ZERO WASTE EUROPE

# Incineration overcapacity in Europe: 2026 data update

## The case for a moratorium on incineration

Study

October 2026

Equanimator Ltd for Zero Waste Europe

zerowasteeurope.eu

# Contents

**3 Key findings – 2026 update**

4 Table 1: Key non-hazardous waste categories dealt with at D10 and R1 facilities

7 Figure 1: Effects on required R1 and D10 capacity of key assumptions and changes

**9 Recommendations**

# About this update

This publication is an update of the Executive Summary of Zero Waste Europe's *Enough is enough: The case for a moratorium on incineration*. It updates the quantitative figures using the latest available Eurostat data on incineration capacity and waste treatment from 2022. The methodology remains unchanged, and readers are referred to the original report for further details on the methodology used. The updated analysis reflects developments in incineration capacity since the original publication and reassesses the implications for EU circular economy and climate policy.

# Key findings – 2026 update

Within the EU, in 2022 (the latest year for which data were available from Eurostat), treatment capacity at incinerators classified as 'D10' (disposal) and facilities incinerating municipal waste and co-incinerating waste (R1) was:

- 184.3 million tonnes at R1 facilities;
- 14.2 million tonnes at D10 facilities; and
- 198.4 million tonnes at R1 and D10 facilities combined.

The historical trend in incineration capacity in the EU shows that around 8 million tonnes of capacity were added annually between 2004 and 2022. Much of this increase occurred during the early part of the period, with the pace of expansion slowing down from 2012. From 2012 onwards, the line of best fit or trend line indicates a more modest increase of around 2 million tonnes per year. Between 2020 and 2022, total capacity declined slightly, accompanied by a reduction in the number of facilities. The decline in capacity occurred mainly among the D10 facilities, while R1 capacity continued to increase. Likewise, the reduction in the number of facilities was almost entirely attributable to the closure of D10 plants.

**Waste statistics taken from Eurostat[1] indicate that, in 2022, the combined quantity of waste treated through R1 and D10 was 10.5 million tonnes of hazardous waste and 123.1 million tonnes of non-hazardous waste, while capacity across both types amounted to 198.4 million tonnes.**

These figures suggest that there was already capacity to treat just under **65 million tonnes of additional waste** through existing D10 and R1 installations in 2022. There may, of course, be a mismatch between the categories of waste available for treatment and the nature of the installations with underutilised capacity. Furthermore, for some co-incineration facilities, the permitted capacity may be well above what realistically may be managed at such facilities, whilst the characteristics of the waste being treated (for example, the calorific value) may affect the tonnage that can be treated at a given installation.

Over 90% of wastes treated via D10 and R1 fall into one of seven waste categories (according to the European Waste Statistics classification), with four categories accounting for more than 80% of the wastes managed at these installations. Three of these are, for those familiar with EU waste statistics, the key mixed/residual waste categories, 'Household and similar wastes', 'Sorting residues' and 'Mixed and undifferentiated materials', much of which originates from municipal waste.

[1] Eurostat (2022, updated July 2025), *Treatment of waste by waste category, hazardousness and waste management operations*. Equanimator analysis based on R1 and D10 treatment quantities and facility capacity.

## Table 1: Key non-hazardous waste categories dealt with at D10 and R1 facilities

| | D10+R1 | |
|---|---|---|
| Household and similar wastes | 46,350,000 | 35% |
| Sorting residues | 36,850,000 | 28% |
| Wood wastes | 21,500,000 | 16% |
| Mixed and undifferentiated materials | 5,360,000 | 4% |
| Chemical wastes | 3,060,000 | 2% |
| Common sludges | 2,950,000 | 2% |
| Plastic wastes | 2,510,000 | 2% |
| Industrial effluent sludges | 2,230,000 | 2% |

Eurostat statistics on municipal waste show that the vast majority of incinerated waste is sent to facilities that meet the R1 threshold criterion. As noted in a previous report, this threshold has progressively become meaningless, as it is now met by virtually any 'legislatively compliant' incinerator.[2]

The amount of municipal waste treated through R1 and D10 incineration in 2022 is reported by Eurostat to be at just above 59 million tonnes. This is below the amount of waste treated at incinerators reported by CEWEP in the same year (79 million tonnes). The gap between the CEWEP figure and the MSW treatment figure should represent non-municipal waste, which is non-hazardous and treated at incinerators. Our understanding, based on the definition in Manual on Waste Statistics[3], is that this type of waste should not qualify as R1 and should instead be classified as D10. However, the difference between these figures far exceeds the amount of non-hazardous waste reportedly treated through D10 incineration.

If all the common material categories which are currently landfilled were instead sent to incinerators, the quantity requiring treatment through D10 and R1 would increase by 77.5 million tonnes. **In that unlikely**

[2] Equanimator (2023), *Debunking Efficient Recovery: The Performance of EU Incineration Facilities*.
[3] Eurostat (2013), *Manual on waste statistics - A handbook for data collection on waste generation and treatment - 2013 edition*.

**scenario, and assuming recycling rates and waste generation remained at 2022 levels, the combined shortfall in D10 and R1 capacity would be 12.7 million tonnes, assuming the wastes could be matched with the remaining capacity.**

It is clear that EU policy and legislation seek to reduce the amount of waste generated while increasing the proportion of the remaining waste that is recycled. However, **if the EU were to meet its recycling targets**, a further 39.3 million tonnes would need to be recycled, equivalent to just under half of the quantity of waste that was landfilled in 2022 (but could, hypothetically, be suitable for incineration). This alone would return combined D10 and R1 capacity to **a surplus of around 26.7 million tonnes, assuming that all suitable wastes were directed to R1 and D10, and none were landfilled.**

It is important to note that even countries with landfill bans or restrictions in place still landfill some MSW (Municipal Solid Waste). For all Member States, the reported figure is non-zero (noting also that landfilling of incinerator residues is not counted as landfilling of MSW). Some Member States landfill very little of such MSW, while others landfill a greater share, depending on the nature of the ban (and the reporting)[4]. **The Landfill Directive allows up to 10% of MSW to be landfilled**, meaning that this practice is likely to continue to some extent for certain municipal waste fractions, as well as for some non-hazardous wastes that might otherwise be considered suitable for incineration**. If one assumes a scenario in which 10% of waste continues to be landfilled (excluding Member States where MSW landfilling is already below 10%),** this would suggest that 15.1 million tonnes of waste could still continue to be landfilled in future. **Under this scenario, the surplus capacity – even if all suitable wastes were sent to D10 and R1 incineration - increases to 41.8 million tonnes.**

In the quest to meet recycling targets or in an effort to reduce incineration's contribution to climate change (or a combination of both), there is an **opportunity to deploy Leftover Mixed Waste Sorting (LMWS) for waste remaining after separate collection**. Because LMWS places a particular emphasis on extracting plastics for recycling, it reduces the calorific value of the remaining waste. In principle, this would increase the amount of waste that existing incinerators could process, as these facilities are generally constrained by the overall calorific value of the waste they treat rather than by its weight.

In 2022, around 86 million tonnes of two categories - Household and similar wastes and Mixed and undifferentiated materials – were either treated at D10 and R1 facilities, landfilled, or otherwise disposed of. Additionally, 73 million tonnes of 'Sorting residues' were reported. Assuming that all household and similar wastes and mixed undifferentiated materials, together with around 30 million tonnes of waste currently entering facilities producing refuse-derived fuel (RDF)/solid recovered fuel (SRF), could be subject to LMWS, just over 77 million tonnes would have been eligible for such treatment in 2022, after accounting for the additional quantities requiring recycling.[5]

---

[4] For Germany, for example, the figure has been estimated by Eurostat for every year since 2013.

[5] As of early 2017, ecoprog estimated that there were around 570 active MBT plants in Europe, with a treatment capacity of 55 million tonnes (up from 490 plants with a capacity of 47 million tonnes in 2015). Ecoprog expected a further 120 facilities, with an estimated

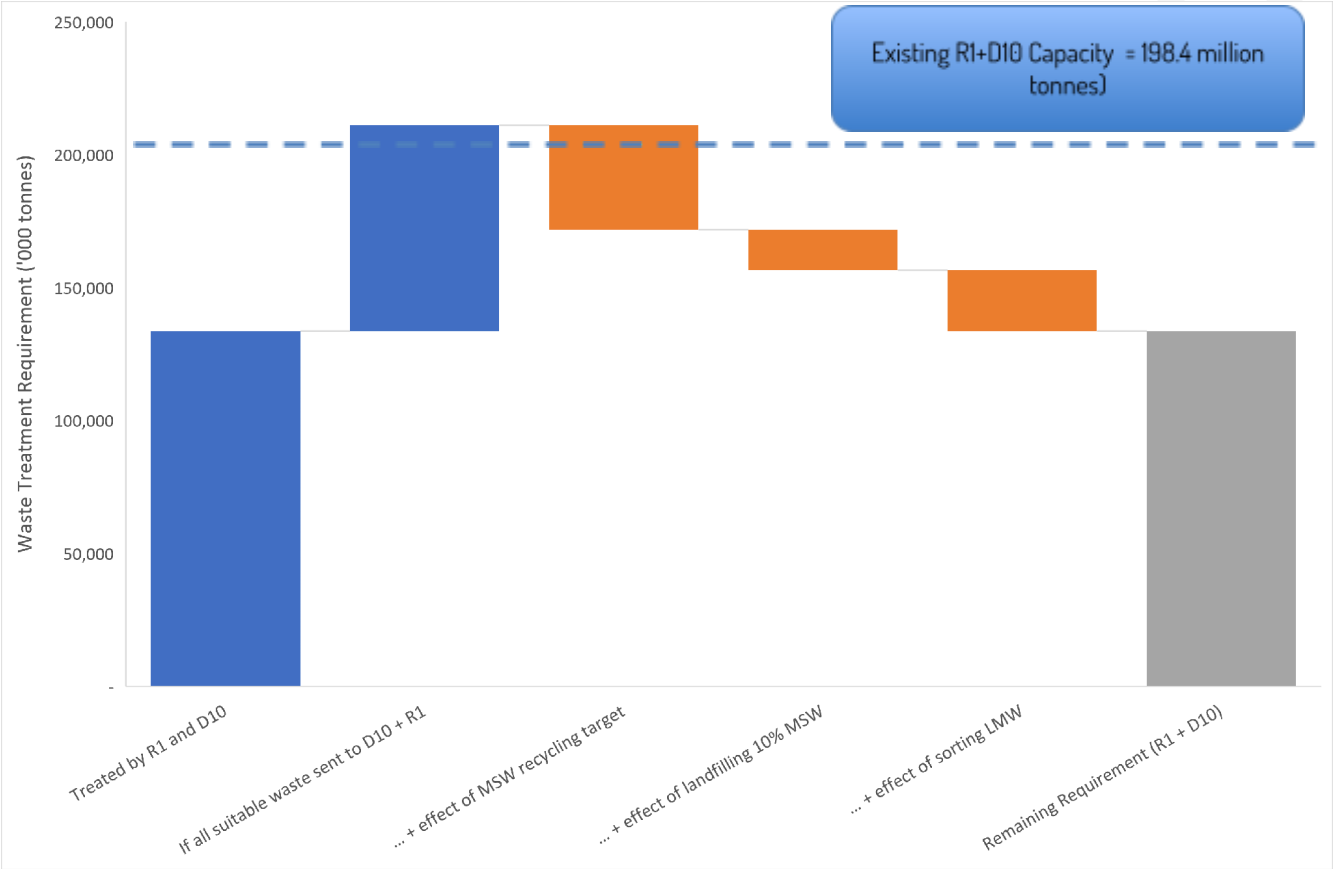
Thanks to the lower calorific value of the resulting output, this material could be managed at facilities currently treating around 55 million tonnes of waste, freeing up an additional 22 million tonnes of capacity (the difference between the input to the sorting system and the capacity needed to manage its outputs). **The surplus relative to current R1 and D10 capacity would, combined with the measures described above, increase to around 65 million tonnes – almost exactly the same level of surplus capacity that exists on paper today.** In the aggregate, there will be no need for additional R1 and D10 capacity. This is a remarkable finding, as it suggests that even if all waste broadly suitable for management via R1 and D10 were directed to these facilities, then if recycling targets for municipal waste are met, and if LMWS systems are more widely deployed, roughly the same quantity of non-hazardous waste would remain to be managed via R1 and D10 as is being managed today.

These effects are illustrated in the figure below, showing that combined utilisation of R1 and D10 capacity would remain broadly similar to current levels. If capacity remains unchanged, the combined surplus of R1 and D10 capacity would remain at around 65 million tonnes. This surplus falls only slightly, to around 57 million tonnes, if we assume that MSW grows at its historical rate of 0.7% between 2022 and 2035.[6]

annual capacity of almost 10 million tonnes, to be commissioned between 2017 and 2025 (see eprog (n.d.), *Projects* and Mark Döing (2016), The Market for Mechanical Biological Waste Treatment Plants in Europe). Capacity for MBT in Germany was estimated at 3.9 million tonnes in 2022, with throughput of around 3.2 million tonnes (ASA (2022), *Gewährleistung der Entsorgungssicherheit durch mechanisch-biologische Abfallbehandlungsanlagen*. In Italy, 18.5 million tonnes of authorised MBT capacity accounted for the treatment of 9.5 million tonnes of urban residual waste in 2020, primarily leftover mixed waste (ISPRA (2021), Rapporto Rifiuti Urbani, Edizione 2021). In Spain, around 11.8 million tonnes of residual municipal solid waste (MSW) were treated through either aerobic or anaerobic treatment, with a further 1.6 million tonnes treated at sorting plants prior to thermal treatment (MITECO (2020), *Memoria Anual de Generación y Gestión de Residuos: Residuos de Competencia Municipal, 2019*). Our figure of 30 million tonnes is an estimate of the current quantity of residual waste treated through such facilities across the EU as a whole (Germany, Italy and Spain together account for 26.1 million tonnes). While these facilities may remove some plastics, alongside metals, they have not always been configured with high-quality sorting systems capable of recovering a broad range of plastic fractions. Instead, plastics have generally been valued primarily for their calorific value rather than for the embodied carbon and energy savings that could be achieved through material recovery.

[6] It is worth noting that MSW generation has fallen between 2021 to 2022, and between 2022 and 2023, so that the 2023 generation lies below the 2021 figure.

## Figure 1: Effects on required R1 and D10 capacity of key assumptions and changes




We also examined the situation with specific reference to municipal waste. The heterogeneous nature of leftover mixed municipal waste means that, where it is not further sorted/treated, the incinerators receiving it tend to be purpose-built for this type of waste. Some MSW is sorted to produce more-or-less well-prepared fuel, but much of the 59 million tonnes reported as being sent to R1 (and D10) facilities in 2022 is treated at dedicated incinerators, with CEWEP indicating a total incineration capacity of around 81 million tonnes. In the absence of waste growth, simply achieving the 65% MSW recycling target leads to a situation where, if Member States currently landfilling more than 10% of MSW reduce landfilling to no more than 10%, and the amount sent to R1 installations remains at 2022 levels, there is no need for additional non-landfill treatment at the EU-27 level. Indeed, there would be a 'net' release of 2.7 million tonnes of capacity currently used to incinerate municipal waste.

This 'net' position reflects the fact that some Member States would free up existing incineration capacity, while others would still require additional non-landfill treatment capacity, even after achieving a 65% recycling rate. The amount of additional non-landfill treatment required depends on the recycling rates achieved and on how leftover mixed waste, after separate collection, is treated. The effective 10% landfill limit can be 'expanded' to some extent through biological stabilisation, which reduces both the mass of waste landfilled and its potential

to generate methane, while aligning with the spirit of the Landfill Directive's requirement that waste be pre-treated before landfilling.

Waste of the type we are discussing already crosses borders, and that movement is facilitated in part by the R1 criterion, which allows for the transboundary movement of waste. We have argued elsewhere that the R1 designation is unwarranted and, in any case, has been rendered largely irrelevant by the progressive watering down of a criterion which should have evolved from considerations of best available technology. In other words, the criterion was initially intended to represent what facilities needed to achieve in order to be permitted at all.[7] Nonetheless, the movement of waste across borders could be used strategically to facilitate a rational utilisation of existing capacity rather than constructing an excessive amount of new capacity.

[7] D. Hogg (2023), *Debunking Efficient Recovery: The Performance of EU Incineration Facilities*.

# Recommendations

**1. Recognise overcapacity as an emerging EU-wide issue and plan for progressive decommissioning**
Member States and the EU should explicitly recognise the emerging issue of waste incineration overcapacity and, given the average lifetime of facilities, consider how capacity might be progressively decommissioned or retired each year. Where excess capacity already exists, Member States should consider managing a reduction in capacity rather than allowing capacity to continue to increase.

**2. Establish EU-level coordination of waste treatment capacity and planned decommissioning**
The capacity for managing leftover mixed waste would benefit from EU-wide coordination. Member States should consider treatment capacity as a matter that is not confined purely to their own territorial borders, given that waste is already moving across frontiers within the EU. Any planned decommissioning should therefore be carefully coordinated to avoid a situation where early decommissioning in one Member State leads to new facility development elsewhere. This is particularly important while EU capacity continues to increase, and when taking into account the carbon embodied in the construction of new facilities.

**3. Introduce moratoria on new incineration capacity where excess capacity already exists**
Member States where excess capacity already exists should consider imposing moratoria on new D10 or R1 capacity and, where appropriate, managing a reduction in existing capacity. Factors influencing such a reduction could include the age of facilities, their role within a spatially coherent network, the ease with which they might access carbon capture and storage facilities and, for facilities already doing so, whether they are connected to district heating networks.

**4. Assess waste treatment capacity at the EU level, rather than on a purely national basis**
Member States should take account of existing capacity in other Member States when assessing their own capacity needs, including the desirability or otherwise of importing waste from other countries for incineration. EU policy should recognise that decisions on new capacity in one Member State can have consequences for capacity utilisation, emissions and investment across the EU as a whole.

**5. Before constructing new incineration capacity, recognise the equivalence of suitably pre-treated residual waste management options**
In Member States that might otherwise be pushed to consider additional D10 or R1 capacity, this is the right time, before further capacity is constructed, to recognise the equivalence of landfilling and incineration, provided that the wastes received have already been subject to LMWS and that waste being landfilled is stabilised to achieve a minimum stability criterion.

The EU should eliminate the landfilling of untreated, or not-biologically-stable, waste and place incineration and landfill of suitably pre-treated waste on the same, i.e. the lowest tier of the waste hierarchy. This would

provide greater flexibility to Member States pursuing higher recycling rates, while allowing more rapid progress towards climate mitigation in those where landfilling of LMW remains significant.

**6. Reconsider the 10% MSW landfill limit in light of effective pre-treatment requirements**

The EU should remove the 10% limit on MSW landfilling if the requirement to pre-treat waste prior to landfilling is sensibly enforced. The 10% landfill limit artificially constrains the choices available to Member States, whereas what the EU needs is continuing capacity, which diminishes over time, to manage LMW and the resulting residual waste in an environmentally responsible manner, including sorting of LMW where necessary.

**7. Use Article 12 of the Waste Framework Directive to reconsider the role of incineration in the waste hierarchy**

The Commission should use the assessment required under Article 12 of the Waste Framework Directive to reconsider the role of incineration in the waste management hierarchy and assess whether it should be classified as a disposal operation. Article 12 specifically provides for the assessment of disposal operations and possible restrictions on such operations, as well as consideration of a disposal reduction target.

**8. Require advanced sorting before leftover mixed municipal waste can be incinerated**

In future, incinerators should only accept leftover mixed wastes from municipal sources where these have been subject to advanced sorting facilities. This would ensure that recyclable and recoverable materials are removed before incineration and would help prevent further investment in capacity that competes with higher-value waste prevention, reuse and recycling.

Zero Waste Europe (ZWE) is the European network of communities, local leaders, experts, and change agents working towards a better use of resources and the elimination of waste in our society. We advocate for sustainable systems; for the redesign of our relationship with resources; and for a global shift towards environmental justice, accelerating a just transition towards zero waste for the benefit of people and the planet. www.zerowasteeurope.eu

Zero Waste Europe gratefully acknowledges financial assistance from the European Union. The sole responsibility for the content of this material lies with Zero Waste Europe. It does not necessarily reflect the opinion of the funder mentioned above. The funder cannot be held responsible for any use that may be made of the information contained therein.

ZERO WASTE EUROPE

**Authors:** Dr Dominic Hogg, Director, Equanimator Ltd.
**Editors:** Janek Vahk, Nanna Bille Cornelsen
**Date:** October 2026

**General information:** hello@zerowasteeurope.eu
**Media:** news@zerowasteeurope.eu

zerowasteeurope.eu