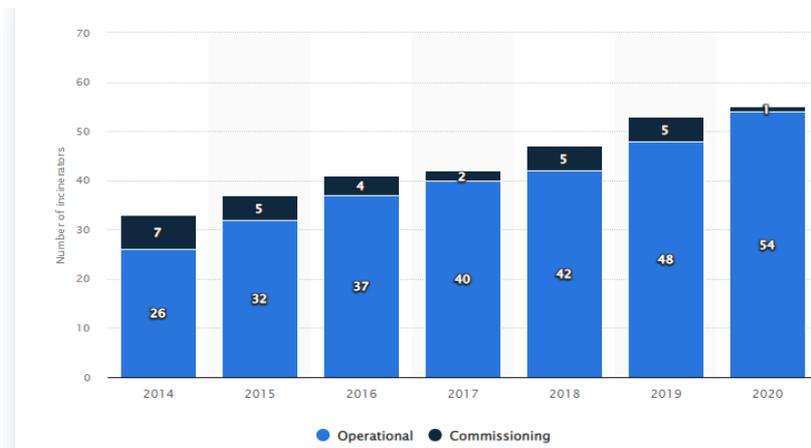
"In 2021 a total of 14.85Mt of Residual Waste was processed in UK EfWs, an increase of 5.5% when compared with the revised 2020 total.

It is estimated that in 2021 77.0% of all EfW inputs were derived from Residual Local Authority Collected Waste ("LACW") with the remainder being commercial & industrial (C&I) Waste. The trend of an increasing proportion of residual C&I waste inputs is expected to continue over the next few years as more "merchant" EfW capacity in the UK becomes operational."

Performance indicates Moving Grate combustion (blue) technologies continue to provide superior availability to gasification technologies in almost all cases (red).



Source: https://www.tolvik.com/wp-content/uploads/2022/05/Tolvik-UK-EfW-Statistics-2021_Published-May-2022.pdf



In the last decade EfW facilities in the UK have experienced rapid growth alongside both increased recycling levels and reduced landfilling.

Source: "Number of waste-to-energy power plants in the United Kingdom 2014-2020, published by Bruna Alves, 22 March 2022. Available at <https://www.statista.com/statistics/805577/waste-to-energy-number-of-incinerators-united-kingdom-uk/>