Waste management

Transition planning for companies operating in waste management sector and other sectors which create considerable waste

2026



About this Guideline

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Contents

1. Background.....4
1.1. Climate impact of the sector.....4
1.2. Sector-specific considerations.....5
2. Baseline considerations.....6
2.1. Emission scopes.....6
2.2. Climate risks.....8
2.3. Summary.....10
3. Relevant EU and national targets..... 15
4. Target setting 17
4.1. Science-based approach.....17
4.2. Key emission reduction measures.....21
5. Important questions.....25
6. References.....27

1. Background

This annex covers specific transition planning aspects for businesses which are engaged in collecting, transporting, processing, sorting, recycling, and utilising various types of waste. It may also be useful for some businesses whose operations create considerable waste and therefore may become a part of their transition journey.

1.1 Climate impact of the sector

Based on the national GHG emissions inventories, the climate impact of the waste management sector mainly comes from solid waste disposal, biological treatment of solid waste, incineration and open burning of waste and wastewater treatment and discharge. Solid waste disposal contributed the largest portion of GHG emissions in the waste sector – 79% of the sector's total GHG emissions in 2023 for Lithuania.

Table 1. Waste management sector's GHG emissions in the Baltic states

Estonia[1]	**Latvia**[2]	**Lithuania**[3]
~291 kt CO_2e **~2.8% of Estonia's total GHG emissions** Total emissions in the waste segment have decreased by 34% since 1990. The main reduction is linked to lower municipal waste landfilling and wastewater treatment emissions, while emissions from biological treatment have increased from a very low initial level. In recent years, waste sector emissions have continued to decline slowly. In 2024, the reduction rate was the lowest observed so far, mainly due to a decrease in the amount of biogenic waste disposed of in landfills.	**~579 kt CO_2e** **~6% of Latvia's total GHG emissions** Total emissions in the waste management sector have decreased compared with 1990, mainly due to lower emissions from wastewater management and structural changes in waste management. In 2024, municipal waste landfilling remained the largest emission source in the sector, followed by wastewater treatment and discharge.	**~681 kt CO_2e** **~4% of Lithuania's total GHG emissions** Total emissions in the waste sector decreased from 1,652.3 kt CO_2e in 1990 to 681 kt CO_2e in 2024. The main emission source remained municipal waste landfilling, which accounted for approximately 79% of waste sector emissions in 2024. Wastewater treatment and discharge accounted for around 18%, while biological treatment emissions rose over the long term after the introduction of regional waste management systems and mechanical biological treatment facilities.

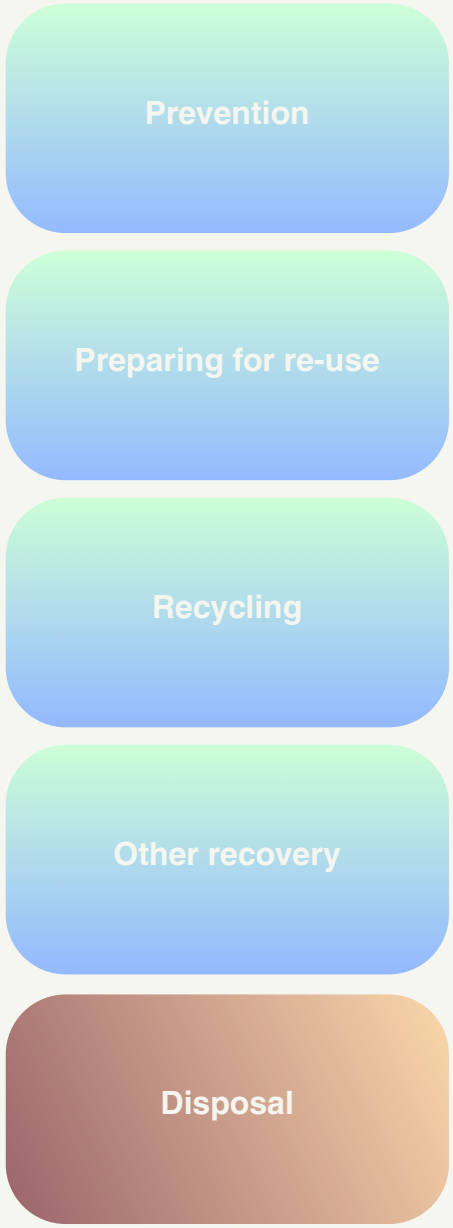
[1] Greenhouse gas emissions and removals inventories datasets, EEA
[2] Greenhouse gas emissions and removals inventories datasets, EEA
[3] Greenhouse gas emissions and removals inventories datasets, EEA

1.2 Sector-specific considerations

There are two aspects to consider in the waste management sector. First, the company needs to identify its role in the sector – depending on waste management operations it conducts. That indicates which GHG emission scopes the company should include in its transition plan and target setting. For some companies or groups of companies several roles may apply if they operate across multiple waste management processes listed below:

- Waste collection and transportation;
- Mechanical pre-treatment (e.g. dismantling);
- Sorting, recycling, and material recovery;
- Waste treatment:
  - Physico-chemical treatment;
  - Biological treatment (composting);
  - Biological treatment (anaerobic digestion);
  - Landfilling;
  - Thermal treatment;
  - Mechanical biological treatment.

Second, from a target setting perspective, the sector should **prioritise emission reduction measures by waste hierarchy**[4]. This is both the policy logic and the strongest climate logic because it structurally reduces landfilling and fossil-intensive treatment.



[4] Guidance on Separate Collection of Municipal Waste

2. Baseline considerations

2.1 Emission scopes

Guidance on key considerations on emission scopes for the waste management sector is based on previously mentioned operations a company conducts and on the following standards: SBTi Corporate Net-Zero Standard (SBTi has not yet developed a sector-specific standard for waste management), GHG Protocol and GHG Protocol-based waste management standard.

Specific information on emission scopes for each of the abovementioned types of waste management operations is included in Table 2. However, the main principle is that:

- For most waste management companies operating in sorting, recycling, or treatment plants, **Scope 1 and/or 2** emissions will be significant as they are using certain energy resources to conduct these operations;
- **Scope 3** emissions are variable – i.e. depending on the specific business model, investment-intensity, use of purchased materials, etc.;
- In addition to the conventional Scope 1-3 emission categories, the waste sector should also consider two other categories:
  - **Avoided emissions** which represent the amount of GHG emissions not created due to responsible waste management practices and implementation of circularity principles[5], and
  - **Biogenic emissions** which originate from biological sources that have absorbed CO_2 during their lifetime and release them back into the atmosphere when processed. They are also released during organic waste decomposing processes[6].

Note: Neither the avoided nor biogenic emissions **may** be included in or deducted from the direct and indirect emissions and should be reported separately. (I.e. a company **is not allowed** to compute Scope 1-3 emissions for its operations, then calculate avoided emissions and subtract them from the Scope 1-3 result.)

[5] Preliminary Guidance for Avoided Emissions in Waste Management and Recycling
[6] Biogenic Emissions

Additional tools: To calculate waste management emissions, companies may use external tools that focus specifically on this sector. For example, the Ministry of Climate and Energy of Latvia has developed a GHG emission calculation tool under the LIFE Waste to Resources in Latvia IP. The tool has been developed based on the leading international standards for the waste management sector, including Intergovernmental Panel on Climate Change (IPCC) and the Greenhouse Gas Protocol. The tool has been developed in both Latvian and English, therefore, it can be used as an example on a Pan-Baltic scale. You can use it for your entity's GHG emissions inventory considering the sector-specific activities as listed above and the complexity of the sector's GHG emissions accounting. Please note that the tool is developed for Latvia considering annual GHG emissions inventory reports and waste composition data which need to be adjusted to encompass the specifics of other countries.

2.2 Climate risks

Transition risk is mostly related to regulatory pressure:

- Waste Framework Directive[7] and Landfill Directive[8] require uptake of waste management activities which support waste minimisation, reuse and recycling instead of landfilling or other forms of final utilisation. For companies operating landfills that may be a risk, however, for other waste management businesses this may serve as an opportunity of expanding their businesses and increasing higher value-added services in waste sorting and recycling[9];
- That leads to minimisation of methane emissions (which are significantly more potent climate impact agents – though with a much shorter “life-span”) – waste management companies are also required to contain and control them[10]. Operators with legacy landfill-heavy models face direct exposure to methane reduction requirements, including higher expectations for gas capture, monitoring, and diversion of biodegradable waste. This creates CapEx pressure and can increase unit costs if revenues or gate fees do not adjust;
- Packaging and Packaging Waste Regulation[11] increases compliance complexity through harmonised design rules, labelling, reporting, and extended producer responsibility changes that can reshape collection and sorting economics;
- Facilities that rely on energy-intensive sorting, recycling, and treatment may also experience electricity price volatility and stricter energy efficiency expectations, which makes energy management and on-site renewables more important for cost control and compliance, however, that is not a sector-specific but general transition risk;
- With corporates increasingly required to report their climate impact, including Scope 3 emissions, they become more interested in indirect waste management emissions (Category 5)[12]. That gradually shifts competition towards operators who can prove landfill diversion, high-quality recycling outputs, and GHG emissions management;
- Municipalities increasingly require waste management services which employ low-carbon transport (and other) solutions[13], [14], thus operators who are not sufficiently prepared to invest in such technologies will lose competitiveness.

[7] Waste Framework Directive
[8] Landfill waste
[9] Aligning waste practices with climate goals
[10] Methane emissions in the EU: the key to immediate action on climate change
[11] Packaging and Packaging Waste Regulation
[12] How waste management impacts your Scope 3 reporting
[13] Optimization of Green Vehicle Paths Considering the Impact of Carbon Emissions
[14] Waste Transportation Environmental Impact Using Life Cycle Assessment

Physical risks are operational and often immediate[15]:

- Heatwaves increase **worker health and safety risks** for collection crews and site staff and can reduce productivity through heat stress restrictions;
- Higher temperatures also **accelerate organic waste decomposition**, which **increases odour**, bioaerosols, pests, and **fire risk** at storage and treatment sites;
- Heavy rainfall, storms, and flooding can **disrupt collection routes**, damage site infrastructure, overwhelm leachate systems, and trigger environmental incidents, especially for landfills and low-lying facilities;
- Fire risk is rising for sites storing combustible materials like paper, plastics, and RDF, and for facilities handling batteries where thermal runaway can escalate quickly.

These hazards can drive higher maintenance, downtime, insurance costs, and resilience CapEx across the value chain.

[15] Reducing climate change impacts on waste systems

2.3 Summary

The following matrix covers key considerations on significance of Scope 1, 2, and 3 emissions for the sector. Respectively:

- “High” significance scopes and emission categories are those that contribute most to total emissions. These should be calculated as accurately as possible and are usually the priority emission categories to focus on in your transition plan;
- “Moderate” significance means that emissions in the respective scope or category are relatively important but are not the most important part and, potentially, not the first priority for emission reduction;
- “Low” significance means that the emissions in the respective scope or category are rather insignificant in general or compared to other scopes and can be either left out of the transition plan priorities or dealt with at a later stage.

Table 2. Summary on key considerations for each role

Activity	Scope 1	Scope 2	Scope 3	Avoided emissions	Biogenic emissions
Waste collection and transportation The activity represents waste collection from clients / waste collection areas and transportation to a facility owned or controlled by the entity. If this activity is part of the entity's operations, it will be part of Scope 1 emissions; however, if outsourced – Scope 3.	**High:** Fuel combustion from owned or controlled vehicles	**Moderate:** Purchased energy for onsite operations and, if applicable, charging of company-owned electric vehicles (EVs)	**High:** Category 3 (Fuel- and energy-related emissions not included in Scope 1 and 2 or so-called Well-to-Tank (WTT) emissions). Variable: Category 4 (Upstream transportation & distribution) – for subcontracted transportation services.	–	**Variable:** CO2 emissions from consumption of biomass energy (e.g. biofuels, bioliquids, solid biomass, biogases)

Mechanical pre-treatment (dismantling) This activity represents any type of mechanical pre-treatment of waste to facilitate its recycling and/or recovery, e.g. electronic waste dismantling	**Moderate/High:** Fuel combustion from owned or controlled machinery, equipment. Energy generation onsite (if applicable)	**High:** Purchased energy for onsite operations	**High:** Category 3 (Fuel- and energy-related emissions not included in Scope 1 and 2 or so-called Well-to-Tank (WTT) emissions).	**Variable:** Potential avoided GHG emissions corresponding to the difference between virgin raw materials and recycled, recovered materials	**Variable:** CO2 emissions from consumption of biomass energy (e.g. biofuels, bioliquids, solid biomass, biogases)
Sorting, recycling and recovery This activity represents waste sorting process into different fractions. Recyclable materials are then reintroduced into the production cycle, where they serve as a partial or complete substitute for primary raw materials (e.g., paper, glass, steel)	**Moderate/High:** Fuel combustion from owned or controlled machinery, equipment. Energy generation onsite (if applicable)	**High:** Purchased energy for onsite operations	**High:** Category 3 (Fuel- and energy-related emissions not included in Scope 1 and 2 or so-called Well-to-Tank (WTT) emissions). **Variable: Category 1** (Purchased goods & services) – if any additional agents, materials are needed in the recycling and/or recovery process; **Category 2** (Capital goods) – e.g. equipment; **Category 4 and/or 9** (Upstream or Downstream transportation & distribution) – for subcontracted transportation services.	**Variable:** Potential avoided GHG emissions corresponding to the difference between virgin raw material production emissions and material recovery emissions. Potential avoided GHG emissions corresponding to the difference between burning fossil fuel and solid recovered fuels (SRF)	**Variable:** CO2 emissions from consumption of biomass energy (e.g. biofuels, bioliquids, solid biomass, biogases)

Physico-chemical treatment This process consists of mechanical, chemical and/or physical treatment of hazardous waste	**High:** Fuel combustion from owned or controlled machinery, equipment.	**High:** Purchased energy for onsite operations	Depending on the business model, may feature certain categories of Scope 3 emissions – mostly moderate or low significance	**Variable:** Potential avoided GHG emissions corresponding to the difference between virgin raw materials and recycled, recovered materials	**Variable:** CO2 emissions from consumption of biomass energy (e.g. biofuels, bioliquids, solid biomass, biogases)
Biological treatment (composting) This process can be applied to organic waste streams such as food waste, green waste, and other types of biowaste. Composting is an aerobic treatment process in which organic matter is biologically decomposed and stabilised. The resulting product, i.e. compost, serves as an organic soil amendment	**High:** Process emissions (i.e. CH4 and N2O). Energy generation onsite (if applicable)	**Variable:** Purchased energy for onsite operations	Depending on the business model, may feature certain categories of Scope 3 emissions – mostly moderate or low significance	**Variable:** Potential avoided GHG emissions corresponding to the difference between use of chemical fertiliser and compost spreading	**High:** Process emissions (CO2)
Landfilling Landfilling refers to modern engineered facilities where waste is placed in lined and environmentally controlled disposal cells, allowing waste to degrade naturally while preventing contamination of the surrounding environment. Under best-practice standards, emissions generated during waste decomposition, i.e. landfill gas and leachate, are actively collected and managed. Captured landfill gas is either combusted in flares to reduce its environmental impact or utilised to produce thermal and/or electrical energy	**High:** Fuel combustion from owned or controlled machinery, equipment. Diffuse methane (CH4) emissions. Methane from incomplete landfill gas combustion	**Moderate:** Purchased energy for onsite operations	Depending on the business model, may feature certain categories of Scope 3 emissions – mostly moderate or low significance	**Variable:** Potential avoided GHG emissions corresponding to the difference between landfill gas recovery emissions (as power, heat and/or fuel) and substituted fossil energy production emissions	**High:** Diffuse CO2 & oxidised CH4 emissions, CO2 from landfill gas combustion process

Thermal treatment Incineration is a thermal treatment process used for both hazardous and non-hazardous waste, including municipal solid waste, industrial waste, and in some cases sewage sludge. In this process, waste is combusted at high temperatures within controlled incineration facilities. Modern incinerators are equipped with energy-recovery systems that enable the generation of electricity and/or heat, thereby converting part of the waste's energy content into useful power	**High:** Fuel combustion from owned or controlled machinery, equipment. Process emissions (N2O). Process emissions (i.e. CO2, only the fossil carbon share of emissions)	**High:** Purchased energy for onsite operations	**Variable:** Category 2 (Capital goods) – e.g. equipment, facilities; Category 3 (Fuel- and energy-related activities not included in Scope 1 or Scope 2), Category 10 (Processing of sold products), Category 11 (Use of sold products)	**Variable:** Potential avoided GHG emissions corresponding to the difference between energy from thermal treatment processes recovery (as power and/or heat) emissions and substituted fossil energy production emissions. Potential avoided GHG emissions corresponding to the difference between virgin raw material production emissions and material recovery emissions (e.g. solid residues from combustion (bottom ash) can be recovered, scrap metal can be recycled)	**Variable:** CO2 emissions from consumption of biomass energy (e.g. biofuels, bioliquids, solid biomass, biogases) Process emissions (CO2, only the biogenic share of emissions)

Mechanical Biological Treatment (MBT) MBT is an intermediate waste-processing stage positioned between waste collection and subsequent treatment routes such as landfilling, thermal treatment, agronomic reuse, recycling, or other recovery options. MBT facilities typically treat municipal solid waste with sufficient biodegradable content to support the biological phase of the process. In some cases, commercial and industrial waste streams or source-separated biowaste may also be accepted. This method differs from composting and anaerobic digestion as it is not performed on segregated waste but rather addresses the management of municipal waste and its pre-treatment before the final treatment is done and it is sent to landfill[16]	**High:** Fuel combustion from owned or controlled machinery, equipment Process emissions (i.e. CH_4 and N_2O)	**Moderate/High:** Purchased energy for onsite operations	Depending on the business model, may feature certain categories of Scope 3 emissions – mostly moderate or low significance	**Variable:** Potential avoided GHG emissions corresponding to the difference between biogas recovery emissions (as power, heat and/or fuel) and substituted energy production emissions. Potential avoided GHG emissions corresponding to the difference between virgin raw material production emissions and material recovery emissions (compost production, alternative fuels, material recovery)	**Variable:** CO_2 emissions from consumption of biomass energy (e.g. biofuels, bioliquids, solid biomass, biogases) Process emissions (CO_2)
Climate risks	The most prominent risks are transition risks – which can be turned into opportunities if a company invests in waste treatment approaches that support circularity and limits final disposal of waste (landfilling or incineration). Physical risks are less prominent although they can interrupt or delay certain operations or create local damage.				

Depending on the type of entity and emission sources as highlighted above, there are several decarbonisation measures that companies can implement. Those are considered in Section 4.2.

[16] Waste to Energy Concepts

3. Relevant EU and national targets

Table 3. Relevant EU Targets

Horizon	Strategic implication or strategy	KPIs (EU level targets apply to the Baltic states; in some areas more specific targets are set)
2030	Deliver the EU waste hierarchy shift from disposal to prevention, reuse, recycling. Major compliance load comes from Waste Framework Directive targets plus the new packaging framework under PPWR (design, recyclability, labelling, EPR tightening, data and traceability).	Municipal waste (preparing for re-use + recycling): **60% by 2030**[17] Packaging waste (total recycling): **70% by 2030**[18] Packaging material targets by 2030: **wood 30%, plastics 55%, aluminium 60%, glass 75%, ferrous metals 80%, paper/cardboard 85%**[19]
2050	Waste policy becomes a delivery tool for EU climate neutrality: very low landfill, high material circularity, packaging and product systems optimised for reuse and high-quality recycling. PPWR explicitly frames packaging reform as part of putting the sector on a climate-neutral trajectory by 2050[20].	**Overarching EU objective:** climate neutrality by 2050, which drives further waste prevention, methane reduction, and circular materials[21]. **Packaging system goal direction:** PPWR positions packaging rules to support the path to climate neutrality by 2050, with ongoing tightening via secondary rules[22].

[17] Recycling targets for municipal waste and packaging waste for 2025, 2030 and 2035, in percentage of generated waste
[18] Recycling targets for municipal waste and packaging waste for 2025, 2030 and 2035, in percentage of generated waste
[19] Recycling targets for municipal waste and packaging waste for 2025, 2030 and 2035, in percentage of generated waste
[20] Packaging and packaging waste (from 2026)
[21] Packaging and packaging waste (from 2026)
[22] Packaging and packaging waste (from 2026)

Table 4. Relevant National Targets/Commitments

Theme	Estonia[23]	Latvia[24]	Lithuania[25]
Waste GHG trajectory	Projected -41% from 2022 baseline by 2030 (WEM); solid waste disposal emissions declining fastest.	Projected roughly -49% vs 1990 by 2030 (WEM); further decline towards -63% to -72% vs 1990 by 2050.	Formal target: -50.6% by 2025, -65% by 2030 vs 2005 (NECP commitments).
Recycling rate (2030)	At least 60% separate-collection recycling by 2030; rising to 65% by 2035.	At least 60% municipal waste reuse/recycling; packaging recycling at least 70% with material-specific sub-targets.	At least 60% municipal waste reuse/recycling; packaging at least 70%; food waste per capita halved vs 2019.
Landfill diversion	Landfill share 10% by 2030; elimination of open waste burning.	Landfill limited to 10% of municipal waste by 2035.	Landfill share 5% by 2030.
Circular economy direction	Circular Economy White Paper (2022) as cross-ministerial strategic framework. Three goals: sustainable consumption, safe material circulation, environmental protection.	General circular-economy direction under EU frameworks. Escalating landfill tax as fiscal incentive.	Circularity rate to match EU average by 2025; separate collection rising to 80% by 2027.
Wastewater	Wastewater emissions declining modestly under existing measures.	Investment plan for sewage network renovation and treatment expansion to larger agglomerations.	Wastewater treatment expansion covers agglomerations not previously served; wastewater measures have the largest cumulative GHG impact among waste-sector instruments.
2050 direction	Near-zero residual waste emissions; biogas/biomethane recovery as circular economy lever.	Near-zero landfill; widespread circular recovery per Climate Neutrality Strategy 2050.	Aligned with climate neutrality by 2050; near-zero landfill; widespread recycling and methane mitigation.

[23] Updated National Energy and Climate Plan to 2030 (Estonia)
[24] Updated National Energy and Climate Plan 2021–2030 (Latvia)
[25] Final Updated National Energy and Climate Action Plan 2021–2030 (Lithuania)

4. Target setting

4.1 Science-based approach

As for waste management there are no emission intensity indicators as in other sectoral annexes, the target setting should follow principles outlined in the general guidelines – set Scope 1, Scope 2 and, as applicable, Scope 3 targets, while reflecting the specific role of the sector in national and EU decarbonisation pathways.

4.1.1 Align with national and EU targets

The EU and the Baltic states have defined clear climate and circular economy targets for the waste sector as described in the previous section. As a first step, waste management companies should assess their current performance against these national objectives, including the gradual reduction of landfilled waste and improvements in reuse, recycling and material recovery.

These targets are consistent with the **European Climate Law–aligned decarbonisation pathways**, which place strong emphasis on waste prevention, material recovery and minimisation of landfill disposal across all sectors. Waste management companies should therefore use these EU pathways as a credible reference when defining their own climate and resource-efficiency targets.

Note that on the sectoral level, the main climate priority is a substantial reduction of relevant GHG emissions, particularly methane emissions from landfills, however, energy-related transport and facility operation emissions should also be addressed.

4.1.2 Scope-specific target setting

Waste management companies are expected to set targets covering all relevant emission scopes, in line with the general guidelines.

Table 5. Recommendations for target setting for waste management companies.

Scope	Relevance for waste management	Target focus	Key notes
Scope 1	Typically, the most material emission source for the sector	• Absolute reductions in methane emissions from landfills • Improvements in landfill gas capture and utilisation • Reduction of emissions from waste treatment processes and owned vehicle fleets	Targets should prioritise absolute emission reductions and be aligned with a 1.5°C pathway where feasible. It means that the reduction pathway should ensure reaching net zero emissions by 2050. More detailed information on the approach and its practical implications is disclosed in the general guidelines.
Scope 2	Relevant for facilities with significant energy use	• Emissions from purchased electricity and heat used in waste treatment facilities, sorting and/or recycling plants and other operations	Companies are encouraged to combine energy efficiency measures with transition to renewable electricity procurement. Targets should prioritise absolute emission reductions and be aligned with a 1.5°C pathway where feasible. It means that the reduction pathway should ensure reaching net zero emissions by 2050. More detailed information on the approach and its practical implications is disclosed in the general guidelines.
Scope 3	Relevant where value chain emissions are material	• Purchased goods and services and capital goods • Outsourced transport and logistics • Downstream waste treatment outcomes where disposal routes are influenced	Where emissions depend on customer behaviour or upstream waste generation patterns, targets may require phased implementation and strong stakeholder engagement. Emission reduction pathway should prioritise reaching net zero emissions by 2050. More detailed information on the approach and its practical implications is disclosed in the general guidelines.

4.1.3 Relationship between SBTi targets and circularity targets

Science-based targets focus on GHG emissions and do not directly prescribe waste volume, recycling or reuse targets. However, for the waste management sector, circularity targets[26] are a critical delivery mechanism for achieving GHG reductions on a broader scale. Such targets may also be defined by waste creators (any other industry) but waste management companies have a significant impact on actual implementation of “recyclability” claims other businesses make[27].

Companies are therefore encouraged to define complementary targets such as:

- Reduction of landfilled waste volumes;
- Increased recycling and recovery rates;
- Increased production and use of secondary raw materials;
- Expansion of landfill gas recovery for energy or biomethane use.

These targets should be clearly linked to their expected impact on GHG emissions and integrated into the overall transition plan.

[26] Targets for a circular economy
[27] Recyclable vs Recycled: What you need to know and why it matters

4.1.4 Suggested set of intensity KPIs

Although SBTi has not provided emission intensity guidance for waste management, companies may use relevant indicators to measure their performance over time – moreover, if a company is continuing to develop and expand its operations such indicators will help decision making.

Table 6. Suggested set of Intensity KPIs for Waste Management

KPI category	Scope	KPI	Unit	Purpose / linkage to targets
Emission intensity KPIs (operational)	Scope 1	Emissions per tonne of waste treated	tCO_2e / tonne	Tracks overall efficiency of waste treatment system
		Emissions per tonne landfilled	tCO_2e / tonne	Focuses on highest-impact waste stream
		Emissions per tonne incinerated (net of energy recovery)	tCO_2e / tonne	Enables comparison of treatment options
Methane mitigation KPIs	Scope 1	Landfill gas capture rate	%	Indicates effectiveness of methane control
		Share of captured landfill gas utilised	%	Links capture to energy or biomethane use
		Energy generated from landfill gas	MWh	Shows substitution of fossil energy
Circularity and material efficiency KPIs	Scope 3	Share of waste recycled or prepared for reuse	%	Core circularity driver reducing upstream and landfill emissions
		Share of residual waste landfilled	%	Directly linked to national landfill caps
		Waste landfilled per tonne collected	kg / tonne	Normalises performance across growth
		Waste landfilled per capita	kg / capita	Commonly aligned with national and EU targets

For more information you may also see SBTi Corporate Net-Zero Standard, and the European Climate Law-aligned EU sectoral decarbonisation pathways. Please also note that some targets (both their setting and implementation) may require engagement of external stakeholders – waste generators and other related parties without whom you may not be able to achieve the desired outcomes.

4.2 Key emission reduction measures

Depending on the type of activity as highlighted above, there are multiple recognised decarbonisation measures that companies are recommended to implement[28].

4.2.1 Circularity and waste diversion first

Focus on preventing waste, enabling reuse, and increasing high-quality recycling through better separation and markets for secondary materials. Measures:

- Expand separate collection and sorting to raise recycling rates and reduce residual waste;
- Scale preparation-for-reuse systems: repair, refurbishment, upcycling hubs (e.g. The Green Experiment programme[29]);
- Divert organics through separate collection and treatment, prioritising anaerobic digestion for suitable fractions;
- Build end-markets: integrate secondary materials into local value chains and procurement.

4.2.2 Organics to biomethane

For food waste and other wet organics, anaerobic digestion (AD) can cut methane versus landfill and produce biomethane[30] with strong climate value (carbon intensity score) and revenue upside where Guarantees of Origin[31] are available for renewable gas attributes. Measures:

- Separate food waste collection and pre-treatment to improve AD yields.
- Upgrade biogas to biomethane where feasible and optimise end-use: injection, transport fuel, or industrial demand.
- Track and monetise environmental attributes via GO schemes where applicable.

[28] TPT Sector Summary
[29] "Green Experiment": EUR 8 million of EU investments for innovation in waste recycling
[30] Waste Management
[31] DIRECTIVE on the promotion of the use of energy from renewable sources (Article 4)

4.2.3 Landfill methane reduction

Methane management remains critical for existing landfills and legacy waste[32]. Measures:

- Increase landfill gas capture and maintain high system uptime over the full landfill lifecycle.
- Maximise beneficial use of captured gas: electricity, heat, biomethane, fuel.
- Ensuring methane oxidation (i.e. the application of appropriate methane oxidation techniques throughout all stages of a landfill's life cycle enables operators and regulators to maintain effective methane oxidation over time);
- Diverting all organic waste from landfills to recycling and energy production through composting, anaerobic digestion and waste-to-energy processes.

4.2.4 Recycling and processing infrastructure efficiency[33]

Measures:

- Energy efficiency upgrades for motors, drives, compressed air, controls and process optimisation.
- Onsite renewables and heat recovery where feasible.
- Electrification of auxiliary heat and equipment where technically viable.

[32] Waste Management
[33] Guidance for separate collection of municipal waste

4.2.5 Waste-to-energy and incineration[34]

Thermal treatment should be positioned as a residual route for non-recyclable fractions, managed for high energy efficiency and low fossil input. Measures:

- Minimise fossil carbon inputs (especially plastics) via upstream sorting and circularity actions.
- Improve energy recovery performance where district heat demand exists.
- Developing and implementing carbon capture, utilisation and storage (CCUS)[35] in waste incineration and waste-to-energy processes.

4.2.6 Fleet and fuel management[36]

Measures:

- Route optimisation, load balancing, reducing empty runs via digital planning.
- Gradual replacement with zero-emission or low-emission vehicles where feasible.
- Interim use of sustainable biofuels (on-site generated biogas) or biomethane – where aligned with sustainability criteria and supply

[34] TPT Sector Summary
[35] Waste-to-Energy on the path to carbon capture, utilisation and storage
[36] TPT Sector Summary

4.2.7 Community engagement and system leadership

A waste management company cannot fully control the volume and composition of residual waste generated in the country. However, it can materially influence outcomes by acting as a system operator and market shaper. Community engagement should therefore be treated as a formal decarbonisation measure, because higher-quality source separation and higher diversion rates are prerequisites for delivering the waste hierarchy in practice.

Recommended measures include:

- **Create convenient "drop-off hotspots"**[37] for problem streams that often end up in residual waste, such as tyres, bulky waste, WEEE, wood, textiles, oils, batteries, and green waste. Design them as "pick and go" points where relevant, enabling both proper recycling and controlled reuse.
- **Run targeted behavioural programmes**[38] with municipalities, schools, and community organisations to increase correct sorting and reduce contamination of separately collected streams. Track outcomes, not only participation.
- **Enable reuse ecosystems**[39] by partnering with charities, repair workshops, second-hand networks and social enterprises, and by providing space or logistics support for refurbishment and preparation for reuse.
- **Use pricing and contract design**[40] to promote circular behaviour, for example differentiated tariffs for residual vs separately collected fractions, service bundles that prioritise recycling, and clear acceptance rules for specific streams.
- **Support producer responsibility schemes and local procurement**[41] by connecting recyclers and end-users of secondary materials and providing stable, quality-controlled feedstock streams.

[37] Best Environmental Management Practice for the Waste Management Sector
[38] Guidance for separate collection of municipal waste
[39] Best Environmental Management Practice for the Waste Management Sector
[40] Economic instruments and separate collection systems — key strategies to increase recycling
[41] Development of Guidance on Extended Producer Responsibility (EPR)

5. Important questions

Key questions you should be able to answer your financial partner (a bank, investor, etc.) or other cooperation partners:

Where are you now?

- What is your role in the waste management value chain?
- What proportion of the waste you handle is allocated to landfill, recycling, recovery, or treatment?
- What is the current energy mix for your recycling, sorting, composting, or waste-to-energy facilities (grid electricity, renewable energy, on-site generation)?
- Have you set internal or external climate targets related to methane reduction, landfill diversion, recycling rates, or energy efficiency?
- If applicable – how do you currently measure methane emissions from landfill or organic-waste processing (e.g. monitoring systems, estimations, capture rates)?
- Are there regulatory, customer, or municipal requirements pushing for lower-carbon waste solutions (e.g. landfill bans, minimum recycling thresholds, stricter methane-capture rules, greener transport, etc.)?

Where do you see the largest improvement opportunities?

- Which parts of your operations offer the highest potential for emissions reduction (e.g., methane capture, recycling efficiency, energy-intensive processing steps, waste-to-energy optimisation)?
- Where do you see opportunities to reduce landfill dependence (e.g. new sorting technologies, organics diversion, partnerships with recyclers)?
- Which low-emission treatment technologies appear most promising for your business (e.g. advanced composting, anaerobic digestion, high-efficiency sorting equipment – depending on the specifics of the operations)?
- What factors support or hinder your ability to implement these improvements (e.g. regulation, community acceptance, technology availability, permitting constraints)?
- Are there specific waste streams where you see strong potential for emissions reduction or material recovery improvements?

How do you plan to achieve them?

- If applicable – what is your planned timeline for reducing methane emissions (e.g. improved capture systems, oxidation layers, gas-to-energy upgrades)?
- What actions are you taking to improve recycling and processing efficiency (e.g. facility upgrades, digitalisation, automation, contamination reduction strategies)?
- How do you plan to increase landfill diversion (e.g. separate organics collection, advanced sorting, partnerships with municipalities)?
- How will you ensure that energy used in facilities aligns with renewable-energy goals (e.g. PPAs, rooftop or ground-mounted solar, on-site biogas-to-energy)?
- How are you planning compliance with evolving regulatory frameworks (e.g. EU Taxonomy, methane reduction standards, waste sector climate legislation)?

What investment do you need to complete that?

- What level of investment is required to upgrade or replace current infrastructure (e.g. landfill methane systems, sorting lines, anaerobic digestion units)?
- Are there significant capital needs for energy-efficiency projects (e.g. motors, conveyors, heat-recovery systems) or renewable-energy installations?
- Do you expect operational costs to increase or decrease as you transition to lower-carbon technologies (e.g. maintenance savings, higher energy costs, efficiency gains)?
- What external funding sources are you exploring (e.g. green loans, grants, subsidies, public-private partnerships, carbon-credit projects)?
- What financing timeline aligns best with your infrastructure upgrade milestones?
- For landfill operations, how do you plan your operations and financial flows in relation to the national targets for reducing landfilled waste?
- Are you planning to refocus on other operations? What are those and how will they support achievement of the targets and your financial stability?

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