ESWET

EUROPEAN SUPPLIERS
OF WASTE-TO-ENERGY
TECHNOLOGY

WASTE-TO-ENERGY 2050

CLEAN TECHNOLOGIES FOR SUSTAINABLE WASTE MANAGEMENT

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2050

OUR MISSION

Waste-to-Energy serves the society by treating non-recyclable waste, saving resources and protecting the environment.

OUR VISION

Modern plants integrated with community services will be able to treat non-recyclable waste in a sustainable way, generating renewable energy and recovering materials, supporting a low-carbon circular economy.

CONTENTS

EXECUTIVE SUMMARY

Waste management is a crucial topic for the sustainable development of our society. Globally, waste generation is expected to grow by roughly 60% by 2050. That's why the acknowledgement and cooperation of all parties involved – politics, research, technology providers, plant operators, policy makers and civil society – is essential towards the common good for the environment.

Thanks to advanced technologies, waste management is turning into an integrated waste and resource management logic, thus reducing the exploitation of materials through recycling and transforming non-recyclable waste into a valuable resource for the whole society. To implement this change, the phasing out of polluting dumpsites is the first objective that should be pursued.

Our Vision demonstrates how Waste-to-Energy technologies produced by European suppliers are profoundly committed to resource efficiency and climate change mitigation and are ready to contribute to better waste management in the EU and on a global scale. It shows how, by 2050, Waste-to-Energy plants will contribute to low carbon energy systems and circular societies and the policy and regulatory milestones needed to get there.

Waste-to-Energy technologies treat residual waste: waste which is not fit for re-use or recycling and would otherwise be landfilled. For example, contaminated biomass such as wood treated with wood preservatives.

Waste-to-Energy plants transform this waste into energy which is used for electricity generation, for heating and cooling and for various industrial applications – among others to produce hydrogen.

Half of the energy recovered is renewable as it comes from waste of biogenic origin. Moreover, contrary to variable renewable energy production (such as wind or solar energy), renewable energy from Waste-to-Energy is plannable and reliable.

On top of this, Waste-to-Energy recovers secondary raw materials which are used in a variety of sectors such as construction, metal recycling or strategic applications such as battery manufacturing.

By combining the effects of landfill diversion, energy efficient processes and improved materials recovery, Waste-to-Energy is a considerable sink for carbon dioxide (CO_2) emissions.

Waste-to-Energy plants will allow to feed more renewable energy into the system which will be used, e.g. in the form of hydrogen, to decarbonise other sectors.

The future of Waste-to-Energy is circular, fully sustainable and widespread globally: hydrogen-fuelled trucks will bring residual waste to the plant; while unloading the waste, they will refuel at the hydrogen station, thus avoiding fossil fuels use. From households to industries, shopping centres and greenhouses, the amount of facilities heated and cooled by the energy recovered from waste will constantly grow.

Integrated Waste-to-Water processes will be able to improve waste management in desert areas, and the energy recovered from the waste will power seawater desalination plants to produce drinking water sustainably.

The roads we walk along and the buildings we live in will be more and more constructed with secondary raw materials from bottom ashes, reducing the exploitation of primary materials.

The Waste-to-Energy plants themselves will turn into edutainment and sport centres, with ski slopes, climbing chimneys and tennis courts, restaurants with vantage points and education centres for school activities.

The European Union has the capacity to further progress and to expand the EU excellence in waste management well beyond its borders. This is why forthcoming policies should acknowledge this potential by:

- Promoting the waste hierarchy as the enabler of sound waste management policies.
- Promoting the role of Waste-to-Energy as the preferred treatment option for residual waste.
- Recognising Waste-to-Energy as a sustainable waste management option.
- Recognising the value of Waste-to-Energy for climate change mitigation.
- Minimising the amount of landfilling to the amount strictly necessary.
- Increasing trust in recycled products by setting transparent quality criteria.
- Enabling the recovery of waste for specific uses.
- Supporting the export of sound waste management technologies including Waste-to-Energy.

As one of the cleanest industries in Europe, Waste-to-Energy is too valuable to be underestimated or left aside. It's a technology in constant evolution, open to innovation and linked with other industrial sectors in a circular and sustainable way.

01

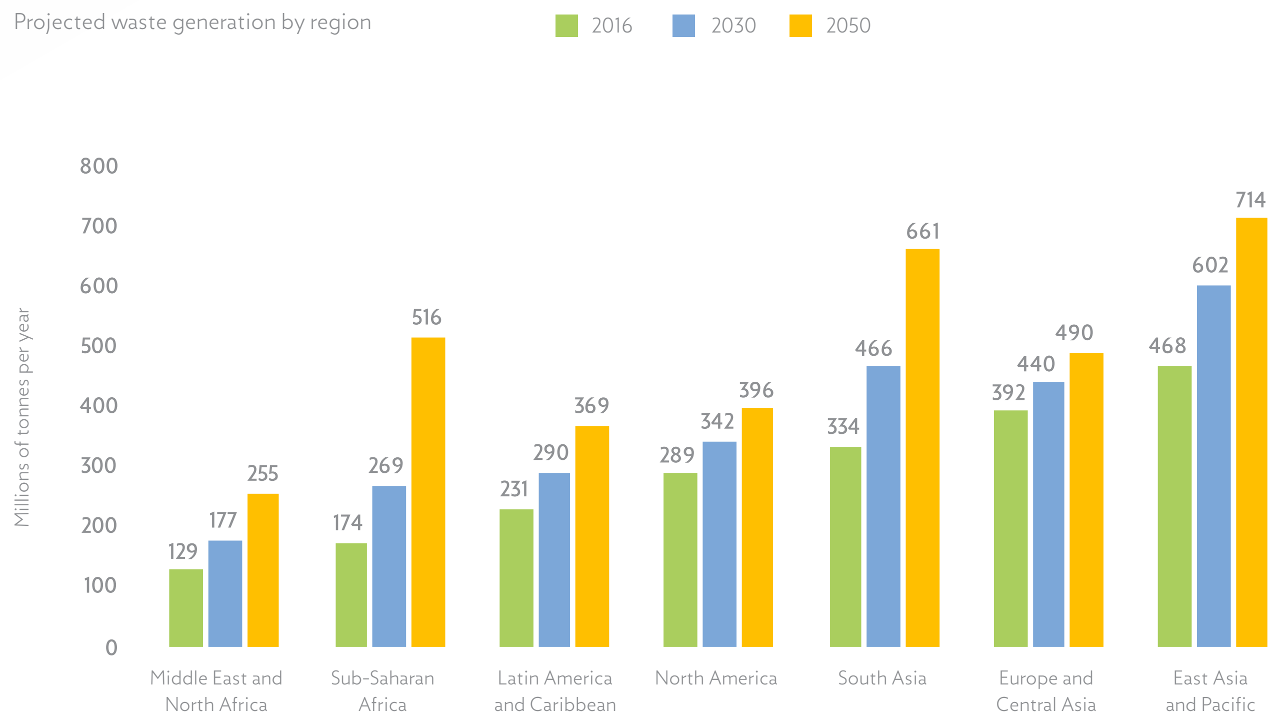
WASTE GENERATION AND WASTE MANAGEMENT PROJECTIONS FOR 2050

HOW MUCH WASTE WILL BE PRODUCED GLOBALLY IN 2050?

According to the World Bank report of 2018, "What a Waste 2.0": "By 2050, waste generation across the world is expected to reach 3.40 billion tonnes" per year. According to the same report, in 2016, 2.01 billion tonnes of municipal solid waste were generated worldwide. Europe and Central Asia together are expected to generate 490 million tonnes per year by 2050, roughly 100 million tonnes more than the amount generated in 2016. In a region such as Sub-Saharan Africa, waste generation is expected to triple, from 174 million tonnes per year in 2016 to 516 million tonnes in 2050.

Global waste generation will increase by around 60% by 2050

Projected waste generation by region



Source: World Bank report "What a Waste 2.0".

HOW IS WASTE MANAGED AND DISPOSED GLOBALLY TODAY?

37% is disposed in landfills

33% is openly dumped

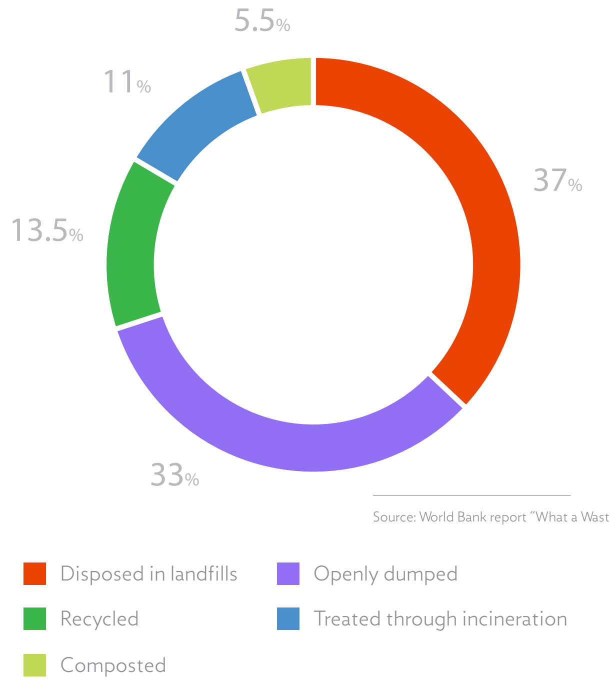
13.5% is recycled

11% is treated through incineration

5.5% is composted

70% of waste generated worldwide is dumped!

Global waste treatment and disposal



Source: World Bank report "What a Waste 2.0".

In OECD (Organisation for Economic Co-operation and Development) countries, 39% of the overall solid waste still goes to landfills[1] and the volume of waste generated is expected to rise in the near future. The United States still send approximately 52% of the total waste generated to landfills[2]. Europe's numbers are not reassuring either, with 24% of municipal waste disposed by landfilling and diverging treatment methods among EU Member States[3].

1) According to the World Bank report "What a Waste 2.0".

2) According to "Facts and Figures about Materials, Waste and Recycling" by EPA (U.S. Environmental Protection Agency).

3) According to the Municipal Waste statistics 2017 by Eurostat: https://ec.europa.eu/eurostat/statistics-explained/index.php/Municipal_waste_statistics

HOW IS MUNICIPAL WASTE DISPOSED AND TREATED IN EUROPE TODAY?

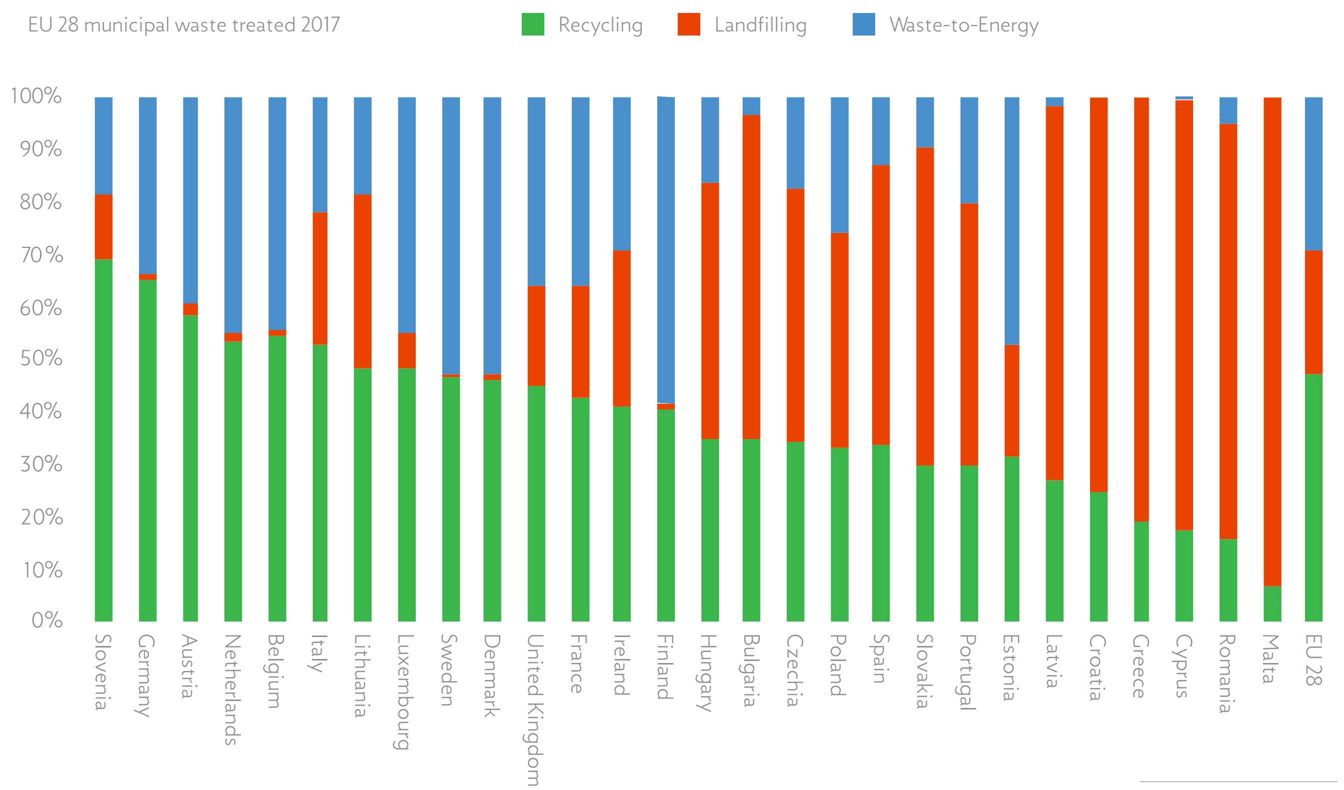
48% is recycled and composted

28% is treated through Waste-to-Energy technology

24% is landfilled

According to the EU circular economy policies and legislation completed in 2018, the common EU target by 2035 is to recycle 65% of municipal waste.

EU 28 municipal waste treated 2017

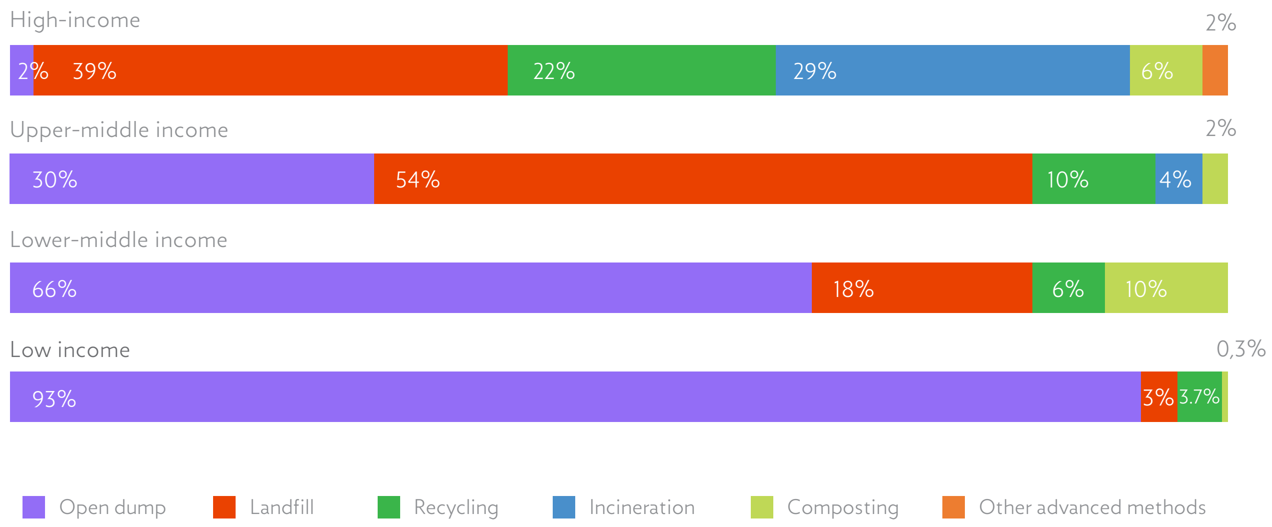


Source: Eurostat

HOW DISPOSAL METHODS CHANGE BY INCOME WORLDWIDE?

Figures show that high-income countries, who have a more structured and efficient waste management framework, have higher shares of recycling and Waste-to-Energy processes. However, even in high-income countries, landfill is still the most used waste management option.

Disposal methods by income



Source: World Bank report "What a Waste 2.0".

Waste-to-Energy is almost non-existent in middle and low-income countries, where waste collection is very poor and open dumpsites are still the most common way to treat the waste.

2050

WASTE CHALLENGES MUST BE SOLVED GLOBALLY!

Sound waste management technologies including Waste-to-Energy need to be rolled out globally to improve recycling and recovery and reduce dumpsites.

02 HOW TO SOLVE GLOBAL WASTE CHALLENGES?

Waste management stands at the crossroads of worldwide challenges: pollution, health, scarcity of resources, economic development and much more. Sound waste management systems are key to protect public health and uphold the right to a healthy environment, which should be considered a basic human right. Nevertheless, most of the world is still overwhelmed by waste and cannot manage it as a resource.

Bad waste management entails consequences that go far beyond the waste management sector itself. Open dumpsites and fires sweeping through them result in harmful emissions ranging from dioxins, suspected to cause cancer and other diseases, to GHG emissions that accelerate climate change.

From a waste management logic to a waste and resource management one

Global stress on natural resources must be alleviated by treating waste as a resource, going from a waste management logic to a waste and resource management one.

Europe's successful integrated waste management policies rely on two key pillars, namely waste avoidance and recovery of resources and energy to avoid landfills.

The contribution of Waste-to-Energy

A circular waste management process can only aim to safely manage and reduce the amount of waste by following the waste hierarchy, thus focusing on prevention, re-use, recycling, recovery and disposal[4].

By treating residual waste, Waste-to-Energy plants are a key contributor to "cleaning" the circular economy: they remove pollutants that would hamper the recycling streams and they contribute to decarbonising the economy, in particular by diverting waste from landfills, reducing fossil fuel use and preventing the extraction of primary raw materials[5].

Waste-to-Energy and renewable energy

Around half of the energy generated in Waste-to-Energy plants is renewable as it is of biogenic origin (e.g. contaminated wood waste, residues from composting or anaerobic digestion processes, etc.). This waste is therefore biomass and thereby helps Member States to meet their renewable energy targets.

4) Directive 2008/98/EC on waste (Waste Framework Directive): http://ec.europa.eu/environment/waste/framework/
5) Waste Management World (19-02-2015) "Waste to Energy: The Carbon Perspective": https://waste-management-world.com/a/waste-to-energy-the-carbon-perspective

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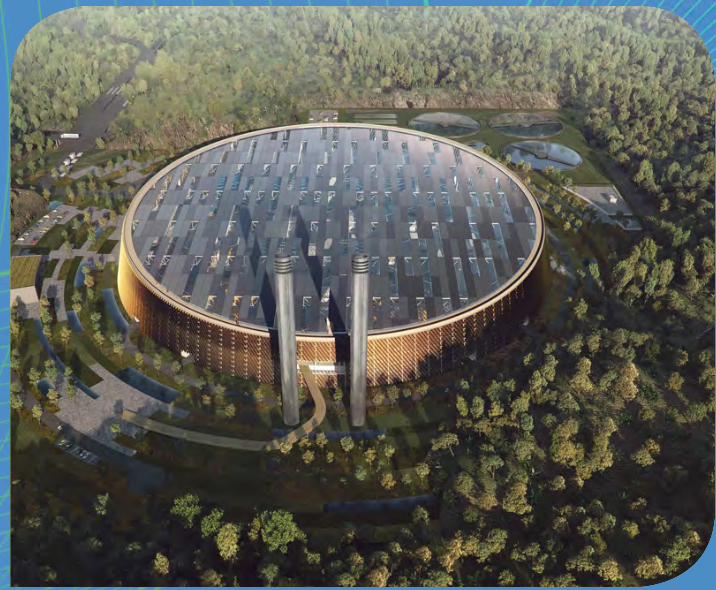
WASTE-TO-ENERGY PLANTS:

Generate renewable energy

Half of the energy recovered is renewable as it comes from waste of biogenic origin. Plants recover the energy from waste in the form of electricity, heat and cold production with efficiencies of up to 95%.



Produce secondary raw materials

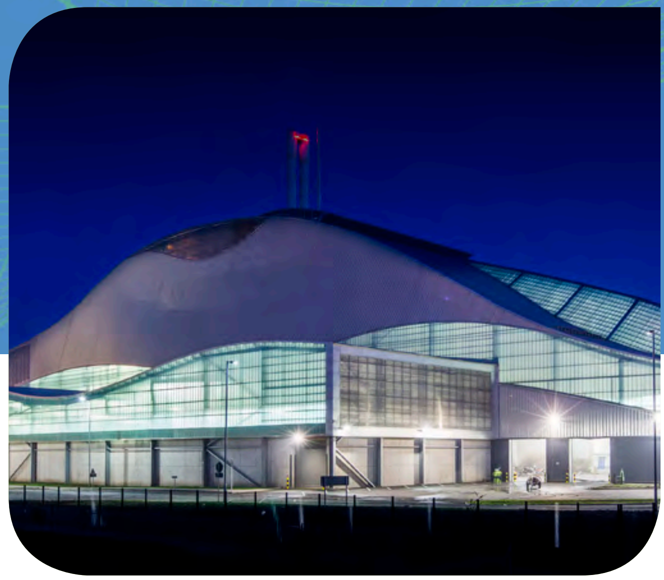
The processing of bottom ashes leads more and more to mineral and metal recovery such as precious, ferrous and non-ferrous metals, aluminium and brass.

Have very low emissions

Plants meet the strictest industrial emissions requirements placed on any EU industry in terms of pollutants monitored, emission limit values and operating conditions. Moreover, the proximity of Waste-to-Energy plants with residential areas fosters the sector's appetite for exemplarity.

Contribute to a high quality of recycling

Plants act as a pollutant sink by taking out and destroying toxic materials that cannot be recycled, such as flame retardants used in plastic products.



Reduce greenhouse gas emissions

Waste diverted from landfills prevents methane emissions; energy and materials recovered from waste prevent the extraction of fossil fuels and raw materials.

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2.1

WASTE-TO-ENERGY: CLOSING THE LOOP WITH ENERGY AND MATERIAL RECOVERY

According to Eurostat, 175 million tonnes of waste excluding major mineral wastes were lost in landfills in Europe in 2016[6]. To increase efficiency and sustainability, the European Commission delivered a roadmap targeted at using natural resources, such as metals, minerals, fuels, and water, in a sustainable manner in order to achieve a resource-efficient Europe by 2050[7].

Waste-to-Energy substantially contributes towards a resource efficient Europe with three main actions:

1 Hygienisation

Waste-to-Energy's long-standing role is to address the so-called "residual" fraction of waste which is waste of poor quality (e.g. degraded material after several times of recycling), waste that is rejected by the recycling facilities, and polluted waste.

This prevents the recycling cycle from the risk to be contaminated with polluted products and diverts the non-recyclable waste from landfills, dumpsites and open fires.

A circular economy does not mean maintaining all materials in circulation at all costs

Bisphenol A – an endocrine disruptor and reproductive toxic substance – is used as a colour developer in thermal paper, which is for example used for sale receipts. Since thermal paper is typically recycled, it contaminates other paper products and, therefore, hampers the whole recycling chain. Through its long-standing role in hygienising the waste, Waste-to-Energy prevents such contaminations, thus contributing to high quality recycling.

6) Eurostat: https://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_statistics
7) The Roadmap to a Resource Efficient Europe: http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm

2 Energy Recovery

Waste-to-Energy plants supply homes, public facilities and businesses with electricity, heating and cooling generated from waste, providing local energy to energy consumers.

The energy provided by Waste-to-Energy matches supply and demand thanks to the storage of heat, which makes it available at the right time and location. But the technology is further improving thanks to mobile thermal storage, which allows to store the heat and to transport it where it is most needed.

Such a mobile storage system has been tested and demonstrated in Germany in the city of Hamm, with a Waste-to-Energy plant as heat source and an industrial drying process as customer.

Another important development is the Integrated Waste-to-Water process, which allows to combine heat and electricity from Waste-to-Energy to power efficient seawater desalination processes, in an innovative form of industrial symbiosis.

300 tonnes of Municipal Solid Waste (MSW) have the potential to generate enough energy to provide drinking water for 100,000 people. This will secure a sustainable, less fossil fuel-dependent, drinking water supply for local citizens.

How cool is Waste-to-Energy?

In Northern European countries, Waste-to-Energy plants are well known for providing heat to residential buildings, businesses and nearby industries through district heating networks. In the future, more and more district cooling networks will also emerge to respond to Southern Europe's countries needs to improve their energy efficiency and reduce their CO_2 emissions in an economic way.

For instance, the San Adrià de Besòs Waste-to-Energy plant located in Barcelona provides 29MW cooling capacity to nearby businesses and households, including offices, hotels, a hospital, shopping centres and private residences. As compared to conventional individual heating and cooling systems, this network allows to decrease the primary energy consumption by 90,000 MWh per year and CO_2 emissions by 15,000 tonnes of CO_2 per year.

3 Material Recovery

The technological processes are such that Waste-to-Energy plants are increasingly able to recover great amounts of materials from the bottom ashes, including minerals and other precious metals which are of great value for the industry.

Estimates show that, in the Netherlands only, bottom ashes contain gold with a value of approximately €27 million. Tapping into such source of precious metals would allow operators to increase their revenues by opening a new, local stream of secondary raw materials.

Incineration Bottom Ash recovery in Alkmaar, the Netherlands

The Alkmaar bottom ash treatment plant recovers several materials in various fractions of the bottom ashes, up to the very fine sand fraction.

A washing process allows the mineral fraction to be cleaned from any harmful substances and therefore freely applied as a construction material, for example as a substitute for sand in road building, but also in concrete and asphalt. Moreover, it allows to recover high rates of non-ferrous metals such as copper, gold, lead and aluminium.

2.2

WASTE-TO-ENERGY: A GLOBAL CARBON SINK FOR THE WASTE SECTOR

By combining the effects of landfill diversion, energy efficient processes and improved energy and materials recovery, Waste-to-Energy reduces the emissions of CO_2 and is a carbon sink.

According to the International Solid Waste Association (ISWA), waste management has the potential to contribute to a 10-15% reduction in global GHG emissions[8]. And how specifically does Waste-to-Energy reduce GHG emissions? On top of the already mentioned energy recovery aspect (p. 12), through the combined effect of three more actions:

1 Landfill Diversion

The diversion of residual waste from landfills has the potential to dramatically reduce the emissions of methane (CH_4), a powerful greenhouse gas. Indeed, in the case of landfilling, decomposed waste generates CH_4 which, over a 20-year period, is 86 times more potent than CO_2[9].

From pollution to solution

About 60 million tonnes of municipal waste are still landfilled annually in Europe[10], and almost 175 million tonnes considering all the waste streams (except major mineral waste). A significant amount of this waste could be diverted to Waste-to-Energy, thereby preventing massive quantities of CO_2 emissions[11].

8) ISWA - Global Waste Management Outlook: https://www.iswa.org/fileadmin/galleries/Publications/ISWA_Reports/GWMO_summary_web.pdf

9) According to IPCC 5th Assessment Report (AR5): https://www.ipcc.ch/report/ar5/syr/

10) Eurostat: https://ec.europa.eu/eurostat/statistics-explained/index.php/Municipal_waste_statistics#Municipal_waste_treatment

11) Estimation made on the assumption of the study of German UBA: The Climate Change Mitigation potential of the waste sector – 2015: https://www.umweltbundesamt.de/en/publikationen/the-climate-change-mitigation-potential-of-the

2 Prevention of extraction of primary raw materials

The improvement of energy and materials recovery from the treatment of residual waste prevents the extraction of virgin fuels and the employment of primary raw materials and their related GHG emissions.

It is estimated that the climate mitigation potential of recovering several types of metals from incineration bottom ashes (IBA) would amount to around 2.6 tonnes of CO_2 per tonne of metal recycled from IBA.

Recovering resources is good for the environment

Given the amount of IBA generated in Europe and the yield of ferrous and non-ferrous metals that can be extracted from IBA, CEWEP estimated that, by recycling these metals, 2.7 to 3.5 million tonnes of CO_2-equivalent could be saved in the EU which is equivalent to taking up to 2 million European cars off the roads.

3 Carbon capture, utilisation and storage

Industrial CO_2 capture, storage and utilisation can not only substantially reduce the intrinsic GHG emissions of Waste-to-Energy plants, but also abate GHG emissions from other sectors by making the most of this CO_2 by using it as a raw material to manufacture new products, fuels, etc.

As stated in its name, Carbon Capture and Utilisation (CCU) allows to recover CO_2 as a source of carbon to use it in the manufacturing process of fuels, carbonates, polymers and chemicals. CCU represents a new economy for CO_2, which will be used as a raw material for new products[12].

Transforming CO_2 into new products

Among the concrete examples of CCU implementation, the Twence Waste-to-Energy plant located in the Netherlands developed an innovative system for capturing CO_2 from the dry Flue Gas Treatment (FGT) system to use it as a raw material for producing sodium bicarbonate ($NaHCO_3$).

This product, obtained as a result of the alkaline reaction with soda, is re-used at the Waste-to-Energy plant for FGT purposes. Consequently, it has a twofold positive effect: it captures CO_2 emissions and it uses the produced $NaHCO_3$ to further clean the flue gases.

The system is fully integrated in the plant and produces approximately 8,000 tonnes of sodium bicarbonate annually, which reduce CO_2 emissions of up to 3,000 tonnes per year.

12) Smart Specialisation Platform. Carbon Capture and Utilization: http://s3platform.jrc.ec.europa.eu/carbon-capture-and-utilization

03

THE FUTURE OF WASTE-TO-ENERGY PLANTS

The EU energy system will become more decentralised, decarbonised and more locally integrated and society will become more circular – in order to achieve a climate-neutral economy by 2050.

Increased feed-in from variable generators, which grows the need for balancing, will mean that Waste-to-Energy plants will have to make sure they can use the energy they generate even if their electricity may not be fed into the grid.

So the challenges to address will touch on the one hand the energy generation and on the other hand the circular economy.

Electricity, heat and cold generation, energy recovered from the waste, will be complemented by electricity taken from the grid in order to reduce the stress from variable renewables on the electricity system.

Existing infrastructure (electricity grid connection) will be used to absorb surplus renewable electricity and to transform it into either heat and cold (thereby decarbonising the heating sector) for houses, businesses and shopping centres, or to create carbon neutral fuels by integrating the future plants more with H_2 based fuel generation, thereby decarbonising the transport sector.

Waste-to-Energy plants will store energy; they will be able to desalinise water; they will capture the CO_2 and recover it; and much more.

Circularity means that Waste-to-Energy plants will take care of the fraction of waste that cannot be directly recycled. All materials after the Waste-to-Energy process that can be used will then be recycled into products. This will reduce the environmental impact of the products by avoiding the use of virgin materials.

Contributing to a sound use of natural resources, Waste-to-Energy plants will systematically recover minerals and metals to build roads, buildings, etc.; produce biological fertilisers for agriculture; and much more.

Waste-to-Energy plants will therefore be integrated with recycling plants in waste management centres. Landfills will be minimised all over Europe and separate waste collection will be everyone's rule.

Waste-to-Energy plants will be increasingly integrated into the urban fabric and will generate multiple opportunities for citizens, while safeguarding the environment.

Their large scale will allow to integrate sport centres (such as ski slopes, rock climbing gyms, skate parks, tennis courts, outdoor swimming pools, etc.) and edutainment activities to raise students' and citizens' awareness of waste management, energy production, engineering, etc.

Moreover, the presence of restaurants, picnic spots, panoramic points and the organisation of activities including concerts, open-air cinemas and theatres, etc. will be potential features of both the plants and the parks surrounding them. Finally, synergies with research centres will allow for the development of innovative technologies furthering the contribution of Waste-to-Energy to resource efficiency and decarbonisation.

Waste-to-Energy plants are both a necessity and an opportunity. They will generate jobs involving a huge variety of professions, they will contribute to the economic growth of the city and they will keep the environment clean, fully aligned with the goals set by the United Nations in the 2030 Agenda for Sustainable Development[13].

Let's see in details how a Waste-to-Energy plant of the future will look like.

13) 2030 Agenda for Sustainable Development: https://sustainabledevelopment.un.org/post2015/transformingourworld

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THE WASTE-TO-ENERGY PLANT OF THE FUTURE

04

POLICY RECOMMENDATIONS

A sound and realistic waste management policy

A) Promote the waste hierarchy as the enabler of sound waste management policies

The waste hierarchy commands that waste should be managed with the following priority order: prevention, re-use, recycling, recovery and disposal. Waste-to-Energy is only competing with landfilling for residual waste. And the waste hierarchy recognises that landfilling should come last.

However, recent legislative developments have shown a worrying trend to discard the waste hierarchy as a prerequisite for the development of waste management infrastructure.

This basic principle of waste management aims to reduce negative impacts, in particular on public health and the environment, and to improve resource efficiency. It is therefore of paramount importance that, going forward, this principle remains a key driver in every policy or legislative action touching on waste management.

B) Promote the role of Waste-to-Energy as the preferred treatment option for residual waste

Technological progress allows Waste-to-Energy plants to recover massive quantities of metals and minerals from the generated residues. Some Member States even require that 100 % of the mineral fraction of these residues be recovered.

Therefore, Waste-to-Energy should always be seen as a recovery operation and the preferred treatment option for residual waste and should never be put on equal terms with landfilling.

C) Minimise the amount of landfilling to the amount strictly necessary

Almost half of the EU Member States still send more than 40% of their municipal waste to landfills. This fraction should be minimised to what cannot be recycled nor recovered, e.g. through Waste-to-Energy processes.

For that purpose, mandatory disposal reduction targets as well as restrictions on landfilling for several waste streams should be implemented as early as possible.

A clean and safe circular economy

D) Increase trust in recycled products by setting transparent quality criteria

The problem of substances polluting recycled products is often highlighted – for example by the recent study "Toxic Soup – Dioxins in Plastic Toys"[14] which showed high levels of brominated dioxins in toys made of recycled plastic stemming from electronic waste. Quantitative recycling targets are therefore not enough to achieve a truly circular economy. They need to be complemented with qualitative ones in order to boost confidence in secondary raw materials, which still suffer from poor reputation.

As far as Waste-to-Energy is concerned, part of the way has already been cleared with the European Commission acknowledging that high-quality metals from bottom ashes can be recycled. A step forward would be to recognise that the mineral fraction of bottom ashes can also be recycled.

E) Enable the recovery of waste for specific uses

Current rules on the classification of waste, based on the List of Waste (LoW)[15] as well as on their intrinsic properties, should be supplemented by a second step based on a risk assessment, taking into account the intrinsic properties of the waste but also exposure (risk = danger x exposure). Such rules should be enacted at the EU-level in order to ensure a level playing field in the evaluation.

Bioavailability/bioaccessibility of substances contained in the waste could be used to assess exposure, and, hence, risk. However, to date, these concepts are neither defined nor standardised and do not cover all exposure pathways in all cases. Therefore, risk should be assessed for each category of waste based on the intended use.

A low-carbon circular economy

F) Recognise the value of Waste-to-Energy for climate change mitigation

Waste management options vary locally depending on multiple factors (waste input, geographical location, climate conditions, etc.). Therefore, all measures to address GHG emissions should be taken by each Member State.

Waste-to-Energy offsets GHG emissions that would have been emitted by other sectors thanks to the diversion of waste from landfills, the production of energy that would otherwise be generated by fossil fuel-powered plants and the recycling of metals and minerals.

Instruments like the EU Emissions Trading System (ETS) or taxes do not fit for Waste-to-Energy for several reasons (fuel switching not possible, CO_2 emissions reductions already required under other legislation), and therefore the Effort Sharing Regulation (ESR) is the right tool to reduce emissions over time.

14) Toxic Soup - Dioxins in Plastic Toys: https://www.env-health.org/wp-content/uploads/2018/11/Toxic_Soup_brochure_en_web04-1.pdf
15) Waste Framework Directive: Waste classification and the European List of Waste: http://ec.europa.eu/environment/waste/framework/list.htm

A modern, global, integrated waste management system

G) Recognise Waste-to-Energy as a sustainable waste management option

An appropriate and sustainable interaction of different waste management options, compatible with the local conditions, must be carefully designed and executed. This can only be done through sound planning of treatment capacity, including for residual waste that cannot be recycled.

In many Member States, such planning will uncover capacity shortages for the treatment of residual waste. Therefore, it is important that public and private finance remains available for the creation of integrated sustainable waste management systems, for which the waste hierarchy remains a key guide.

H) Support the export of sound waste management technologies including Waste-to-Energy

European suppliers of Waste-to-Energy technologies are considered the most advanced globally, thanks to their long-standing experience in building Europe's flagship waste management facilities. Disseminating these technologies worldwide has the potential to resolve critical waste management issues, for the benefit of the environment and the society.

Therefore, the EU should use all means available to help the industry in its efforts to roll out its reliable and innovative technological solutions beyond the EU borders, in particular through trade agreements, technical support, development aid or economic missions.

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