

The Waste Sector Under the Effort Sharing Decision



Zero Waste Europe Policy Briefing - May 2016

Executive Summary

Waste is generally considered to be a sector with a small greenhouse gas (GHG) emission contribution to climate change, following the understanding that the emissions from waste are only those related to waste disposal in landfills and incinerators. However, this assumption is misguided and incorrect, as the waste sector involves a much larger range of activities and a much larger portion of GHG emissions that as such unfortunately go unaccounted. In fact, the waste sector contribution to GHG emission reduction has enormous potential when support is given to the higher tiers of the Waste Hierarchy -including reduction, reuse, recycling, composting, biogas generation, sustainable consumption and production, and it can be a game-changer to the development of a low-carbon economy.



The waste sector is a large and untapped sector with a significant potential for cost effective mitigation.

Looking at the potential contribution of the waste sector to a low-carbon economy, recent research¹ calculated the climate contribution from the optimal implementation of the Circular Economy Package waste targets (2014 version). Assuming the implementation of a 70% recycling, 30% of food waste reduction, and an 80% recycling of packaging waste, the EU would save 190 million/tones CO₂-eq/year, which would be the equivalent to the total annual emissions of the Netherlands.

The Effort Sharing Decision 2030 framework has the potential to further reduce emissions in the waste sector, and this is an opportunity that should not be missed. In order to deliver effective GHG emission reductions, **the new 2030 framework should follow some key recommendations both for the overall framework and in particular for the waste sector:**

¹ Eunomia (2015), The Potential Contribution of the Waste Sector to a Low-Carbon-Economy, (<https://www.zerowasteurope.eu/downloads/the-potential-contribution-of-waste-management-to-a-low-carbon-economy/>)

1. **Be aligned with the Circular Economy Package and the Waste Hierarchy**, ensure support for the most environmental and cost-effective options for reducing emissions in the waste sector. This will lead to significant GHG emission reductions and reinforce the synergies between European climate, energy and waste legislation.
2. **Increase ambition in line with the Paris Agreement**, with a long-term goal to limit temperature increase to well below 2°C, and pursue efforts for limiting it to 1.5°C. This will require the development of a solid set of guidelines and robust governance to ensure the effective implementation of sectoral policies.
3. **Avoid loopholes and apply the correct carbon accounting of biogenic emissions** from biowaste or biomass. The reformed ESD should contribute to correct carbon accounting of bioenergy emissions and secure strict compliance with bioenergy sustainability criteria in order to guarantee real emissions savings.
4. **Avoid the use of surplus allowances from the EU Emission Trading System (ETS)** to increase the appropriate incentives for the development of a low-carbon economy where real emissions reductions are guaranteed.
5. **Support Member States' ability to meet their climate targets** and provide guidance for governance and compliance, including annual reduction targets and effective corrective actions to avoid non-compliance, as well as transparency mechanisms to allow effective monitoring of Member States' action.

Why is this important?

Under the Effort Sharing Decision (ESD), EU Member States are committed to reducing GHG emissions in sectors outside the EU ETS – including waste, transport, buildings and agriculture. These sectors represent almost 60% of the greenhouse gas emissions in the EU.

The Effort Sharing Decision could be an important tool to incentivise Member States to develop effective climate mitigation actions in these sectors. However, current 2020 targets to decrease emissions by 10% have been proven to lack ambition – these have been met without major transformations, and the use of carbon allowances and accounting loopholes has undermined the effectiveness of this climate policy.² So far, the ESD has posed the risk of turning into another missed opportunity to transform the EU into a long-lasting low-carbon economy.

Under the new ESD, Member States will be obliged to reduce their GHG emissions by 30%, but these higher targets will not necessarily deliver real mitigation action at the scale of transformation needed unless there is strong coordination and alignment with other sectoral policies. Failing that, these sectors will likely remain largely unimproved, and a number of loopholes both in GHG emission accounting and governance will threaten the implementation of the ESD.

The commitment to enact the Paris Agreement and pursue a maximum increase of 1.5°C is dependent upon the EU making this effort to meet the target. With the appropriate support, climate solutions in the EU waste and resource-efficiency sectors are a low-hanging fruit, one that the EU needs to take advantage of if it is to honour its climate commitments.

2 Öko-Institute, (2015) Enhanced flexibilities for the EU's 2030 Effort Sharing Decision. (<http://www.oeko.de/oekodoc/2373/2015-537-en.pdf>)

The climate mitigation potential in the waste sector

In 2011, the European Commission published its Roadmap to a low-carbon economy, setting targets, which included reductions in domestic emissions of 80% by 2050 compared to 1990.³ Along with significant reductions in the emissions generated by the power, industrial and transport sectors, the Roadmap indicated that increased resource efficiency through waste recycling, better waste management and behavioural change could also play an important role in achieving this objective.

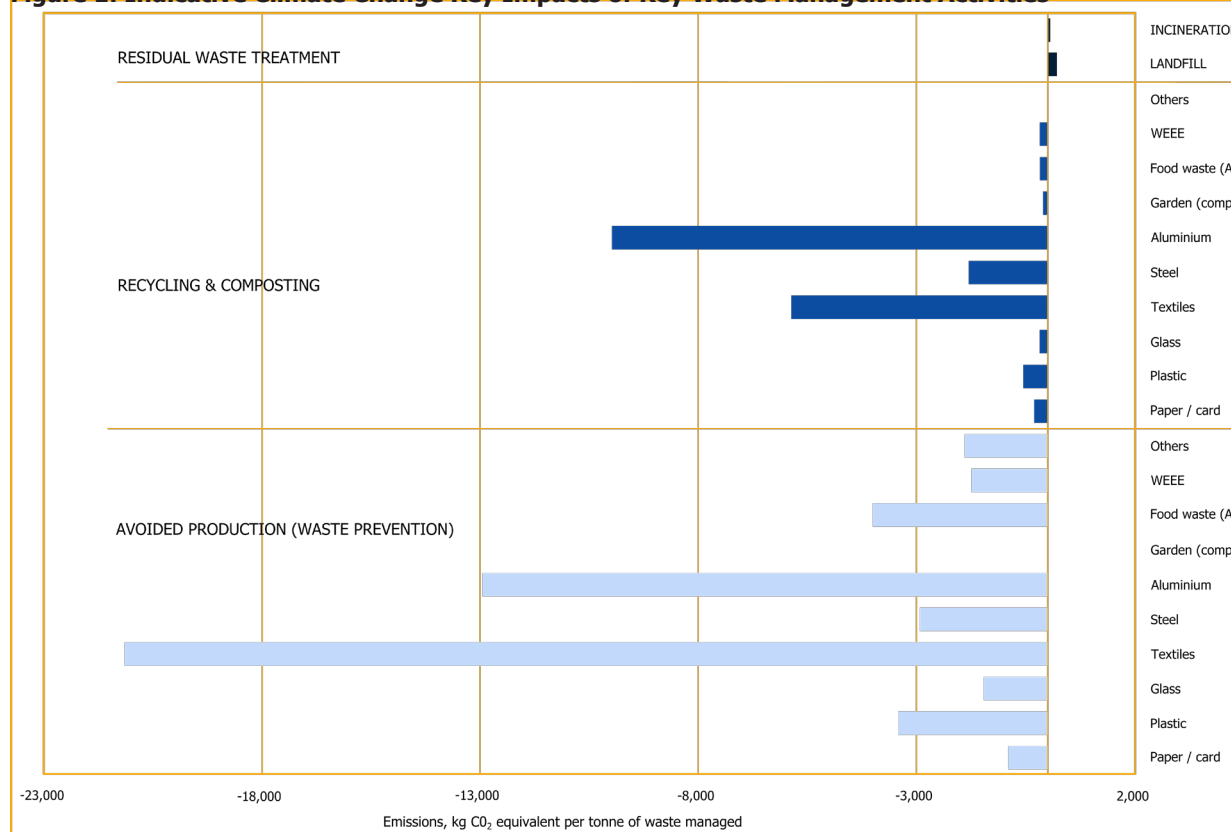
Amongst other studies, the European Commission's impact assessment noted that high recycling scenarios could lead to an additional 62 million tonnes CO₂ equ. saving by 2030 over and above those that were expected to be delivered by existing legislation (which appear to be of the order 50 million tonnes CO₂ eq.).⁴



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Several Member States have highlighted the contribution made by improved waste management to reduced greenhouse gas emissions

Figure 1: Indicative Climate Change Key Impacts of Key Waste Management Activities



³ European Commission (2011), A Roadmap for moving to a competitive low carbon economy in 2050

⁴ European Commission (2014), Impact Assessment Accompanying the Document, Proposal for a Directive of

Generally, therefore, studies indicate that in Europe, even though much progress has already been made in respect of reducing climate change emissions from waste, further savings of the order 100-200 million tonnes CO₂ eq. could be made simply through conventional waste management approaches: conventional waste prevention measures could deliver more substantial reductions, whilst measures designed to achieve a circular economy could further enhance emissions reduction through reuse, repair and remanufacturing.

To illustrate the point, Figure 1⁵ shows the impacts associated with recycling and waste prevention, in each case, showing the impact relating to one tonne of material, excluding the biogenic CO₂ emissions, over a 100 year time period – the period conventionally used in life cycle assessments. It confirms, for example, that the benefit associated with using one tonne



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The figure also shows that the activity of treatment or disposal of residual waste generally increases climate change emissions, whilst recycling and waste prevention are activities which contribute to emissions reduction. Furthermore, the difference in the impacts between landfill and incineration is almost trivial when compared with the benefits which might be achieved from recycling, or preventing the use of, dry materials,

and preventing food waste.

Looking forward, and reflecting on the above results, it is clear that a climate friendly strategy in the waste sector will be one in which materials are continually cycling through the economy, and where the leakage of materials into residual waste treatments is minimised.

the European Parliament and of the Council Amending Directives 2008/98/EC on waste, 94/62/EC on packaging and packaging waste, 1999/31/EC on landfill of waste, 2000/53/EC on end-of-life vehicles, 2006/66/EC on batteries and accumulators and waste batteries and accumulators and 2012/19/EU on waste electrical and electronic equipment, Brussels, 2.7.2014, SWD(2014) 207 final.

5 The data in Figure 1 is taken from life cycle analyses (for the production and dry recycling impacts) and from Eunomia's in-house treatment models.

Key Recommendations for the Effort Sharing Decision

1. Be aligned with the Waste Hierarchy, embedded in the proposed Circular Economy Package.⁶



Changing waste management practices can have a significant impact on climate change mitigation, primarily from waste prevention and recycling, particularly of dry materials. In comparison, residual waste treatment such as landfills and incinerators actually contribute towards climate change. (Fig. 1).

The Waste Hierarchy is an invaluable tool for resource and waste policies worldwide.⁷ In the EU, the Waste Hierarchy guides the Waste Framework Directive which is currently under discussion within the Circular Economy Package. According to these policies and latest scientific research on this topic, changing waste management practices can generate significant climate change benefits, mostly from waste prevention and recycling, particularly of dry materials (Fig 1). In comparison, residual waste treatment such as landfills and incinerators actually contribute to climate change. Additionally the IPCC's latest report AR5, refers to waste prevention, reuse and recycling activities in the waste sector that can deliver the largest climate benefits.⁸

Moreover to illustrate the potential contribution of the waste sector to a low-carbon economy, recent research calculated the climate contribution from the optimal implementation of the Circular Economy Package waste targets (2014 version). Assuming the implementation of a 70% recycling, 30% of food waste reduction, and an 80% recycling of packaging waste, the EU would save 190 million/tones CO₂-eq/year, which would be the equivalent to the total annual emissions of the Netherlands.

In light of the above, the Effort Sharing Decision should set mitigation targets for the waste sector which are consistent with the Circular Economy Package whilst making sure that support is given to follow the higher tiers in the Waste Hierarchy.

6 Waste Hierarchy <https://www.zerowasteurope.eu/wp-content/uploads/2016/04/foodwastehierarchy-940x726.jpg>

7 Hoomweg, D. & Bhada-Tata, P. *What a Waste: A Global Review of Solid Waste Management* (World Bank, 2012).

8 IPCC AR5. Working group III. Chapter 11.

While further investigation is needed to determine how best to account for and report emission savings from waste related activities into national inventories, the ESD should not ignore the realities of the sector and include a set of recommendations that would enhance the policy coherence amongst climate, energy and waste. Particularly, the ESD should:

1. Make explicit reference to the Waste Hierarchy and scientific research which gives priority to waste reduction, reuse, recycling, composting and sustainable consumption and production as key mitigation strategies in the waste sector.
2. Recognise the particular policies governing the waste sector, i.e. the Circular Economy Package and propose climate mitigation targets for the waste sector in alignment with the waste-related targets, i.e. 65% recycling, 30% recycling packaging waste, 30% reduction of food waste.
3. Introduce accounting mechanisms to quantify the emissions savings from waste recycling and waste prevention activities at national level, even if only as information notes in the national inventories. This simple action would allow a much more accurate representation of climate mitigation achieved through recycling and waste prevention activities and therefore would provide an incentive to increase the virtuous cycle.

2. Increase ambition in line with the Paris Agreement.

ESD targets for the waste sector should not only consider the mandate from the Circular Economy Package; it should also follow the long-term goal to limit global warming to well below 2°C, and pursue efforts for keeping it at a 1.5°C increase. **The Paris Agreement requires the transition across sectors to a low-carbon economy, ensuring actual emission reductions and creative solutions for a long-lasting, inclusive change.** Zero waste solutions, alongside climate action in other sectors, will contribute to achieving the global target of a maximum of 1.5 degrees global warming, embracing the principles of conservation of materials, the reduction of toxics, equitable distribution, and access to resources.



Unreported emissions from incineration of waste act as a loophole in EU GHG emission accounting

Zero waste solutions—including waste reduction, redesign, composting, biogas, producer responsibility, consumption changes, and recycling—could be implemented *today*, using *existing* innovations, and with *immediate* results.



The reformed ESD should avoid the loophole of unreported emissions and contribute to correct carbon accounting of bioenergy emissions.

The Network of Zero Waste Municipalities⁹ is showing ground-breaking results: several cities in Italy have successfully implemented 80% of separate collection for example, and others follow closely.¹⁰ In contrast with the primitive idea of burning waste, recycling and composting create jobs, save money, and protect the environment and public health. These efforts go hand-in-hand with clean production, producer responsibility, and waste minimisation programs for

dangerous and hard-to-recycle materials. Together, these practical solutions provide some of the best-decentralised urban actions for reducing climate pollution, conserving energy and natural resources and present enormous opportunities for developing local living economies.

3. Avoid loopholes and apply correct carbon accounting of biogenic emissions.

There are methodological issues with emission accounting that a reformed ESD should consider and correct as necessary, particularly concerning the accounting of biogenic emissions.

So far, the IPCC guidance on how to develop inventories has been interpreted, erroneously, so as to imply that when considering alternative approaches to managing waste, CO₂ emissions of non-fossil origin can be ignored. This issue gives rise to a misunderstanding that some technologies for waste disposal or residual waste energy extraction, can reduce GHG emissions. Within UNFCCC inventories, the combination of the various assumptions made under the industry, energy and waste sections makes the issue of biogenic carbon problematic, and may be leading to significant underestimations of the contribution made by biogenic CO₂ to global climate change.

The implications for the emissions accounting methodologies in the waste sector are significant when the only reported emissions are those from landfills and incineration. First, the emission of biogenic waste incineration varies with the amount of organic waste (for example, food scraps and paper) compared with the amount of fossil fuel products (e.g. plastic) contained in the waste. But if we take the conventional incinerator estimates as to the presence of biomass in municipal solid waste, it is considered that an average of 50% of CO₂ emissions from burning waste are biogenic, so only half of the actual CO₂ emitted are reported. Studies show a wide range of biogenic emissions of waste from 43% to 61%.^{11,12} A reformed ESD should correct these accounting issues and apply accurate methodologies.

9 <http://www.zerowasteurope.eu/zerowastecities.eu/>

10 <http://www.zerowasteurope.eu/zw-library/case-studies/>

11 Mohn, et al., "Fossil and Biogenic CO₂ from Waste Incineration Based on a Yearlong Radiocarbon Study", Waste Management, Volume 32, Issue 8, August 2012, Pages 1516-1520.

12 A. Koehler et al., "Probabilistic and Technology - Specific Modeling of Emissions from Municipal Solid - Waste Incineration", Environ. Sci. Technol. 2011, 45 (8), pp 3487-3495

4. Avoid the use of surplus allowances from the EU ETS

Given the mandate of the Paris Agreement and the level of ambition that is necessary to meet the targets, using the surplus of EU ETS allowances will not be an effective way to reduce emissions, but just another false solution.

Several studies have pointed out to the enormous amount of allowances currently present in the EU carbon market. Enabling the use of these allowances into the ESD compliance will jeopardise the effectiveness and success of this policy, as pointed out by recent research.¹³

Furthermore, it's worth noting that the cement industry, which is actively promoting the incineration of waste across the EU with severe environmental, social and economical consequences,¹⁴ has been recently reported as the *Final Carbon Fatcat*.¹⁵ In this sense, not only the cement industry has been exposed for taking enormous advantage of its surplus of allowances, but its in fact undermining the potential for a low-carbon and circular economy with major pollution consequences.

The case of the cement industry illustrates the deep structural flaws in the EU ETS and the need to further regulate the most carbon intensive sectors in the EU. Therefore, while the EU ETS is under reform, the ESD will not benefit from carrying over some of the EU ETS' dysfunctions, and it should rather concentrate in providing appropriate support for real transformation to a low-carbon economy, that is, achieving real emission reductions.

5. Support Member States' ability to meet their climate targets from a sectoral-based approach.

The success of the ESD 2030 will be determined by its ability to offer tailored guidance for climate mitigation in each sector, seeking alignment and policy coherence with other EU sectoral policies. As expressed above, there is wide expertise in the waste sector on what are the best mitigation options and strategies, so it offers a particularly low-hanging fruit when it comes to climate solutions.

Moreover, an effective ESD will provide guidance for governance and compliance to Member States, giving priority to transparency and accurate monitoring. To that purpose, it will be instrumental to establish annual reduction targets and effective corrective actions to avoid non-compliance, as well as public reporting mechanisms that are publicly accessible.

13 Sandbag, The Effort Sharing Dinosaur, May 2016

14 Vilella, M., Arribas, C., Cement, Waste and Carbon Markets. Problems related to waste incineration in cement kilns under the EU ETS. February 2013.

15 Sandbag, The Final Carbon Fatcat, February 2016. <https://sandbag.org.uk/reports/final-carbon-fatcat/>

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