

Position Paper on Renewable Energy Directive Review

ESWET answers to the RED II public consultation

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In preparation for the Renewable Energy Directive review, ESWET is confident that EU decision-makers will maintain the current recognition of the renewable energy contributions made by Waste-to-Energy. Here is why.

Renewable energy from residual waste

Residual waste consists to a large extent of biomass (soiled paper and bio-waste, textiles, wood, etc.), meaning that around 50% of the energy produced in Waste-to-Energy plants qualifies as “renewable” under the 2009 RED definition.

Cascading use of biomass

The biomass contained in residual waste was harvested to make useful products (e.g. food, wooden spoon or table) and, after serving a useful material purpose, it should be used to generate energy instead of being landfilled. Since biomass was harvested for the purpose of making a product, there is no issue over the sustainability of the biomass when it has become waste.

CO₂ neutrality

Waste biomass is carbon-neutral. The CO₂ generated by its combustion is the same that would have been emitted if it had been composted or used for biogas production. Waste-to-Energy already supplies a lot of renewable energy and can contribute even more.

More renewables in tomorrow’s grids: Waste-to-Energy’s double contribution

ESWET believes that a continued effort to increase the share of renewable energy in the energy mix is vital to ensure a reliable supply of energy in the EU while reducing the pressure on the environment. Increasing the share of both renewable electricity and heating/cooling is desirable, but integrating renewables in electricity grids and heat networks comes with specific challenges.

Waste-to-Energy can provide more renewable electricity into the grid while helping to stabilise it. It can also supply much-needed renewable heat for various needs in existing networks. Also, Waste-to-Energy plants have in many cases led the development of new, efficient heating infrastructure such as District Heating or industrial heat networks.

About Waste-to-Energy

Waste-to-Energy is complementary to recycling because it treats residual waste (what is left after the waste prevention, re-use, and recycling efforts). This waste would otherwise be sent to landfills, where it would generate methane and risk contaminating soil and groundwater.

Unrecyclable waste combustion is performed in installations equipped with sophisticated flue gas cleaning systems, meeting the strictest standards. Recovered metals contribute to Circular Economy targets, while residues are safely removed from the eco-cycle.

The energy generated from residual waste, a predominantly local resource, can be supplied as heat and/or electricity. Since Waste-to-Energy plants are net energy producers, they supply energy that helps to decrease the reliance on fossil fuels and reduces imports.

Electricity from residual waste

~50% renewable, 100% dispatchable

Given the biomass contents in residual waste, around 50% of the electricity that Waste-to-Energy plants supply to grids is renewable. Besides this important contribution, Waste-to-Energy plants are thermal installations that are technically capable of modulating their electricity output if so instructed, the so-called "dispatchability".

Waste-to-Energy in the merit order

In principle, renewable electricity should have priority within the merit order to access the grid. However, clarification is needed for a partly-renewable electricity source like Waste-to-Energy.

This is why ESWET believes that the merit order must be detailed to better recognise the specifics of Waste-to-Energy so that it can maximise its contribution to more sustainable and secure electricity for the EU.

Electricity from residual waste is produced constantly because of the realities of waste treatment (temperature requirements and the fact that residual waste needs to be treated).

For instance, it is not resource-efficient (and arguably counter-productive from a carbon perspective) to give priority to a plant burning virgin biomass, which can easily be stored, while a Waste-to-Energy plant is ordered to vent the heat released by waste that will be treated regardless.

The new RED should avoid the squandering of valuable energy from waste, which risks happening if Waste-to-Energy plants are ordered to curtail their electricity output. If the grid requires it, Waste-to-Energy plants are technically capable of modulating their electrical output (all the way down to self-consumption and, in some cases, to net consumer, if needed). Still, this makes little sense in terms of resource-efficiency, goes against the Waste Framework Directive's R1 Formula, and whenever curtailment occurs, proper compensation should be awarded through market mechanisms.

Renewable Electricity from Waste in brief

Waste-to-Energy can deliver both an increased renewable electricity supply while helping balancing the intermittency in the grid, two services that each deserve rewarding.

Heat from residual waste

Waste-to-Energy's contribution to a greener and safer heat supply

Waste-to-Energy plants already supply many District Heating (and some Cooling) networks as well as various industrial consumers with hot water or steam. As for electricity, about 50% of this heat qualifies as renewable.

Waste is one of the few sources of renewable heat that can supply the high temperatures required in specific industries. And in many cases, Waste-to-Energy plants have actually played a role in the launching of heating networks.

In District Heating

District Heating networks are large consumers of heat that efficiently dispatch it to small heat demand points, e.g. households. With District Heating networks striving to decarbonise and secure their heat supply, residual waste becomes a coveted energy source.

District Heating operators are increasingly switching from natural gas (mostly imported from outside the EU) to residual waste, predominantly local, as a heat source. For instance, new Waste-to-Energy plants in Tallinn¹, Estonia, and Klaipeda², Lithuania, have been connected to existing District Heating networks, replacing imported gas with residual waste that would otherwise have been landfilled.

Waste-to-Energy therefore helped to:

1. Fulfil waste management obligations;
2. Increase the security of energy supply;
3. Introduce renewable energy to existing District Heating networks;
4. Reduce overall greenhouse gas emissions from waste and energy activities.

Few other investments enable fulfilling as many mandatory EU targets at the same time. Developing Waste-to-Energy should be a no-brainer!

In Industries

Besides space heating (& cooling) and sanitary hot water preparation, heat from waste can serve industrial purposes, often replacing directly fossil fuels. Many industrial synergies exist, for instance in Rotterdam³ or Antwerp⁴, ports where Waste-to-Energy plants provide partly renewable heat for industrial consumers through heating networks, maximising energy use, instead of each user relying on natural gas.

If we want to reindustrialise Europe, a forward-looking source of energy such as residual waste is a great way to provide heat and electricity to sustainable industrial clusters.

¹ https://www.energia.ee/documents/10187/15087/elekter_ja_soojus_jaatmetest_a4_eng.pdf

² <http://www.fortum.com/en/mediaroom/pages/fortum-inaugurates-the-first-waste-to-energy-combined-heat-and-power-plant-in-the-baltics.aspx>

³ <http://www.warmtebedrijfrotterdam.nl/>

⁴ <http://www.ecluse.be/homepage/>

Waste-to-Energy plants spearhead heat networks development

Because of legal incentives under the Waste Framework and Energy Efficiency Directives, Waste-to-Energy plant suppliers strive to place new plants where they can connect to existing District Heating networks.

When no such network exists, but a new Waste-to-Energy plant is to be built, its promoters actively search for heat users that could become consumers of waste heat. Also, existing Waste-to-Energy plant operators reach out to potential heat consumers and often propose establishing a heating network.

Local conditions to be considered when planning heating/cooling policies

District Heating and Cooling infrastructure cannot be implemented in all circumstances. Cold climatic conditions make it more likely that District Heating systems are built. However, cooling demand, which is much smaller than the heating one, is not always met (not every house has air conditioning while all have heating), or is met through other technological solutions.

Similarly, not all industrial zones are large heat consumers waiting only for alternative energies. Some industries may have invested in their own heat supply solutions and may not be willing to switch. Variable economic conditions may also make long-term heat contracts difficult to conclude.

Local conditions should therefore always be considered if any policy is made on increasing the share of Waste-to-Energy in heating networks.

General Considerations

Public perception and need for EU action

Negative public perception of Waste-to-Energy, including from EU-level decision-makers, often overshadows all the advantages and contributions to various EU targets that recovering energy from waste can provide. In many cases, projects with concrete renewable energy production and saving substantial greenhouse gas emissions were delayed by opposition based on mistaken perceptions.

ESWET is confident that EU decision-makers revising the RED will maintain the current recognition of the renewable energy contributions made by Waste-to-Energy.

At the same time, enhancing official support from the EU, either through awareness campaigns, or through the upcoming Communication on Waste to Energy, will help reaching the targets we all want to achieve.

Leadership in renewables requires support

The ESWET members lead the world in Waste-to-Energy technology. As the EU wishes to be number one in renewables, it is important that good technologies can be implemented and recognised as such.

To maintain this competitive edge, which involves that local plants can serve as test beds, for instance, renewable energy support schemes are a valuable form of public support. Besides, as long as biomass for energy is subsidised, all biomass sources and all bioenergy producers should be supported equally.

Supporting European equipment manufacturers is equal to supporting the reindustrialisation of Europe, one of the goals set forth at the EU level.

Large potential to tap, fulfilling multiple EU targets

Large volumes of residual waste remain underused, because they are landfilled. Every source of renewable energy is useful, but when it is local and underused, it makes even more sense to tap into it.

This holds true especially if the 2030 targets both for renewable energy and landfill minimisation are to be met at the same time and with dwindling funds.

Ambition on landfill diversion contributes to strengthening other Circular Economy objectives, and importantly here, provides more renewable energy without regrets, as landfilling waste means squandering renewable energy. Besides, avoiding methane emissions from landfills by turning residual waste into energy also helps to reach the overarching climate goals that underpin the RED.

ESWET – European Suppliers of Waste-to-Energy Technology
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