



Waste to Watts

powering sustainable growth

powered by

HAFNER

Waste to Energy Plants

Waste to Energy Concept Overview

A CONTRIBUTION TO CLIMATE CHANGE

July 2022





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- **WHY OUR TECHNOLOGY**

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Why Our Technology

WE'RE OLD AND WISE BUT THINK YOUNG

Unsurpassed know-how, knowledge and reputation strong of over 40 years of research and projects all over the world. At our core is constant innovation allowing us to always be ahead of the curve: today we can offer a proven advanced technology housed in a compact solution converting any waste in an ecologically safe process.

SIZE DOES MATTER!

The new compact model carrying our existing technology can fit in areas as small as 30m x 60m (98.5ft x 197ft). The components arrive pre-assembled on site and are commissioned within 6 – 8 months of order. They are assembled without extensive civil works minimising any disruption to the area.

WE ARE INSPIRED BY THE CLEAN AIR OF THE ALPS

Our Certified (EC / TUV) systems have negligible emissions, meaning that they can be placed in urban / ecologically sensitive areas. Indirectly this not only improves energy distribution to the area (less dispersion) but materially decreases logistics (i.e. abates traffic and pollution).

LOVING ALL TYPES OF WASTE WITHOUT WASTING TIME / ENERGY

We are able to treat and generate energy from all types of unsorted municipal waste, hazardous waste, medical and other waste with a more efficient energy output.

ONE'S WASTE IS ANOTHER'S TREASURE

Our model reduces direct and indirect costs without even taking into account the direct supply of energy, household or industrial heating / cooling or hot / cold water supply that we can generate.

WE RECYCLE WITHOUT LIFTING A FINGER

Following the waste being converted into energy, the system will automatically sort the recyclables at the end of the cycle (typically 16% of the treated quantity).

WE HATE CHANGING ONE'S HABITS

Our ability to treat unsorted waste with automatic recyclables' sorting means that no pre-selection is required, reducing the need for space, effort and logistics.

WE LIKE MAKING YOUR NEIGHBOURHOODS LOOK GOOD

Our novel Italian design is intended to fit into modern / high – end landscapes or improve generic landscapes where applicable.



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About Us

We are a venture created for the sole purpose of providing a new, ground-breaking approach to the management and conversion of waste into energy.

Our collective experience includes the planning and collection, to the systems' implementation, management, treatment and green enhancement of waste value.

We are at precursors at translating the new ever-changing environmental needs and requirements into today's technology, availing ourselves of the latest, state of the art, scientific knowledge.

"We are inspired by the ecology and the air quality of the Alps"

Heinrich Hafner - Partner



Who we are

Our Principals



Heinrich Hafner. Founder and CEO of Hafner Energy, Heinrich has been operating in the field of waste incineration for around 40 years, with specific experience in all aspects of the development of the complex incineration plant - from waste management techniques, to energy recovery under form of hot water, steam and electrical energy. He draws on extensive engineering know-how and long-standing operational management skills accumulated through years of experience deriving from the conceptualization of numerous waste incineration facilities across the world.



Claudio Trentino. For decades, Claudio has been operating in the field of waste management and the conceptualization, development and operation of conventional and complex waste treatment facilities. His competencies draw from several accomplished projects around the world, being able to develop, plan and manage the entire cycle from the collection logistics to the treatment of any type of waste.



Riki Sospisio. Over the years, Riki has risen as a highly respected and accomplished entrepreneur and investor in a number of successful ventures. Throughout his lifetime, Riki was able to bring to fruition a number of enterprises, many of which required the sourcing of external financing and funding.



Gianluca Grillo. Originally a UK qualified lawyer specialising in complex inter-jurisdictional corporate and commercial transactions, years ago Gianluca channelled his skills and ventured into business, specialising in the delivery and execution of projects for government clients around the world. Gianluca has to date been providing successful solutions adapting to his clients' specific needs, with the ability to assess, reassess and quickly develop strategic plans to face all challenges.



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Selected experience

Experience in or with the design and construction of "Waste to Energy" facilities
AND experience in or with the design and construction or upgrade of
conventional facilities for:



HAZARDOUS : special, oil & gas, hospital and industrial waste



BIOMASS: all types of biomass



MSW: municipal solid waste



CRITICAL INFRASTRUCTURE: port and airport waste

Experience in operation and management of "Waste to Energy" facilities



LUANDA
Angola



VIRI
Italy



PUTO ZAGREB
Croatia



PIAFNER BOLZANO
Italy



BASE
VENEZUELIENNE
Vénézuéla



ENTSORGA VADENA
Italy



FZ. KARLSRUHE
Germany



MISTRAL FVG
Italy



KKK-SIEMENS
Germany



DUPONT HAMM
Germany



ZAK KAISERSLAUTERN
Germany



CIS AGLIANA L2+3
Italy



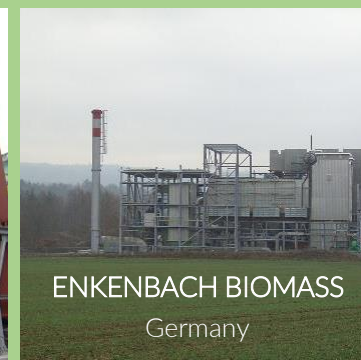
SIENA AMBIENTE
Italy



AAMPS. LIVOURNE
Italy



CIS AGLIANA L1
Italy



ENKENBACH BIOMASS
Germany



MIDA CROTONE
Italy



TOKSIKA
Lithuania



MVA BOLZANO
Italy



*“Providing a more cost effective, more efficient, easier and forward-looking solution for a faster journey towards combating **climate change**.”*



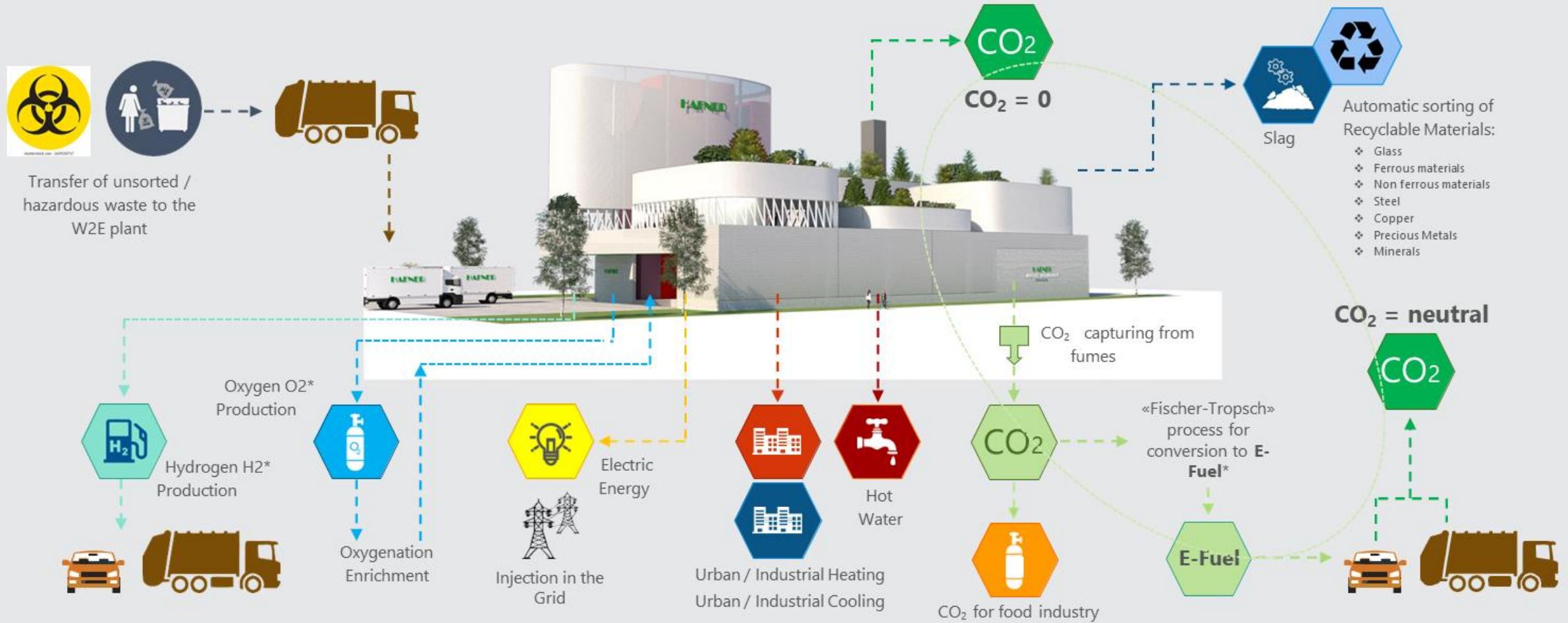
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At a Glance



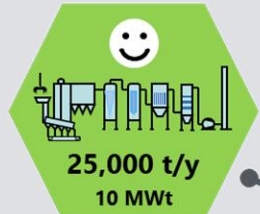


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"H® - SLIMLINE" 25,000 t/y

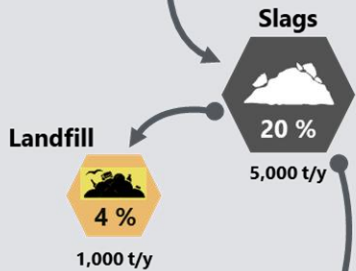
Benefit



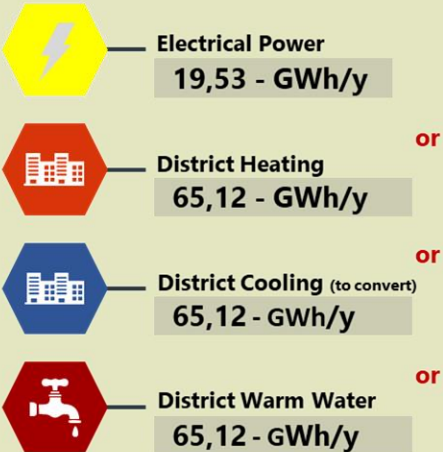
Waste to Energy Plants



CO₂ savings
7,275 t CO₂ equiv./y



Benefits *approx.*



Reusable materials for the recycling industry:

- Glass
- Ferrous Metals
- No ferrous Metals
- Stainless Steel
- Copper
- Precious Metals
- Minerals

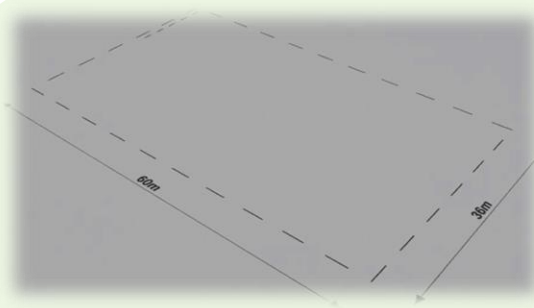


Benefits

Leading the Way in the Value for Innovation



- Novel Italian design
- Arrives pre-assembled on site
- Quick assembly on site thanks to the well-designed modular-block-structure system (minimal local disruption)
- Fixed price guarantee - guaranteed from the onset
- Clearly defined construction times and fixed date for commissioning (6 – 8 months from order)



- Minimal space required – size for basic model is 60m x 30m (197ft x 98.5ft)
- Solutions for problems even for smaller surroundings (basic model treats 25,000 – 30,000 t/year)
- Ability to convert every type of waste - no pre-selection required (less space and logistics needed)
- Automatic sorting of recyclables (metal, glass, etc) at the end of the cycle
- Negligible environmental impact - lowest emissions in Europe (50% less than the EC standard) – adapt for urban environments
- Gaining energy (electricity, cooling, district heating) from household or hazardous waste



Welcome To
The Future

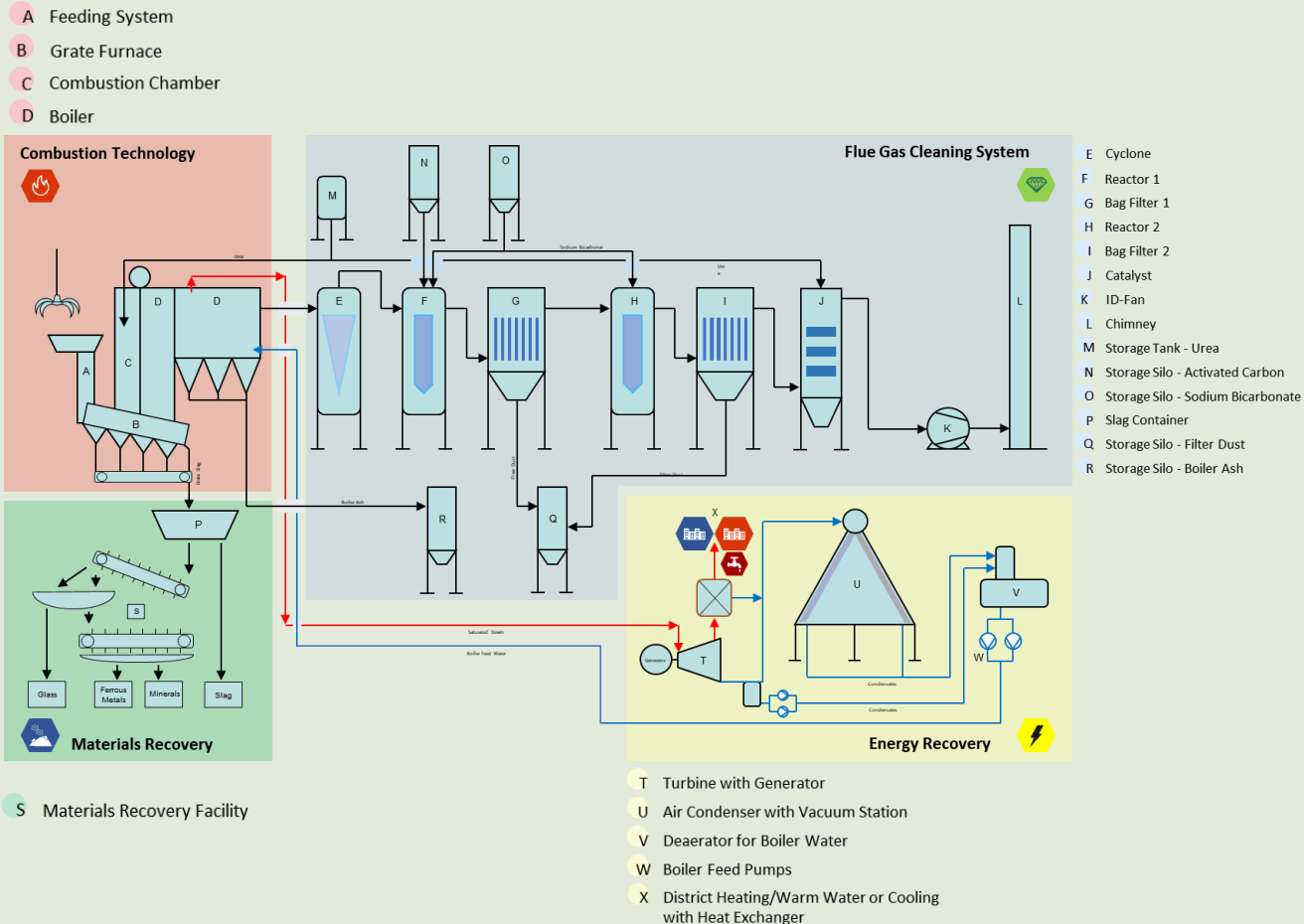
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The Waste to Energy Process Flow Diagram



The Four Core Points of our Technology



Combustion Technology

Depending on the waste heat value, two different combustion technologies are used. Grate firing with an integrated steam boiler plant is used for low to medium-calorific waste. For highly calorific waste, a rotary kiln with afterburning chamber and waste heat boiler is used.



Energy Recovery

The plant technology is designed to use upwards of 65% of the thermal energy (R1 - as defined according to Annex II of EU DIRECTIVE 2008/98/EC on Waste) including power generation, district heating or cooling and process steam.



Flue Gas Cleaning

In the tradition of conventional simple flue gas cleaning, we rely on a completely dry flue gas cleaning process with double flue gas filtration for increased dust retention and more efficient pollutant minimization. The achieved emission values are thus far below the EU limit values.



Material Recovery

From the slag residues of combustion valuable materials are recovered by further treatments and different selection processes.



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A Lifecycle to be Proud of



Small energy control center guarantees high levels of transparency towards the local authorities and their inhabitants.



Waste cycles can be better understood by the consumer.



No Wastewater. At the end of the process, the plant merely expels slag and filtered waste gases.



The plant extracts more than 80% metals from the slag which is subsequently available for a new economic cycle.



High quality of metals and glasses extracted from the thermal treatment.



Undesired coatings and adhesions are also removed during the process.



Remaining materials are also recyclable – e.g., rubble and glass sands are used in the construction materials sector or road construction.

Our Waste to Energy Advantages



Use of state of the art and environmentally friendly technology.



CO2 reduction through the replacement of fossil fuels during the incineration process.



Low investment costs and low operating costs.



CO2 reduction by reduced transportation in contrast with centralized waste sites.



Utilization of the energy introduced with an efficiency level of 80 per cent. Waste is thus considered and “declared” as fuel according to the EU Directive.



CE / TÜV certified.



Emission values fulfil the provisions of the European Community and more far reaching even stricter national requirements.



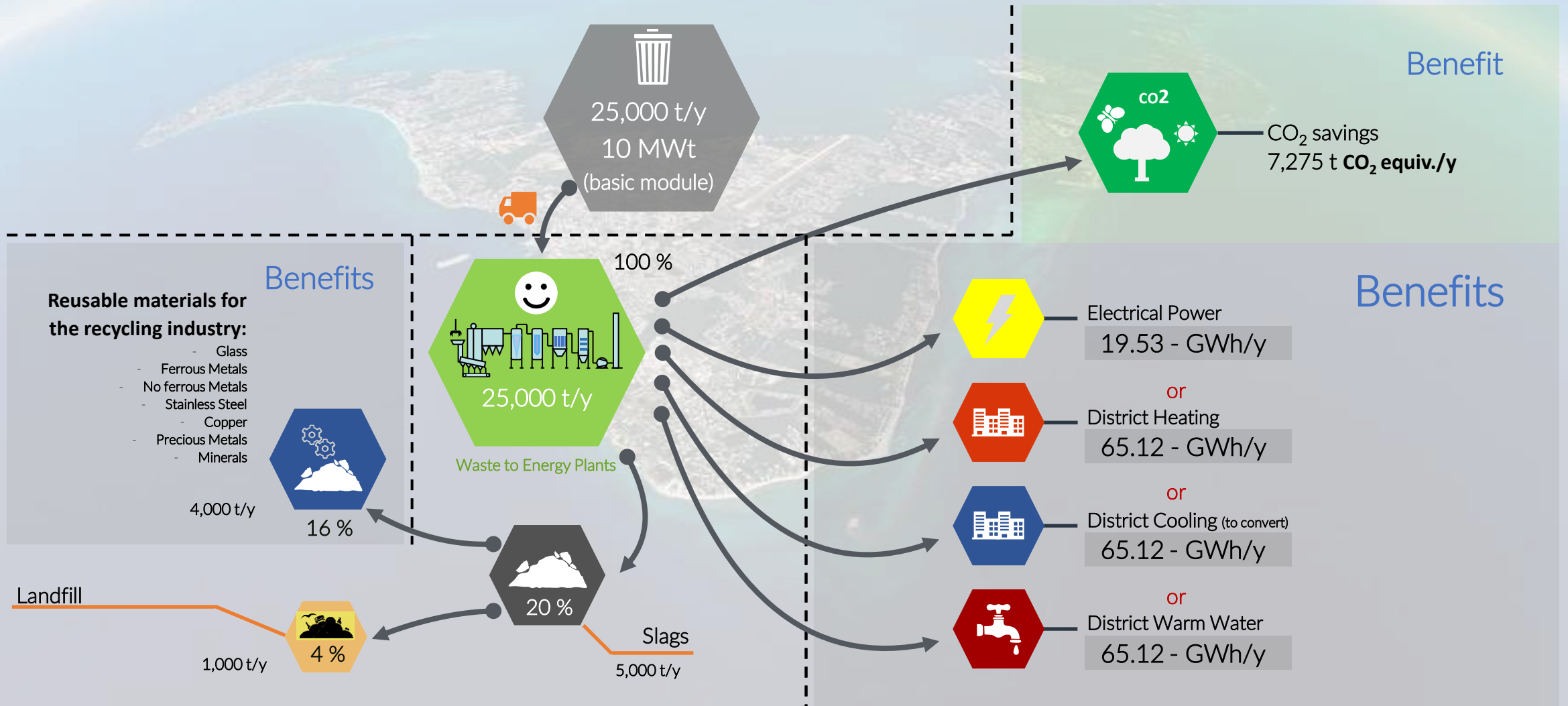
Extracting of valuable energies in the form of electricity, heat and refrigerants.



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Basic Slimline W2E Plant Overview





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Thank You

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