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THE CONTRIBUTION OF WASTE-TO-ENERGY IN THE EU TAXONOMY – A SUMMARY

The EU Regulation 2020/852 of the European Parliament and the Council implements an ambitious and comprehensive strategy for sustainable finance with the aim of directing capital flows to help generate sustainable growth. **According to the Technical Expert Group's ('TEG') final report from March 2020, the platform should yet consider and clarify the role of the thermal treatment of non-recyclable waste as part of the sustainable finance taxonomy. The Member States should ensure that the Commission will thoroughly consider the sustainability merits of the thermal treatment of both non-hazardous and hazardous waste ('WTE').**

In accordance with the Commission's strategy concerning WTE¹, the thermal treatment of waste will have a relevant and justified role in a transition towards a more circular economy in the foreseeable future:

- As recognized by the TEG and the Commission, not all residual waste can be reused or recycled in the foreseeable future. **WTE should be regarded as a complementary tool to recycling as it safely treats the fraction of waste not suitable for recycling and takes pollutants out of the eco-cycle, thus being a sink for hazardous substances.**
- **WTE ensures the successful implementation of the EU landfilling target of maximum 10% for municipal waste in 2035, as demonstrated in Member States with the most advanced recycling schemes.** The combustion process is controlled with one of the most stringent EU regulations, guaranteeing a minimized environmental impact. When landfilled, the waste would be lost as a resource and its organic fraction would emit methane, a greenhouse gas with a global warming potential 84 times more important than CO₂ in a 20-year time frame. EU yet landfills approximately 170 million tons of waste.
- When the waste has gone through separate collection, sorting and material recovery in line with the EU's Waste Legislation, **the residual or otherwise non-recyclable waste including rejects from recycling processes should in accordance with EU's waste hierarchy be recovered as energy – heat and electricity – to also meet with energy efficiency principles.**
- **WTE integrates the waste management and energy systems.** It turns residual waste into heat, steam and electricity which substitutes fossil fuels in energy production. The energy output from WTE plants is about 50% renewable, due to the organic portion of municipal residual waste and in accordance with REDII. WTE is among the sectors with the most stringent pollutant emissions requirements under EU rules.
- **WTE recovers valuable secondary raw materials (e.g. metals and aggregates) for recycling,** thus preventing carbon-intensive extraction and the use of virgin materials. In line with the waste hierarchy, material recovery from WTE is complementary to separate collection and sorting.
- **For the future, WTE concepts will reduce CO₂ emissions in a scalable way through CCS/U solutions and utilize recovered low carbon energy for hydrogen production to support the long-term objectives of the EU's Green Deal.** A molecular level recycling process will evolve to supplement mechanical recycling and could even become an alternative to source separation and the collection of plastics. This process could utilize CO₂ and produce carbon materials and chemicals.

¹ EU Commission: Communication on the role of Waste-to-Energy in the circular economy. 2017.

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- **Restricting financing for WTE facilities in some Member States** that yet landfill a major part of their waste, **may hamper their early transition to a circular economy and reaching landfill reduction targets** if the appropriate waste management infrastructure cannot be developed in parallel.

In a transition to a more circular economy, the recycling rates and subsequent waste management measures are aimed to be enforced over time. Therefore, it shall be required that the Technical Screening Criteria ('TSC') and Do Not Significant Harm ('DNSH') for the thermal treatment shall evolve accordingly and need to be revised on regular basis. In the beginning, the TSC must clearly define the future well-grounded role of necessary WTE capacity in a transition to a circular economy so that the TSC avoids significant, unsustainable increases and lock-in effects of WTE in the EU. Leaving WTE outside of the taxonomy would only maintain the status quo as the opportunity to discuss necessary today's and future criteria would be completely missed.

We also attach here the more profound position paper on the matter.

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THE CONTRIBUTION OF WASTE-TO-ENERGY IN THE EU TAXONOMY – POSITION PAPER

1. INTRODUCTION

The EU Regulation 2020/852 of the European Parliament and the Council of 18th June 2020 on the Establishment of a Framework to Facilitate Sustainable Investment implements an ambitious and comprehensive strategy for sustainable finance with the aim of directing capital flows to help generate sustainable growth. This regulation is an important enabler for scaling up sustainable investment and therefore implementing EU's Green Deal but also the Circular Economy Action Plan.

EU taxonomy is a classification system targeting to establish a list of environmentally sustainable economic activities. It is aimed to have a push in scaling up new sustainable investments but at the same time it will have a role in classifying existing activities in order to create security for investors and to help companies to plan the transition.

The sustainable activities that would encourage the UN's 3rd -6 th environmental and sustainability goals ('ESGs') are to be determined and proposed during 2021. These goals include 'the transition to a circular economy' and 'pollution prevention and control' which both are essential for the contribution of Waste-to-Energy (later as 'WTE') activity (NACE code 4 - E38:2:1 Thermal treatment of waste).

According to the Technical Expert Group's ('TEG') final report from March 2020 the platform should yet consider and clarify the role of the thermal treatment of non-recyclable waste as part of the sustainable finance taxonomy.

WTE will continue – in its multiple roles - to contribute to the pollution prevention and control, to the transition to a circular economy and to climate change mitigation. Its role is needed especially so far as EU needs to divert waste from landfills, treat the waste that should not have been exported outside EU and treat all non-recyclable hazardous and non-hazardous waste.

Therefore, we consider it crucial that the Member States ensure that the Commission will thoroughly take the thermal treatment of non-recyclable, non-hazardous as well as hazardous waste into consideration in the criteria to make WTE to be taxonomy aligned.

We acknowledge that the EU Regulation 2020/852 has shown to be open to varying interpretations, but we believe that the sustainability considerations should be derived from the EU's waste management objectives and that the thermal treatment of non-recyclable non-hazardous waste should objectively and technology neutrally be considered as taxonomy aligned. We predict that all thermal treatment will have a relevant and justified role in a transition towards a more circular economy beyond 2030.

The activities belonging to a waste management value chain should not be regarded and assessed under isolation because the different blocks are increasingly linked with each other. The key environmental and sustainable objective is to lift material circles higher in the waste hierarchy. The primary EU objective to protect environment and reduce emissions is – together with waste prevention - to divert municipal solid ('MSW') and commercial and industrial waste ('C&IW') from being landfilled. EU still landfills approximately 170 million tons of waste. CEWEP has estimated that until 2035 yet approximately 142 million tons of residual waste (WTE and co-incineration capacity today approximately 100 million tons) need treatment although current recycling and landfill diversion targets would be met².

² <https://www.cewep.eu/wte-roadmap/>

2. THE MULTIPLE ROLES OF WTE AS PART OF CIRCULAR ECONOMY AND ENERGY SYSTEM

The primary task of WTE is to treat the non-recyclable waste as part of sustainable waste management to protect the environment. In accordance with EU's waste hierarchy, the thermal treatment of waste is having a justified and well-established transitional role in the sustainable waste management and in the transition to a more circular economy:

- Diverting waste from landfills and avoiding methane emissions (a main prerequisite for a circular economy).
- Minimizing the release of harmful substances, by acting as a pollutant sink, by reducing the environmental impact and minimizing the release of hazardous substances (decontamination as part of waste prevention).
- Thermal treatment of waste that is not suitable for quality recycling (not sorted at source, polluted or contaminated waste or otherwise harmful substances).
- Treating the residues (rejects) from quality recycling processes.
- Recovery of metals and aggregates from bottom ash replacing the use of virgin materials.
- The activity guarantees life-cycle control, ensuring that the waste and the pollutants are being monitored: organic waste is destroyed, pollutants are captured in the flue gas cleaning residues and carefully managed.

The waste not suitable for recycling or re-use should be designated to the most environmentally sound and appropriate treatment for the particular waste e.g. incineration with energy recovery, instead of being landfilled. It is further important to remove from circulation waste containing environmentally harmful substances (not only to treat the waste classified as hazardous which definitions, TSC and DNSH criteria is under discussion).

Without access to sound treatment of rejects from recycling activities, hardly any recycling activity could be considered sustainable if the combustible rejects will be landfilled. Almost no investment in recycling installation would be considered as sustainable if lacking the sustainable treatment capacity of rejects. This would hamper the transition to a circular economy rather than substantially contributing to the transition.

The secondary task of WTE is to effectively mitigate climate change. Energy recovery plays an important objective to transitionally replace fossil fuels in district heating and electricity production when treating waste that has not been suitable for quality recycling. Meanwhile the primary objective of WTE is to treat waste that is not suitable for quality recycling, the process provides means to enable efficient energy and material recovery, CO₂ capture, storage or utilization and in future the recycling of chemical content of waste.

- Replacing the use of fossil fuels in power and heat production as promoted by REDII and
- Encouraging the efficient utilization of heat otherwise lost ('waste heat') in DHC systems to decarbonize energy production as promoted by EED article 14.

According to RED II³, the energy produced from the biodegradable fraction of waste is renewable and the CO₂-emissions from non-biodegradable fraction of waste is allocated to the energy produced. To make the emissions visible to the producer of waste, the emissions should be allocated to the party responsible for

³ RED II, Renewable Energy Directive (EU) 2018/2001, articles 23-24; no changes in FF55 proposals

Harri-Pekka Korhonen

 22nd September 2021

producing, treating and recycling of waste, not to the energy. Then the heat output should be considered as parallel with renewables and waste heat in the meaning of RED II and EED⁴.

This would make such heat in parity with renewable energy to promote the de-carbonization and energy efficiency (incl. energy system integration) objectives of the EU. In the proposed Delegated Act on 21st April 2021 of the taxonomy, the utilization of waste heat is considered as taxonomy aligned.

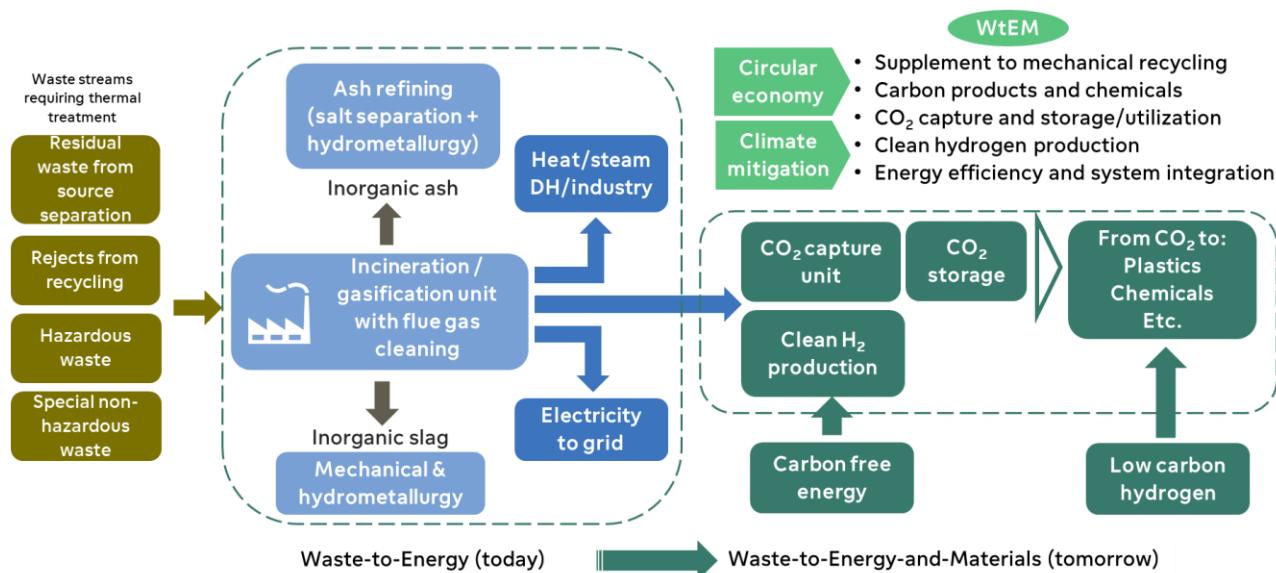
The distinction between high-efficient (R1) and other WTE activities should also be part of taxonomy alignment considerations.

3. FUTURE WTE CONCEPTS WILL BE CONNECTED WITH CCS/U AND HYDROGEN

The WTE concept is developing as many other concepts under the circular economy. We foresee that the WTE concepts will become even further closely connected with mechanical quality recycling processes and can develop to chemical recycling to comprehend targeted sustainable circular economy. We do not know yet, what technical solutions will become the main streams.

Already today we can foresee that during next 5-10 years the WTE concept will in a scalable way include carbon capture and storage/utilization ('CCS/U') solutions and the energy recovered could be used for hydrogen production to support EU's Green Deal objectives:

- Reduce the CO₂ emissions through piloting and operating carbon capture and storage/utilization (CCS/U);
- Produce hydrogen from renewable and energy efficient electricity sources to replace the use of fossil gases, and
- Molecular level recycling process will evolve to supplement mechanical recycling and could partially even become the main stream as an alternative to source separation and collection of plastics. This process could utilize CO₂ and produce carbon materials and chemicals. We have attached below an illustrative description of future WTE concepts. It includes several new elements that are under testing and piloting phases in many cases.



Picture: An illustrative description of future WTE concepts.

⁴ EED, Energy Efficiency Directive (EU) 2018/27, articles 2(41) and 14 (new: 23-24); no changes in FF55 proposals

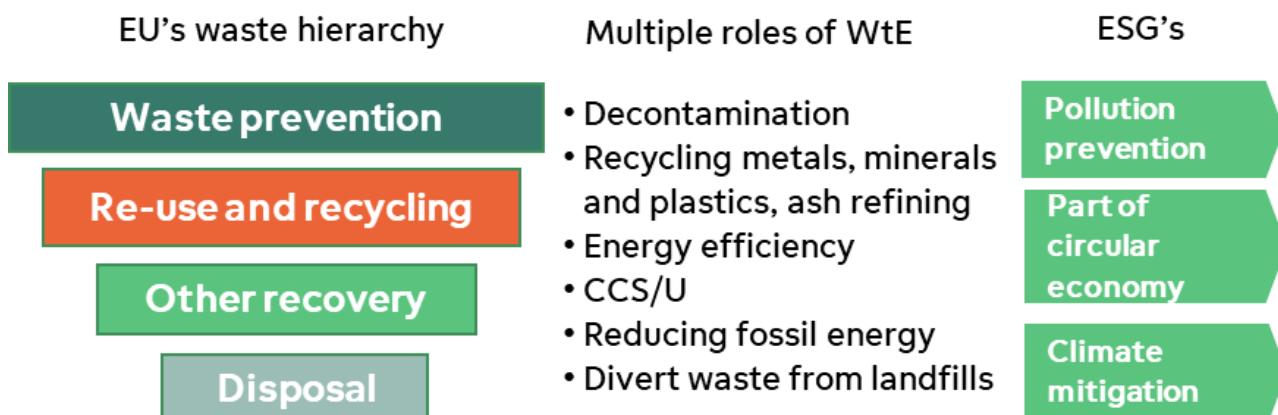
4. CONCLUSIONS

We believe that WTE will continue to contribute to the pollution prevention and control, to the transition to a circular economy and to climate change mitigation. Its role is needed especially so far EU needs to divert waste from landfills, treat the waste that has earlier been exported outside the EU and treat all non-recyclable hazardous and non-hazardous waste. Sustainable, modern and high-efficient WTE includes the thermal treatment of both non-hazardous and hazardous waste when they are non-recyclable, and should be treated in parity within the taxonomy.

With the high EU targets to increase the re-use and recycling of MSW and packaging waste by 2035 and when new gradual recycling targets are likely to be set for some other waste streams (e.g. textiles and construction waste), there remains an expected, likely and environmentally justifiable need for thermal treatment until 2035 and beyond. This would be well in line with EU's circular economy action plans and objectives.

According to the Technical Expert Group's ('TEG') final report from March 2020, the platform should yet consider and clarify the role of the thermal treatment of non-recyclable waste as part of the sustainable finance taxonomy.

The Member States should ensure that the EU Commission will thoroughly take the thermal treatment of non-hazardous as well as hazardous waste into their considerations of the criteria to be taxonomy aligned. We acknowledge that the EU Regulation 2020/852 has shown to be open to varying interpretations but think that the sustainability considerations should be derived from the EU's waste management objectives and that the thermal treatment of non-recyclable non-hazardous waste should objectively and technology neutrally be considered as taxonomy aligned.



Picture: Multiple environmental and sustainable roles of WTE as part of EU's CE Action Plan and Green Deal.

In a transition to a more circular economy, the recycling rates and subsequent waste management measures are aimed to be enforced over time. Therefore, it shall be required that the Technical Screening Criteria ('TSC') for the thermal treatment shall evolve accordingly and need to be revised on a regular basis. In the beginning, the TSC must clearly define the future well-grounded role of necessary WTE capacity in a transition to a circular economy so that the TSC avoids significant, unsustainable increases and lock-in effects of WTE in the EU.

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