

Position Paper on Mandatory Implementation of CCS in Municipal Waste Incinerators

I. Introduction

On June 8, 2023, the European Commission issued a call for evidence and an open public consultation on the Industrial Carbon Management Strategy. As part of this consultation, the European Commission's survey explored the potential necessity of mandating Carbon Capture and Storage (CCS) implementation for waste incinerators¹.

The introduction of the mandatory implementation of CCS in municipal waste incinerators warrants careful consideration, especially given the evolving landscape of waste management practices. This position paper argues against making CCS mandatory in such facilities, focusing on the notion that municipal waste is not unavoidable.

The evidence suggests that countries are continually improving their recycling rates, with regions such as Flanders and Sardinia serving as prime examples.

II. Municipal Waste is Not Unavoidable

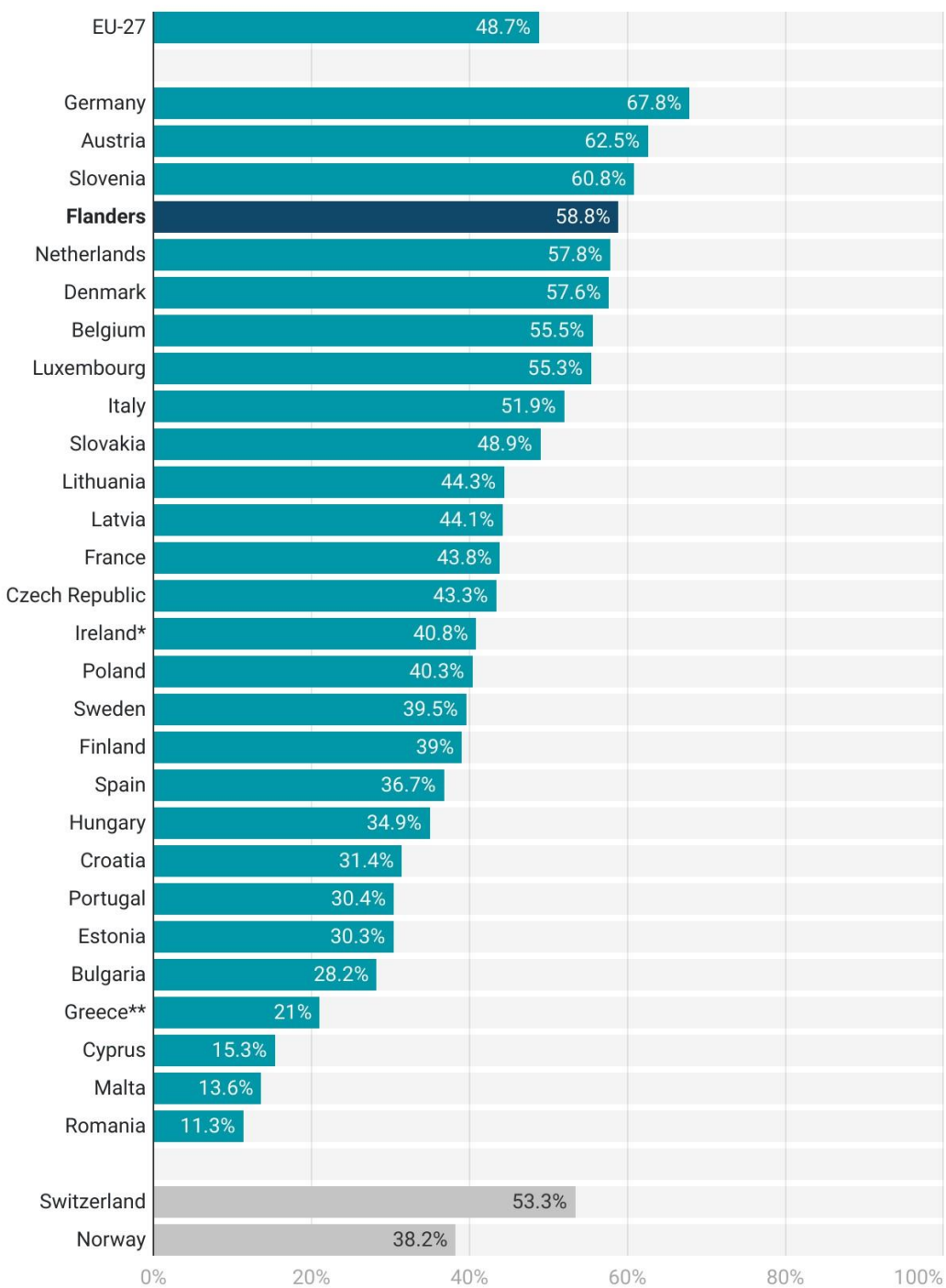
Municipal waste should not be seen as an inevitability. Treating waste management and recycling levels as a static snapshot is a fallacy, akin to measuring the heights of individuals in a family photo. The circular economy is better understood as a dynamic and continuous transition. Evidence from various regions across Europe highlights the potential to achieve higher recycling rates, indicating a promising path toward substantial waste reduction.

In Flanders, a noteworthy success story, recycling rates have surged, reaching an impressive 58.8% in 2021. Likewise, Sardinia has achieved commendable progress, attaining an extraordinary recycling rate of 65%, a significant leap from 3% in just 15 years². These instances emphasize that municipal waste is not an inescapable burden; rather, it presents a challenge that can be adeptly addressed through intensified recycling efforts.

¹ According to the Industrial Emissions Directive 'waste incineration plant' means any stationary or mobile technical unit and equipment dedicated to the thermal treatment of waste, with or without recovery of the combustion heat generated, through the incineration by oxidation of waste as well as other thermal treatment processes, such as pyrolysis, gasification or plasma process, if the substances resulting from the treatment are subsequently incinerated; <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02010L0075-20110106>

² ISPRA <https://www.catasto-rifiuti.isprambiente.it/index.php?pg=regione&advise=si&width=1280&height=720>

Fraction of municipal waste being recycled



Data for 2021 (*2020, **2019)

Source: Circular Flanders³

³ <https://cemonitor.be/en/indicator/circularity/r-strategies/household-waste-recycling/>

Moreover, the EU has established targets to curtail the incineration and landfilling of waste. By 2035, countries are mandated to reach a minimum recycling rate of 65% for municipal waste. This forward-looking target aligns with the recognition that effective waste management is integral to the sustainable future envisioned by the European Union.

Adding additional infrastructure on top of the incinerator itself maximizes CapEx, increases the need to ensure paybacks, and consequently, boosts the lock-in effect⁴. This is because, in many municipalities, (particularly those not financed by public funds), the financing of their facilities relies on de-risking the project through 'guaranteed minimum tonnage' or 'put or pay' contracts. While this strategy helps maintain a low cost of finance, it also results in municipalities being committed to consistently providing waste to these facilities—a perverse incentive opposing the implementation of waste prevention measures and redirecting materials destined for recycling to incineration. In this context, the EU Technical Expert Group on Sustainable Finance stated in its final technical report: "The Commission's interpretation of the Taxonomy proposal suggests that Waste-to-Energy (WtE) hinders the environmental objectives of a circular economy, particularly waste prevention and recycling (as stated in Article 9(1)(i) and Article 12(d) of the EU draft Taxonomy regulation)⁵.

III. Recyclable Materials in Municipal Mixed Waste

It is crucial to acknowledge that municipal mixed waste, used as a feedstock for incinerators, contains a significant portion of recyclable materials. Reports from reputable organizations such as Eunomia⁶ ⁷ and Reloop⁸ emphasize that a considerable amount of valuable resources, including plastics, metals, and paper, can be recovered from mixed waste streams⁹. For instance, a study found that approximately 220 kgs of materials (plastic, metals, and some fibers) could be removed for recycling per tonne of mixed waste¹⁰. Even in Member States with highly developed waste management systems such as Germany, the mixed waste collected at the household level contains almost 67.5% "false throws" or materials that are destined for separate collection, of

⁴ Different pathways to a recycling society – Comparison of the transitions in Austria, Sweden and Finland. (2021) <https://www.sciencedirect.com/science/article/pii/S0959652621002067>

⁵ Sustainable Finance TEG Technical report https://finance.ec.europa.eu/system/files/2019-06/190618-sustainable-finance-teg-report-taxonomy_en.pdf

⁶ Mixed Waste Sorting to meet the EU's Circular Economy Objectives. Eunomia (2023) <https://www.eunomia.co.uk/reports-tools/mixed-waste-sorting-to-meet-the-eus-circular-economy-objectives/>

⁷ Waste in the Net-Zero Century: Greenhouse Gas Impacts of Mixed Waste Sorting *Eunomia (2021) <https://www.eunomia.co.uk/reports-tools/waste-in-the-net-zero-century-greenhouse-gas-impacts-of-mixed-waste-sorting/>

⁸ The case for sorting recyclables prior to landfill and incineration. Reloop (2023) https://www.reloopplatform.org/wp-content/uploads/2022/06/D-HOGG-Reloop_FINAL_June2022-1.pdf

⁹ Guidance for the interpretation of the European Parliament proposal on Art. 29 of the REDIII regarding mixed waste sorting systems of 'defined quality' ZWE & Reloo *2023) <https://zerowasteurope.eu/library/guidance-for-the-interpretation-of-the-european-parliament-proposal-on-art-29-of-the-rediii-regarding-mixed-waste-sorting-systems-of-defined-quality/>

¹⁰ Nothing left behind: modelling Material Recovery and Biological Treatment's contribution to resource recovery and fighting climate change. Equamiator (2023) <https://zerowasteurope.eu/library/nothing-left-behind-mrbt-costs-study/>

which 39% is organic and 28% are valuable materials such as paper, aluminum, electronics, and plastics—all recyclable materials¹¹.

Emphasizing the improvement of sorting and recycling technologies can further enhance the extraction of these materials, reducing the reliance on incineration. Doing so has the potential to save between 10.2 and 23.2 MtCO₂ e/annum, contingent on the success of separate collection improvements. This translates to savings of up to 21% on the total 2020 EU waste sector emissions.

The introduction of mandatory sorting of mixed waste would also play a pivotal role in ensuring that plastic and paper packaging recycling targets for 2030 are consistently met. This initiative could contribute between 2.9 and 8.2 percentage points to municipal waste recycling targets.

IV. Overcapacity of Waste Incineration in the EU

An often-overlooked aspect of the debate on Carbon Capture and Storage (CCS) in waste incinerators is the existing treatment capacities in the European Union (EU). The historical trend in incineration capacity evolution in the EU has witnessed the addition of 8 million tonnes of capacity annually over the period 2004-2020¹². Based on this trend, capacity may now, in the latter half of 2023, have reached approximately 220 million tonnes. Waste statistics from Eurostat indicate that in 2020, the combined quantity of waste treated through R1 and D10 was 10.5 million tonnes of hazardous waste and 128.2 million tonnes of non-hazardous waste.

These figures suggest that there was already capacity to treat around 60 million tonnes of additional waste through existing installations in 2020. With the sector experiencing overcapacity, the necessity for CCS infrastructure must be carefully assessed. Implementing mandatory CCS on all incinerators may jeopardize efforts to retire excess capacity, potentially locking us into waste incineration as the primary solution. This approach would also impede efforts to minimize or phase out waste incineration; several regions (e.g. Flanders and Wallon regions) have set targets to reduce the quantity of waste incinerated.

V. Health Impact of Waste Incineration

Another crucial aspect to consider is the health and environmental impact of waste incineration, especially given that millions of people reside in close proximity to incinerators. Waste incinerators are still the primary source of dioxin emissions.¹³ Recent studies have identified elevated levels of contamination with persistent organic pollutants near waste incinerators in at least six countries:

¹¹ Comparative analysis of residual waste in representative regions in Germany to identify the share of problematic substances and recyclable material. German Environment Agency - UBA (2020) https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte_113-2020_analyse_von_siedlungsrestabfaellen_abschlussbericht.pdf

¹² Enough is enough: The case for a moratorium on incineration. Equanimator (2023) https://zerowasteurope.eu/wp-content/uploads/2023/09/zwe_sep23_report_enoughisenoughwtemoratorium.pdf

¹³ Persistent organic pollutant emissions. EEA. <https://www.eea.europa.eu/data-and-maps/indicators/eea32-persistent-organic-pollutant-pop-emissions-1/assessment-10>

Belgium, Czechia, France, Lithuania, the Netherlands, and Spain¹⁴. Notably, some of these facilities are relatively new.

Consequently, authorities in some of these regions^{15 16} have implemented measures such as prohibiting the consumption of certain food products grown in the vicinity of these facilities and/or conducting further studies to deepen our understanding of the contamination. Any consideration of CCS in waste incineration must prioritize the need to minimize its health and environmental impact.

It is imperative to reassure individuals living near waste incinerators regarding plans to minimize or phase out waste incineration.

Conclusion

In conclusion, this position paper argues against the mandatory implementation of CCS in municipal waste incinerators. The evidence demonstrates that municipal waste is not an insurmountable issue, as exemplified by the improving recycling rates in regions like Flanders and Sardinia. Moreover, recognizing the presence of valuable recyclable materials in mixed waste and acknowledging the overcapacity in waste incineration facilities within the EU provides strong grounds for advocating a more flexible and context-specific approach to CCS implementation in the waste management sector.

Looking ahead, the prospect of achieving even higher recycling rates within the next 12 years suggests that we can surpass our initial expectations. If we were to invest in CCS for an incinerator based on our current understanding of recyclability, there is a risk that the incinerator would eventually 'get in the way' of our expanded recycling capabilities, potentially negatively affecting the achievement of Member States' 2035 recycling rates. This underscores the importance of adopting forward-thinking strategies that allow for adaptive waste management practices, steering away from rigid approaches that may hinder future advancements in recycling technology and practices.

¹⁴ The True Toxic Toll: Biomonitoring research on dioxins (PCDD/F and DL-PCB), PFAS and PAH 2022 ToxicoWatch (2022) <https://zerowasteurope.eu/library/the-true-toxic-toll-biomonitoring-research-2022/>: Recherche en biosurveillance Paris / Ivry-sur-Seine, 2021 ToxicoWatch (2022). https://collectif3r.org/wp-content/uploads/2022/02/2022_rapport_ToxicoWatch_traduction_fr.pdf

¹⁵ Millions in France warned not to eat eggs from backyard chickens due to forever chemical pollution (November 2023) <https://www.msn.com/en-gb/health/medical/millions-in-france-warned-not-to-eat-eggs-from-backyard-chickens-due-to-forever-chemical-pollution/ar-AA1kiSWs?ocid=msedgntp&cvid=3c60d72030454baa9b2f828bfbf89bdf&ei=7>

¹⁶ Extra onderzoek naar PFAS in bloed van Beringenaren (November 2023) <https://www.tvl.be/nieuws/extra-onderzoek-naar-pfas-in-bloed-van-beringenaren-161612>

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