

Carbon Footprint Report

Technical Details: Everything you need to know

Service overview

Waste Management's subscription service for commercial customers supplies carbon data for Scope 3 emissions associated with waste disposal.

Direct value

It is very difficult to calculate Scope 3 emissions associated with waste disposal.

A significant amount of time and resources are required to collect the data, keep an updated emission factor database, link the right landfill to the right tonnage and perform the carbon emission calculation.

Our new service will do this for you – significantly reducing your resourcing requirements and costs when calculating your carbon footprint.

- Save internal resource time – you will receive pre-calculated data and can therefore redirect the time saved to your other business tasks and objectives
- Reduce external audit expenses – our reports are verified ISO 14064 1:2018 compatible, so your external auditor will spend less billable hours reviewing the supplied data
- Reduce external consultancy costs – this report includes all the required data, resulting in significantly reduced billable hours if you are utilising a consultancy to collect data and calculate your emissions.

For large companies, hours will be spent collecting waste data, mapping it to the right end destination landfill and utilising the correct emission factors. Depending on the business' geographical footprint, multiple landfill options and the ever-changing emission factors add further levels of complexity, which will add even more time to the equation.

If Waste Management is your sole service provider for general waste services, you will have a single point of truth for your waste data, ensuring the data you use for your carbon reporting is accurate, verified and supplied as actual weight data instead of volume data or estimated weights.

Data quality value

The methodology for producing the carbon footprint report and its associated GHG emissions has been independently verified by Toitū Envirocare. The data is suitable for use in an ISO 14064 1:2018 compliant inventory, including a Toitū carbonreduce or Toitū carbonzero certified inventory.

During the verification process, Waste Management's data collection methodology is reviewed. This includes how the scales on our trucks work, their calibration and maintenance, how the weight data pulls through into our data warehouse and how we report weights, including how average weights are calculated.

The calculation methodology is shown on the right, with the utilisation of Unique Emission Factors (UEF) and Outlet Emission Factors (OEF) making this carbon dataset overall more accurate than the standard utilisation of only the MfE Emission Factors.



How do we calculate the carbon emissions?

Based on the Ministry for the Environment's (MfE) Measuring Emissions Guidelines, carbon emissions are generated by waste disposed to landfill. Utilising Table 31 as a baseline, we are reporting on general waste to landfill for facilities with or without landfill gas recovery (LFGR).

Based on the region where your waste is generated, Waste Management maps which landfills your general waste goes to and links your waste tonnage with the correct Emission Factor (EF).

The two MfE EFs for landfills with LFGR or without LFGR are used as a baseline. Externally audited and verified Waste Management Unique Emission Factors (UEF) are used for the facilities we own and operate, which significantly lowers your reportable carbon emissions. If a non-Waste Management facility has a UEF, we utilise that UEF to assign the most accurate MfE EF based on which it is aligned closer to, regardless of whether the facility has LFGR or not. The UEF of non-Waste Management facilities are not used directly due to the lack of operational oversight and control over these facilities.

For regions with more than one landfill as a possible end destination, a weighted average EF for that region is calculated utilising operational data. This weighted average EF, known as an Outlet Emission Factor (OEF), will then be applied to all waste collected within that region.

Actual weight data, or calculated average weight data, is then used in conjunction with the appropriate EF, UEF or OEF to calculate your carbon emissions.

Calculation overview:

$$\begin{aligned}
 & [\text{General Waste to landfill with LFGR (in tons)}] \times [0.311] \\
 & + [\text{General Waste to landfill without LFGR (in tons)}] \times [1.17] \\
 & + [\text{General Waste to WM landfill with LFGR (in tons)}] \times [\text{UEF of } 0.096 - 0.119] \\
 & + [\text{General Waste to landfill in region with more than one landfill}] \times [\text{OEF of } 0.096 - 1.17] \\
 & = \text{Carbon Emissions (t CO}_2\text{e)}
 \end{aligned}$$

Every year, Waste Management will review the methodology used and ensure it is verified to the ISO 14064 1:2018 standard.



For those companies that opt in and subscribe to the service, we can supply the following data and reports:

1) An Excel Transaction Report that includes all raw data, including tonnages, emission factors used and your pre-calculated carbon emissions (t CO₂e), perfect for uploading into reporting software. Carbon data can be pivoted to show tonnes of CO₂e per month, per month, per site, per region or for the entire business.

2) A PDF summary Sustainability Report that will show the total landfill greenhouse gas emissions for the relevant time period. This is perfect if just the total tonnes of CO₂e is required. This includes a graph to showcase how your carbon emissions are tracking over the relevant time period.

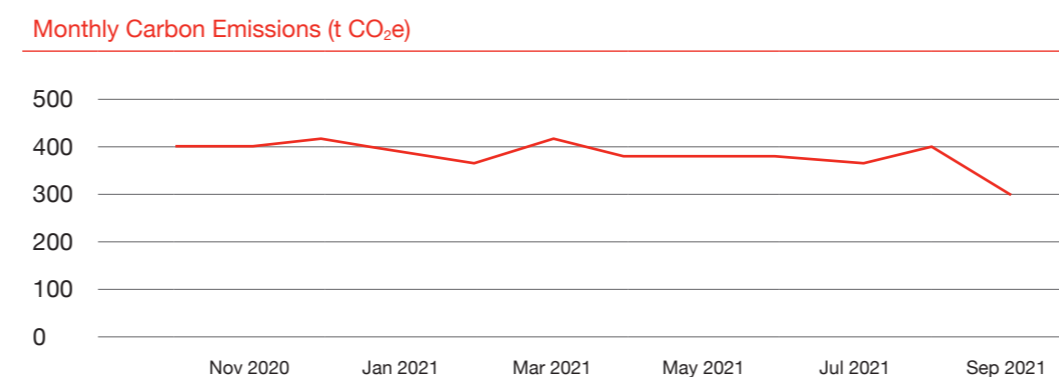
Carbon reporting is normally performed on an annual basis. With this service, you can receive your carbon data monthly, which provides an additional value by tracking your monthly progress towards waste and carbon reduction targets.

Example of raw data which can be extracted from the Excel Transaction Report

Landfill Waste/ Recycled Waste	Material Profile	Bin Type	Action	Reported Weight (t)	Weight Calculation Level (Actual/Site/ Customer/National)	Outlet Carbon Emission Factor	Carbon Emissions (t CO ₂ e)
Landfill Waste	General Mixed Commercial	Front Load 1.5m ³	Lift Rostered	0.103	Actual	0.115	0.011788
Landfill Waste	General Mixed Commercial	Front Load 1.5m ³	Lift Rostered	0.015	Actual	0.115	0.001725
Landfill Waste	General Mixed Commercial	Front Load 1.5m ³	Lift Rostered	0.034	Actual	0.128	0.004320
Landfill Waste	General Mixed Commercial	Front Load 1.5m ³	Lift Rostered	0.049	Actual	0.128	0.006240
Landfill Waste	General Mixed Commercial	Skip 9m ³ Fixed End	Exchange	1.080	Actual	0.292	0.315360
Landfill Waste	General Mixed Commercial	Skip 9m ³ Fixed End	Remove	1.060	Actual	0.292	0.309520
Landfill Waste	General Mixed Commercial	Wheelie Bin 240 Litre	Lift Rostered	0.070	Actual	0.282	0.019740
Landfill Waste	General Mixed Commercial	Wheelie Bin 240 Litre	Lift Rostered	0.062	Actual	0.282	0.017484
Landfill Waste	General Mixed Commercial	Wheelie Bin 240 Litre	Lift Rostered	0.018	Actual	0.282	0.005076
Landfill Waste	General Mixed Commercial	Wheelie Bin 240 Litre	Lift Rostered	0.016	Actual	0.282	0.004512
Landfill Waste	General Mixed Commercial	Wheelie Bin 240 Litre	Lift Rostered	0.018	Actual	0.282	0.005076

Example of the graph and summary carbon data which can be displayed in our Customer Sustainability Report

Carbon Emissions: October 2020 to September 2021



Landfill Waste	Weight (t)	Carbon Emissions (t CO ₂ e)
September 2021	1,012.414	309.037
October 2020 to September 2021	14,591.900	4,629.513

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