WASTE 4ME

WASTE FOR MOBILE ENERGY
WHEN RECYCLING IS NOT VIABLE

Waste to Energy!

Our Solution

-Waste4ME BV provides Waste to Energy integrated solution using the existing power generation; the existing power generation can be diesel generators, gas engines, gas turbines, organic rankine cycle, stoves, heaters, district heating, etc.

-Mobile units are able to apply waste for mobile energy at locations where recycling is not a feasible option. In all locations where logistic cost and energy cost are high, the WER is viable. These can be military camps, islands, remote villages, festivals, etc.

-Designed for decentralized locations where availability of components and trained staff is minimal, operation by low educated staff, due to automation and remote controlling

-24 hour operation with max 10 hour per day emptying waste

-All fitted in 2x 20ft containers for quick deployment, 1 container for parts & operator housing

-Separate intake option for medical waste to prevent contamination of components

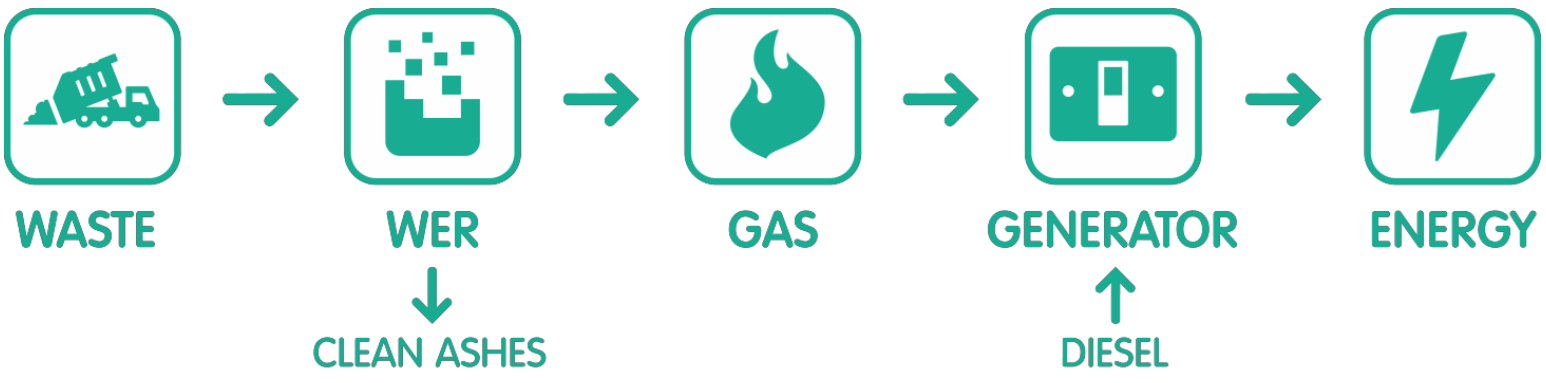
-Turnkey solution, quick to install and easy operate; disconnect and replace maintenance can be performed by technicians with comparable level as a car mechanic

-Based on proven technologies with in-house development to meet market demand


WER2015

The WER turns waste into gas which could be used immediately after being produced. The working process is as follows: the waste is taken in, the WER converts it by high temperature slow pyrolysis into gas with integrated gas cleaning, and the gas is used locally to provide the energy for which there is local demand.


WER, 2015



Your Benefit

- At normal operation with ±1000 person military staff ≈ 10, 5 ton waste/week gives a diesel saving of approximate 2000 – 3200 litre diesel per week depending on the exact amount, type of waste produced and environmental conditions
-At capacity operation with ±2300 person military staff ≈ 25 tons waste/week gives a diesel saving of approximate 4800 – 7800 litre diesel per week.

-At larger amounts we can either use a larger unit in a 40ft container up to 1 ton/hour or use multiple systems

-Conversion of all carbon containing waste up to the size of a euro pallet, including some waste components that are normally listed as chemical waste like tires and used engine oils. Larger intake is possible to engineer.

-Option for separate disposal of medical waste

The WER has the following specifications

-Fits in modified sea containers ISO 668 type 1CC(20’ x 8’ x 8’,6”)
-Minimal 150 kg/hour waste to energy capacity
-Separate tire cutting installation for processing of tires & recovery of metal cords
-Technical water connection (waste water possible, no drinking water needed)
-Internal waste storage buffer for >14 hour operation without emptying new containers when full
-Take-in system based on size standard euro containers, DIN EN 840, can be changed
-Operates between -10 °C and 45 °C
-Emission levels far below the Dutch allowed levels for waste incineration
- Noise level is below 75 dB, therefore no ear protection is needed

Frequently asked questions

-Is the technology proven?
Yes, Toeps and Quantum Solutions have built and tested a prototype to proof feasibility. Several proven technologies are integrated to a complete system. It can be compared with the evolution from the iPod to the iPhone, the iPod was expanded with a know-how feature in a different field (the phone) and therefore created a new product. We took technologies from biomass conversion and are testing the critical & changed parts and integrate it with known technologies.

-Is diesel produced? No, the WER produces gas, which is fed in a diesel generator as dual fuel, therefore the generator saves diesel. From gas to diesel are 1 to 2 additional containers and loss in efficiency, due to an extra step in energy conversion; therefore we chose to integrate the WER with the existing power conversion.
- Is there anything left after gasification? Yes, there are incombustible parts and these cannot be turned into gas. Ash extraction is once a day and ashes are around 5% of the total flow depending on the type of material going in.
-Why using a diesel generator? Diesel generators are already integrated in the setup and are necessary for certain supply. A separate gas generator would increase the dependency on the gas engine. When there is no waste, there is no gas. With dual fuel the diesel generator always produces electricity and only consumes less diesel when there is gas from waste available. The additional investment of a gas track is much lower than the investment of a separate gas generator.
-Converting is hot, right? So the machine is hot too?
No, due to insulation and covers are the touchable surfaces below 48 °C at normal outside temperature of 20 °C. If it is 45 °C, e.g. in the desert, then the surface temperature is higher.
-Why mentioning a gas generator in the picture? These in general fit well with the existing infrastructure. Other setups can also be integrated and we just give one example.
-Can you store the gas?Yes, under pressure with additional compressor and storage tanks
-When is the product available on the market? Now
-I read covers, but don't see covers in the pictures, why? The machine in the pictures is a prototype on which we try out many things new for what is the best. Therefore covers limit our work. During our development with the Dutch military we were reminded well of necessary safety measures.
-Things move, so they cause vibration and low tones, right? Moving parts are either slow 1 – 5 rounds per minute or high (compressor), these are all outside the Eigen frequency that causes the moving vibrations and low tones.

- On the pictures I see things higher than the container, so it is larger than a container?
Yes, the reception, cooler, pressure protection and exhaust are max 1,5 meter higher than the container. These parts are assembled after transport by bolts and nuts. Transportation is in container size.
-Can the WER take up all the waste?
No, it converts combustible waste at high temperatures into gas. It doesn't convert metals into gas or glass into gas. The carbon containing waste with sizes less than a euro pallet can be taken in, but larger reception can be produced. Some components are prohibited to use, as waste containing explosives, radioactive components and poisonous components.
-So glass and metals need to be separated?
Not all, only the large pieces as they will either block the mechanical system or induce a higher level of maintenance. Small pieces as tin cans are no issue.
-Ammunition contains carbon, why not converting that too into energy?
It is indeed true that ammunition is carbon based, but it has its own oxidiser making it a hard to control the reaction. With the military are we looking into these options, but first things first and getting the WER in the market.
-Why a tire cutter, tires are smaller than a euro-pallet?
Rubber is a hard material to shred and a shredder capable of also shredding tires is expensive, due to the metal cords and material properties of rubber. The cords can be recycled with a separate tire cutter. A separate tire cutter and shredder together are less expensive than an all eating shredder.
-Why is there a broad range of gas production?
Waste is not a homogeneous substance; it is a mixture of different materials with different energy contents. This results together with different generator efficiencies, technology setup options and environmental conditions in a broad range of potential savings.
-Internal components require energy, so this will reduce the benefit, right?
That is true and the internal energy consumption is taken into account in the given reductions.

We hope you are interested and you can reach us through the following contact details

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