

Guidance for the interpretation of the European Parliament proposal on Art. 29 of the REDIII regarding mixed waste sorting systems of ‘defined quality’

Introduction

The Renewable Energy Directive (RED) sets a common framework for the promotion of energy from renewable sources, including biomass; since its first version, this has included the biodegradable fraction of wastes.

The Directive also establishes a set of sustainability criteria that biofuels, bioliquids and biomass fuels must comply with. However, there is no criteria for mixed waste to ensure that only the biodegradable fraction is used for ‘renewable energy’ production.

The RED is currently under review and the proposed revision of the Directive is now being considered by the European Council and Parliament.

In the recently proposed amendment to Article 29, paragraph 1, subparagraph 2 of the RED, it was proposed that mixed wastes would qualify as a source of renewable energy only under specific circumstances. The amendment proposes:

“In the case of mixed wastes, however, the operators are required to apply mixed waste sorting systems of defined quality aimed at removing fossil materials.”

This document intends to provide guidance to legislators on how to interpret the above wording.

Sustainability criteria for mixed waste

This raises the question as to how to define the quality of the sorting systems. It also might indicate a need to differentiate the inputs and the outputs from such sorting systems rather than referring (implicitly) to both as ‘mixed wastes’.



With respect to the inputs and outputs, we suggest that 'leftover mixed waste' could be used to define waste that might remain after separate collection (waste separation by households and businesses) has occurred. 'Residual waste' might then be used to define the result of the leftover mixed waste having been subject to sorting systems of the defined quality.

As regards an approach to adding substance to the concept of 'defined quality aimed at removing fossil materials', one of the intentions – consistent with the objectives of the RED – should be to reduce the extent to which the generation of any energy classified as renewable does not lead to the simultaneous generation of a significant quantity of energy derived from non-renewable materials, and which give rise to fossil-derived CO₂ emissions. In this respect, the focus naturally falls on the 'fossil materials'. However, broader considerations of climate change objectives, MWS capabilities, and a commitment to developing a circular economy all suggest that such a focus is too narrow.

Regarding fossil materials, it would be consistent with the above objective to target as much of it as possible. At present, most MWS systems are targeting fossil materials with a functional off-take market (although there are variations in the range of materials targeted, there is also substantial overlap). This approach does not necessarily maximise the extraction of the fossil component, as some fossil materials are not targeted even though the sorting systems are capable of removing them. The choice not to remove them is mainly an economic one. Recent studies indicate that the extent of removal of plastics, the main fossil material which is still overwhelmingly produced from fossil fuels, is approximately 50% in total, with the specifically targeted fractions being removed far more effectively than the average figure suggests (as high as 80% for some material formats/colours).

In order to reduce the non-renewable share of energy generated from incinerating mixed residual waste, we propose a figure of 65% that more accurately reflects the 'removal potential' when not constrained by the economic viability of recycling outlets for the recovered materials. This could lead to the development of additional markets for use of this material, such as feedstock for chemical recycling processes.

Removing fossil materials as a source of non-renewable, and relatively carbon intense energy, only to have them end up in an incineration facility due to the lack of viable markets, would be counter-productive. However, there may be reasons why this needs to happen for some plastics. We suggest, therefore, that the 'defined quality' definition should include limitations on the end destination of fossil materials extracted via a qualifying MWS facility. This would prevent them from being routed to any thermal facility not regulated under the EU-ETS, ensuring that at least the relevant emissions would be covered by the scheme. Such plastics should be sent to either a landfill to sequester the fossil-derived carbon or to facilities included under the EU-ETS. This proportion must not exceed:

- 15% of the sorted plastics in the years leading up to 2027;
- 10% of the sorted plastics from 1 January 2028 to 31 December 2033;
- 5% of the sorted plastics from 1 January 2034 onwards,



in order to meet the ‘desired quality’ threshold. This sequencing is designed to reflect the ‘recyclability’ requirements of the proposed Article 6 of the PPWD, while also recognising that not all plastics are considered ‘packaging’.

In addition to sorting fossil materials, and considering that the incremental costs of targeting other materials for extraction would be relatively small, sorting facilities should achieve a minimum sorting rate of:

- 80% for steel
- 60% for aluminium

We propose that the target sorting rates for a) paper and card and b) for glass should be determined by markets, given that the principal intention of the Directive is to support renewable energy generation. Where such facilities can sort materials of a quality suitable for use in recycling applications, they should be encouraged to do so. Nonetheless, there is likely to be a quality differential between paper and card extracted from the leftover mixed waste stream, and that collected via separate collection. The potential for sorting materials of recyclable quality, or for final recycling materials, may depend on input materials and the state of markets for recycled fibres. The energy derived from these materials is classified as renewable, and so for the purposes of the Directive, making a judgement call on the targeted rate serves a more limited purpose than for the other materials mentioned here.

Consequences

It is therefore proposed to replace the relevant extract of Article 29, paragraph 1, subparagraph 2 of the RED with:

In the case of leftover mixed wastes, however, the operators are required to apply mixed waste sorting systems which meet relevant performance criteria, aimed at removing materials so that the non-renewable share of energy generated from residual waste is minimised, there is a reduction in greenhouse gas emissions and energy use, and the process contributes to a more circular economy.

In the above:

Leftover mixed wastes are defined as the waste remaining after businesses / households have taken part in separate collection or waste segregation (e.g., at container parks / bring-in sites)

Residual wastes are defined as the waste which remains unsorted after the application of mixed waste sorting to the leftover mixed waste stream.



'Defined Quality' would be defined as follows:

In order to qualify for inclusion as renewable energy, waste that is treated through incineration shall first be subject to a system of mechanical sorting which meets the following minimum performance criteria:

Efficiency of sorting into streams achieves:

- For plastics: > 70%, with non-target materials contributing no more than 10%;
- For steel: >80%, with non-target materials contributing no more than 4%; and
- For aluminium: >60%, with non-target materials contributing no more than 6%;

These sorting efficiencies will be assessed based on the weight of output material class as a proportion of the input to the sorting facility. The ratio will be calculated using the quantity positively sorted into the output stream (Qp) and the quantity that evades sorting (in the residual stream) (Qr), measured using batch-based sampling of the residual waste left following the sorting of the measured quantity. The ratio will be calculated as:

Efficiency of sorting = $Qp / (Qp + Qr)$

In the case of plastics, a further condition is that the plastics sorted via MWS should be destined for recycling wherever possible, and only if suitable markets do not exist, should they be sent to either landfills (as a means to sequester the fossil-derived carbon), or to thermal processing facilities included under the EU-ETS. No more than the percentages indicated below may be dealt with through the combination of these management routes:

- 15% of the sorted plastics in the years to 2027
- 10% of the sorted plastics from 1 January 2028 to 31 December 2033
- 5% of the sorted plastics from 1 January 2034 onwards



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Who is Reloop

Reloop is an international non-profit organisation that works at the centre of policy-making with governments, industry stakeholders, and NGOs. Our vision and mission are ambitious and focused on building a world free of waste, where our natural resources remain resources. Reloop's policy positions and recommendations are always based on data-driven research, real-world case studies and experience, best-in-class principles, and the collective expertise of our team.

Who is Zero Waste Europe

Zero Waste Europe is the European network of communities, local leaders, businesses, experts, and change agents working towards the same vision: phasing out waste from our society. We empower communities to redesign their relationship with resources, to adopt smarter lifestyles and sustainable consumption patterns, and to think circular.