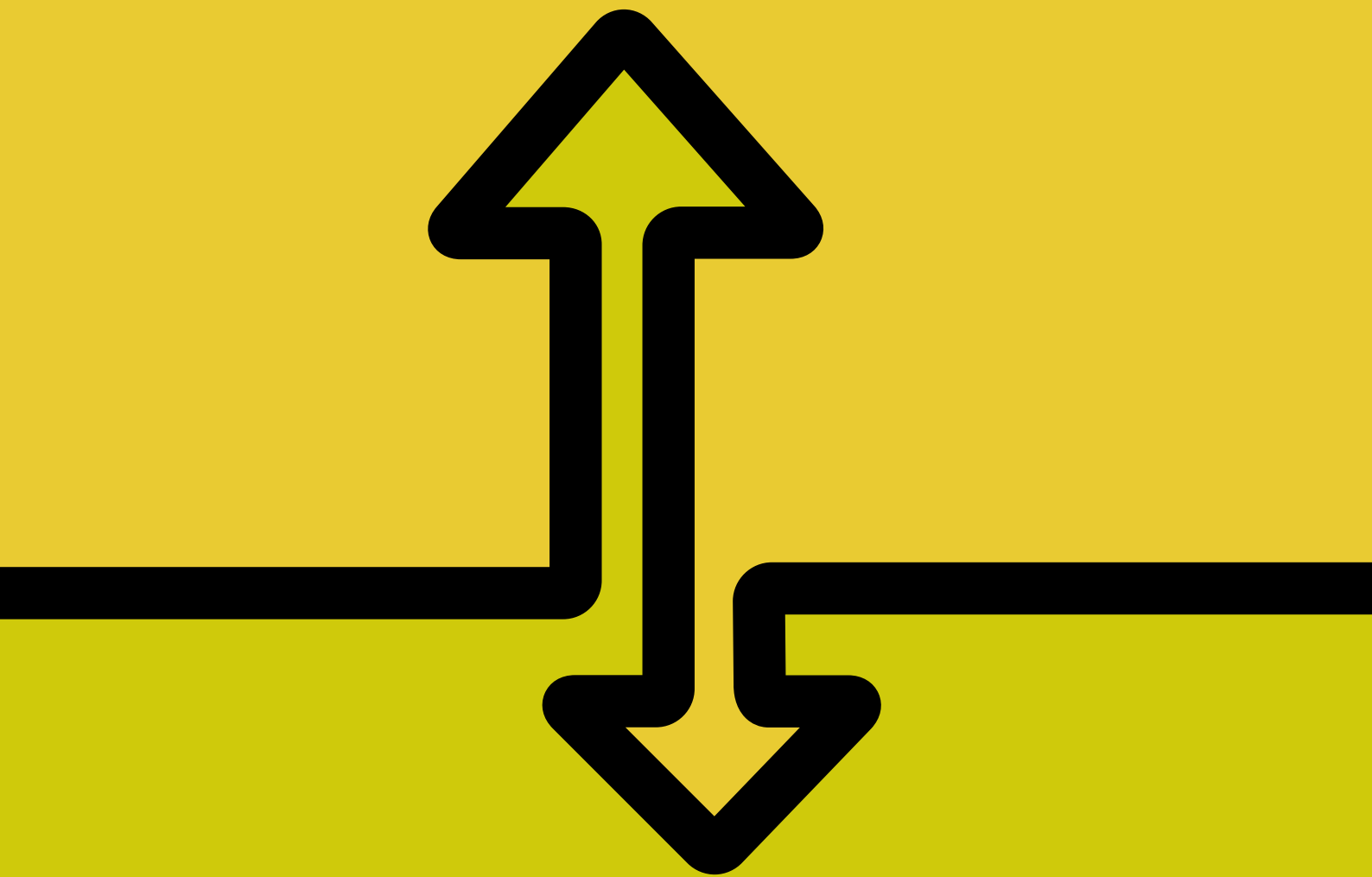


TECHNOLOGY SOLUTIONS

ARROWBIO FOR MIXED WASTE



ECOLIBRIUM™
A WnQ SOLUTION

The new Ecolibrium™ Mixed Waste Solution: making waste a thing of the past

We now have the ability to make waste history. Literally.

With world-leading ArrowBio technology at the heart of our Ecolibrium™ Mixed Waste Solution, WSN aims to divert around 70% of mixed household waste away from landfill and into productive use, and minimise waste management costs for councils and their communities.



MIXED HOUSEHOLD WASTE IS COLLECTED FROM HOMES

WHAT IT DOES AND HOW IT WORKS

Already a proven success in Israel, the ArrowBio process is designed to extract high resource value from waste, using a simple, water-based separation system. Through a three-stage process, it sorts waste and recovers recyclables. And, by using natural biological processes, ArrowBio also produces green energy, fertiliser and treated water.

STAGE 1

Receival and pre-treatment

The receival hall where waste is unloaded is under negative pressure, to help reduce odours right from the start of processing. Here, the first stage of pre-treatment removes large bulky and hazardous items, and large recyclable materials.

STAGE 2

Water-based separation

What's left after the pre-treatment stage is then immersed in large water vats. Heavy inorganic items such as steel cans sink, and are sorted for recycling, while lighter items such as plastic bottles float and are removed for further separation and recycling. The organic slurry that remains is then taken on to the next treatment stage.

STAGE 3

Biological treatment

In this phase, the slurry mixture is broken down through anaerobic fermentation, a natural biological process, generating a range of valuable resources:

Biogas converted to green electricity

The gas that is produced as the organics start to break down is captured and used to generate around 2MW of green electricity – enough to power around 2,500 homes.

Water recycled and reused

The facility generates more water than it uses. What is recovered from the slurry is reused in the processing vats, and can also potentially be used for other on-site needs, like irrigation.

Nutrients returned to the soil

Compost products and fertilisers can be produced from the nutrient-rich organic remnants.

FLEXIBLE AND FORWARD-LOOKING

Our Ecolibrium™ mixed waste solution is extremely adaptable to changes in the make-up and quantity of incoming materials. It's designed to operate effectively with food either separated or included in the incoming waste.

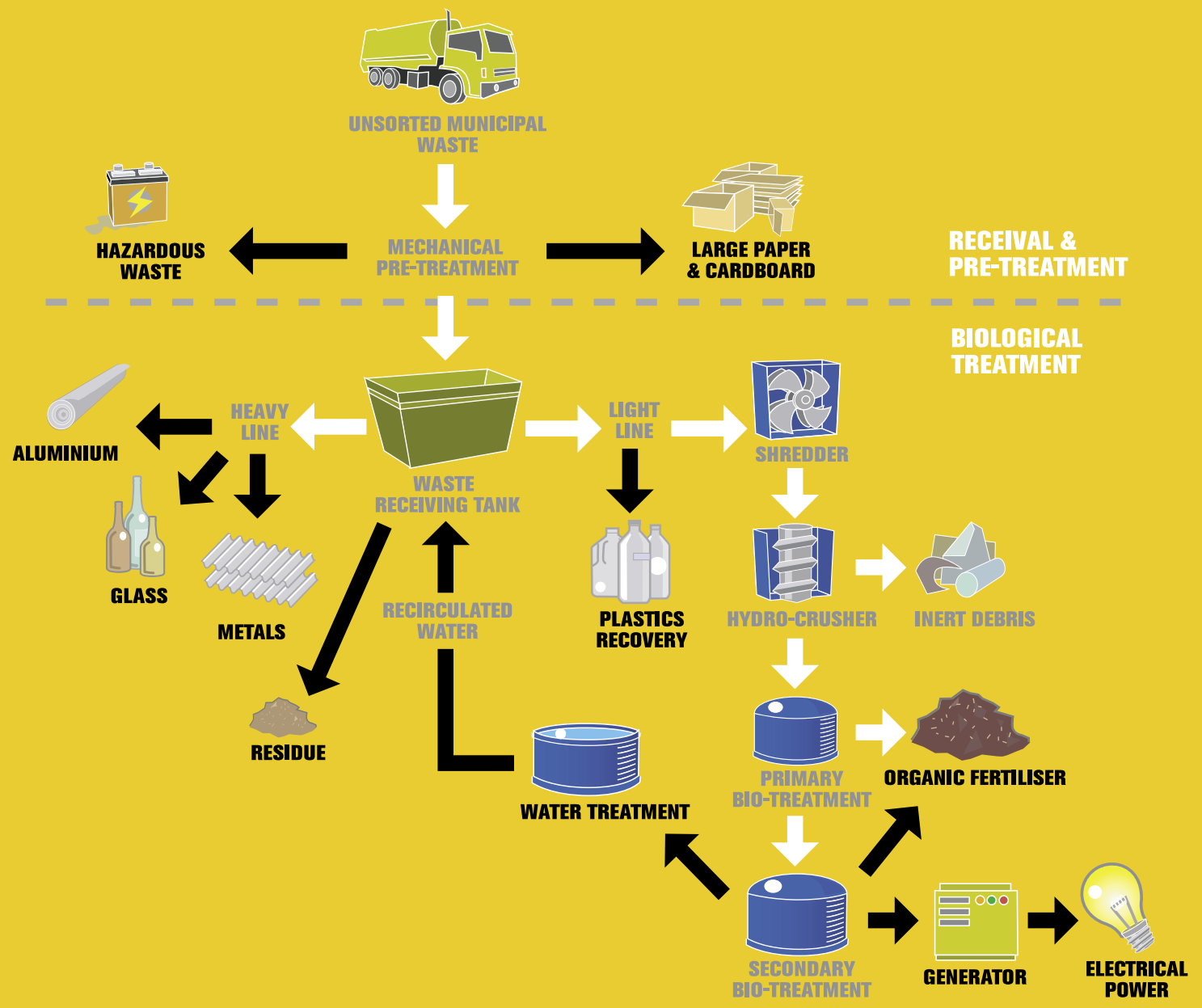
Because it's biologically-based, our Ecolibrium™ Mixed Waste Facility's effectiveness and output does depend on what type of organic materials go in. But thanks to the advanced ArrowBio technology, the whole definition of "organics" is more flexible, including dirty paper, non-recyclable paperboard, cardboard and disposable nappies.

BEFORE

Mixed household waste is disposed of in landfill

NOW

With ArrowBio Technology around 70% of this waste is recovered



THE ECOLIBRIUM™ MIXED WASTE PROCESS USING ARROWBIO TECHNOLOGY

GENERATES MORE POWER & WATER THAN IT USES

LOW RISK PROVEN TECHNOLOGY

FLEXIBLE AND FORWARD THINKING

Better for the environment...

Continuing improvements in our technologies and processes means our Ecolibrium™ Mixed Waste Solution delivers on a very long “wish-list” of environmental benefits. The new facility at the Macarthur Resource Recovery Park is designed to:

- Divert around 70% of waste away from landfill.
- Recover over 18,000 tonnes of recyclables each year – almost half the weight of the Sydney Harbour Bridge.
- Generate more power and water than it uses.
- Generate enough green energy to power 2,500 homes.
- Produce around 10,000 tonnes of nutrient-rich organic fertilisers and composts.
- Have a very small footprint – less than 2 hectares (based on a 100,000 tonne capacity facility).
- Minimise odours.
- Offset 23,000 tonnes of greenhouse gas emissions per year – equivalent to taking around 5,000 cars off the road.

Better for the triple-bottom line...

Landfill disposal costs are rising rapidly due to substantial increases in the levy that is paid to the Department of Environment and Conservation on every tonne of waste sent to landfill.

At the same time, councils are under increasing pressure to deliver maximum value for their communities, achieve better environmental outcomes and reduce the social impacts of waste management.

So being able to divert around 70% of your waste from landfill can have a substantial impact on reducing the costs of waste management that have to be passed on to your ratepayers. And those savings – both economic and social – will only increase in the future.



THE ECOLIBRIUM™ MIXED WASTE PROCESS PRODUCES ORGANIC COMPOST, GREEN ENERGY AND CLEAN RECYCLABLES

WHERE'S THE ODOUR GONE?

Our Ecolibrium™ mixed waste solution has impressive features designed to keep odours to a minimum.

Firstly, it's largely enclosed to minimise odour emissions. The receival hall itself is sealed, and under negative pressure. This means all air coming out of it passes through a biofilter that removes odour-producing volatile organic compounds.

Secondly, waste is submerged in water very early on in the process, and continuous circulation of the water prevents odour-generating anaerobic activity in the waste.

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