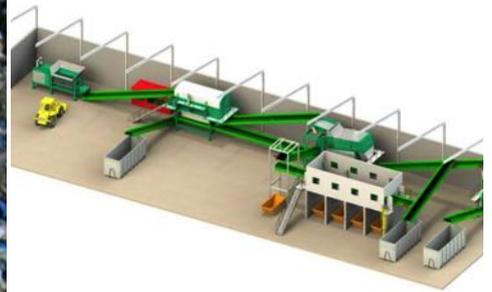


ADAPTIVE WASTE SOLUTIONS

Scalable and Compliant Waste & Biomass Value Recovery



A Zero Landfill & No Burn Solution

Flexible value output — recyclable values — recyclables like metals and plastics, and fuel (WDF, Waste Derived Fuel) that can be used in cement manufacturing and other industries. WDF fed to our gasifiers can supply gas to generators for electricity production, or be used in our gas to liquids reactors (GTL) for production of complete fossil fuel replacements (diesel, gasoline, kerosene, jet-fuel etc.). Also non recyclable plastics and organics can be converted.

Waste flexibility — be able to deal with different kinds of fractions and mixes of waste like high organic waste, large amounts of plastics, landfill waste, wet waste and more.

Adaptive configuration — new jobs and ease of use — balance the configuration between automation and more labour intensive routines which is a very important socioeconomic and logistical factor. Scale through modularity and standardisation, giving short delivery times and ease of use.

Standard processing line:

- 30 tph* capacity — typical annual throughput: 150 000 tpa* (increase with multiple standard lines and turns).
- WDF* for gasification and combustibles.
- MSW up to 65% moist & high organic content.
- 5MWe typical electricity output.
- Soil/Landfill processing.
- Mixed modular GTL, PTL, WDF and power options for output.
- 6 months turn key delivery.
- EPC/BOOT etc. contracts.

*WDF - Waste Derived Fuel, PTL - Plastics to Liquids, GTL - Gas to Liquids, EPC - Engineer



Environmental compliance for us, not only means legal compliance, but also to be environmentally and socially compliant while being economically relevant. This means that our implemented solutions must be capable of adapting to continuously changing methods, technologies, regulations and economic reality.

What is Gasification?

The WDF fuel can be used in our Gasifiers. Gasification is a process that converts organic or fossil fuel based carbonaceous materials into carbon monoxide and hydrogen. The resulting gas mixture is called syngas (from synthesis gas) or producer gas and is itself a fuel. Uses are electricity & fuel production and numerous chemical processes vital for our society today.



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What is unique with our solution?

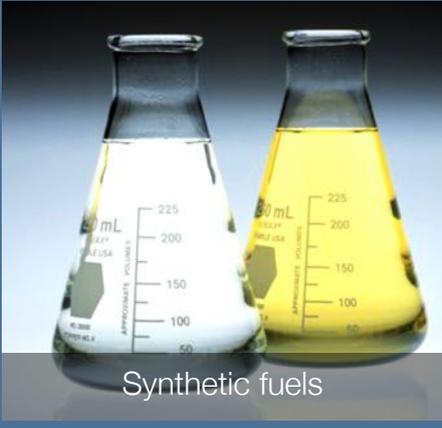
We are combining proven systems from a set of industry leaders where we have taken the best of each and created a uniquely flexible solutions that is necessary for a true **Zero Landfill** and **No Burn** Strategy. Short delivery times, standardisation, scalability and ease of use are important success factors. Our secret? — practical process know how.

As more and more communities are opting out of waste incineration and landfilling for obvious reasons there is a need for an alternative solution that is both **environmentally and economically viable**. With low or non existing tipping fees, income must come from the output value created by a solution. The output value depends on the specific market for fuels, electricity, combustibles etc. and we can adapt in each case to make a project economical.

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NEW — we now also provide a combined Remote Waste Handling Station (RWHS).
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GTL Reactor and Gasifier



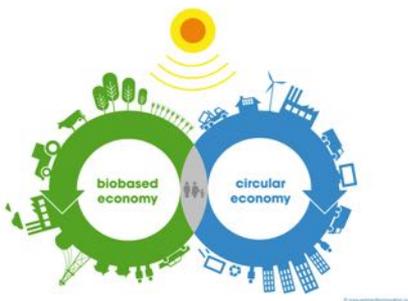
Synthetic fuels



Gas Generator



Combustibles (WDF)



Solution components

Landfilling and incineration is preferably avoided in all cases of waste handling. The principles of the recycling hierarchy and principles of the Circular Economy all have to be followed. In order to process waste compliantly our Solution involves a set of standardised and integrated methods, systems and facilities.

Remote Waste Handling Station (RWHS) — Minimising transportation needs to the main facility and creating local jobs are the principal purposes of using a local distributed recycling and sorting station. Recyclers are invited to collect recyclables at this location. A condition for compliant waste processing is that non separated recyclables and other wastes are transported to a central Materials Processing Facility for further processing.

Materials Processing Facility (MPF) — Similar to a material recovery facility, this facility separates waste into recyclables, inerts, organics, non recyclable plastics and Waste Derived Fuels (WDF). This facility has flexibility in level of automation and allows for high moist and high organic waste processing.

Gas to Electricity Facility (GEF) — one option is to use WDF from the MPF and convert it to gas (syngas) for electricity in gas generators. Gasification is emission free and syngas generators have significantly lower and cleaner emissions than Natural Gas generators. It's a clean renewable energy option when electricity production is the preferred choice.

Plastics to Liquids Facility (PTLF) — Plastics are divided into recyclable, plastics for fuel conversion (PTL, Plastics to Liquids) and non "usable" plastics (most PVC fractions). Non usable plastics are eliminated in a gasifier. Fuel conversion plastics (HDPE, PE etc.) are converted into fuels like green diesel, gasoline etc. (EURO 5, ASTM D975 etc.).

Waste Derived Fuels Station (WDFS) - This is a drying, shredding, crushing, mixing, physical conversion (bricketing etc.) process and storage facility. Here the fuel is given the needed properties for different uses, like gasification, cement production (and other high temperature uses), industrial steam production etc. This is typically an add-on to the MPF. Different biomass fractions can be used like EFB's (and other palm oil milling residues), rice husk, bagasse, coconut shells etc.

Organic Waste Processing Facility (OWPF) — Decomposing organics (composting) emit methane, VOC's* and other contaminants. Our solution is an odour free drying, biological decontamination and stabilisation of the organics that produces a clean filling material that also can serve as a combustible. If the processed organics are used for gasification it will increase the electricity and fuel production from the waste processed.

Gas To Liquids Facility (GTLF) — Uses WDF for gasification where gas (Syngas) is processed in a reactor that convert Syngas to Green Fuels (Synthetic Fuels). The reactor can be tuned for different fuel like diesel, gasoline, jet fuel an so on.

Waste Tyre Processing Facility (WTPF) — Produces sulphur reduced fuels for marine use and similar. The sulphur removal treatment is a proprietary method.

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*VOC - Volatile Organic Components.