

THE SCOTTISH CARBON METRIC

Briefing Paper for Stakeholders

October 2013

This briefing paper considers the implications of the Scottish Carbon Metric for decision makers, businesses and the public sector. The first section introduces the Carbon Metric and describes the national picture of the carbon impact of waste in Scotland. The following section explains the purpose of the Carbon Metric and how it can be used by different stakeholders. Further information on the Carbon Metric is available on the [Zero Waste Scotland](#) website.

SUSTAINABILITY

ENVIRONMENTAL
DAMAGE

CLIMATE
CHANGE

GREENHOUSE
GASES

CARBON METRIC
FOR WASTE

THE SCOTTISH CARBON METRIC

Why is the Carbon Metric important?

The Carbon Metric is designed to help Scotland consider how it can measure and reduce our carbon emissions caused by our waste.

Across the world, it is increasingly recognised that we live on a finite planet with limited resources. To use resources sustainably, they must be available for future generations as well as people today. Human activity damages the environment, which limits our ability to live sustainably. This is because the planet is less able to function normally and provide resources. Climate change is an example of environmental damage which can have wide ranging effects. For example, increased flooding could reduce the amount of crops that can be grown in Scotland. By reducing greenhouse gases (GHGs), climate change may be mitigated, reducing environmental damage and helping us to live more sustainably.

Understanding the carbon associated with our waste is crucial to meeting this challenge. This is because our use of materials is a significant part of global greenhouse gas emissions and contribution to climate change impacts. By making better use of materials and recycling waste from used materials, we can reduce GHG emissions. Scotland is the first country to measure the whole life impacts of our waste. The approach, designed by the Scottish Government, Zero Waste Scotland and SEPA in consultation with other stakeholders, is known as the Scottish Carbon Metric.

What do the Carbon Metric results show?

The Carbon Metric shows that:

- The carbon impact of Scotland’s waste was 13.9 MtCO₂eq in 2011
- We saved 1.9 MtCO₂eq from recycling our waste in 2011, mainly through avoided the need to produce new goods from virgin raw materials.
- However, 0.6 MtCO₂eq was emitted due to waste landfilled in Scotland in 2011.

Figure 1 shows our current carbon impact from waste and how the carbon impact of household and non-household waste is expected to change by 2025.

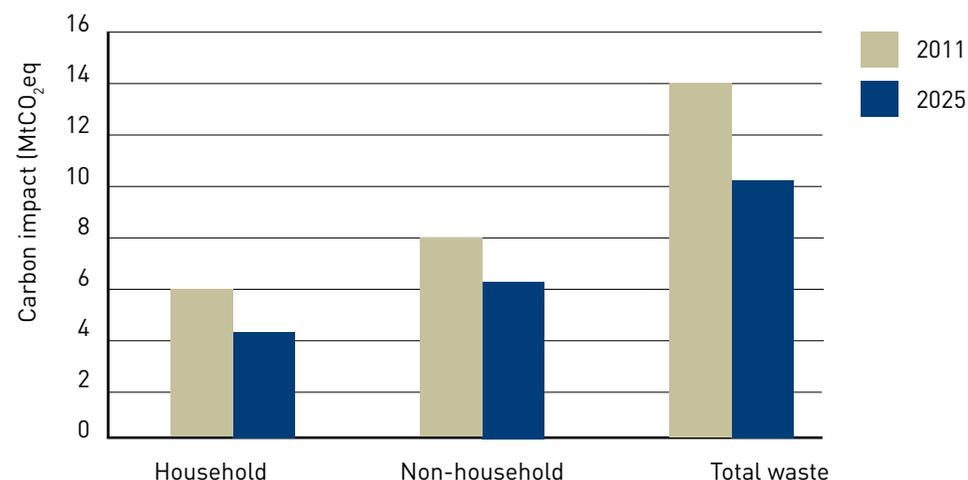


Figure 1 The carbon impact from waste in Scotland 2011 and 2025 (expected).

By 2025, if our current waste policies are implemented, we can reduce the carbon impact of waste by 3.1 MtCO₂eq, or 22%, compared to 2011 levels. A carbon footprint is a measure of the total emissions created by one person in a year. Part of this carbon footprint will be due to waste. The Carbon Metric allows us to calculate the average waste carbon footprint for Scotland for the first time. The table below shows that by 2025, the average waste footprint in Scotland will fall by 27%.

Table 1 Expected changes in waste carbon footprint

Year	Population	Waste impact (tCO ₂ eq)	Waste Footprint (tCO ₂ eq per person)
2011	5,254,800	13,946,414	2.7
2025	5,596,000	10,885,663	1.9

THE CARBON METRIC – A BETTER WAY TO MEASURE EMISSIONS FROM WASTE

The Carbon Metric is a ground breaking approach to measuring the carbon impacts of waste. This is because it includes an assessment of the emissions generated by producing and recycling materials as well as the emissions from the disposal process itself. This type of carbon accounting gives a more complete picture of the impacts of waste, allowing decision makers to prioritise their efforts more effectively.

There are two common approaches to carbon accounting. The **territorial based approach** includes only those emissions released from within a national boundary – the greenhouse gases are attributed to the direct producers of the impacts.

The **consumption based approach** attributes all the emissions of a product to the consumer, regardless of where those emissions have occurred. If a t-shirt was made overseas but brought, used and disposed of in Scotland, under the territorial approach, only the use and disposal emissions would be counted as Scottish emissions. Using a consumption based approach would mean counting the emissions from the production of the t-shirt towards Scotland's climate change impacts as well. When waste is recycled overseas, the carbon savings is only attributed to Scotland when the consumption based approach is used.

Territorial accounting has traditionally been more common in carbon studies and policies, partly because it can be simpler to calculate. However, there is growing recognition that consumption based approaches can be more successful in aiding emissions reduction. This is because it is more closely linked to the consumer and therefore, closer to solutions which could change or reduce that consumption.

The carbon accounting of waste naturally aligns to a consumption based approach because the savings from recycling and prevention are mainly associated avoiding the consumption of new materials. The Carbon Metric is a consumption based approach to emissions reporting – the impacts of all the waste materials include the emissions from the original production process as well as the emissions from disposal. It also includes savings associated with preventing and recycling waste.

SUMMARY MESSAGES – THE SCOTTISH CARBON METRIC

- The Carbon Metric is designed to measure and reduce our carbon emissions from waste.
- Waste has a significant environmental impact. By reducing waste and managing resources better, we can live more sustainably.
- The carbon impact of Scotland's waste was 14 MtCO₂eq in 2011. By 2025, we can reduce this by over 20% by implementing current waste policies.
- Scotland is the first country to measure the carbon impact of its waste in this way. By giving decision makers a more complete understanding of the impacts of waste, we have a better chance of reducing these impacts.

The Carbon Metric - A better way of measuring emissions from waste

The Scottish Carbon Metric

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THE PURPOSE OF THE CARBON METRIC FOR POLICY MAKERS

Policy makers can use the Carbon Metric to measure progress towards reducing the carbon impact of waste from the implementation of waste policies. It can also be used to link the narrative on waste to other climate change and economic policy work throughout Scotland.

Policy context

In Scotland, we have the most ambitious climate change legislation in the world . In order to meet its targets, Scotland has to reduce carbon impacts substantially across a range of sectors including energy, transport and waste. The Zero Waste Plan , published in 2010, recognised a need to “identify and prioritise the materials with the highest environmental benefit”.

Two of the new main policy drivers which will be used to meet the Zero Waste Plan actions are the Waste (Scotland) Regulations and the Safeguarding Scotland’s Resources action plan. Safeguarding Scotland’s Resources will aim to reduce the amount of waste being generated each year, with a target to reduce waste production by 2025. Together, these policies are expected to reduce the carbon impact of waste by 3MtCO₂eq. The carbon impact of Scotland’s waste will be published annually, using the Carbon Metric approach, so our progress can be tracked against these expected reductions. The Carbon Metric shows progress on preventing and more sustainable management of waste in a single indicator for the first time.

1 [Climate Change \(Scotland\) Act 2009](#)

2 [Scottish Government \(2010\) Zero Waste Plan](#)

Linking waste to other agendas

Whilst the Scottish Climate Change Act targets are focused on territorial emissions, there is a requirement within the Act to consider consumption based emissions as well. The territorial measurements only consider waste in terms of emissions generated from landfill and so do not encourage reducing the production of materials that eventually become waste. The Carbon Metric gives a fuller picture of the true impacts of waste, allowing policy makers to plan more comprehensive reductions.

In addition, consumption is a key driver of economic growth. Without intervention, if the economy grows, we will consume more, produce more waste and therefore more emissions. Consumption carbon emissions follow economic consumption more closely than the territorial carbon emissions. By using a consumption based approach, the Carbon Metric creates a waste indicator which is relevant to economic analysis.

SUMMARY MESSAGES FOR POLICY MAKERS

- The Carbon Metric can show the progress Scotland is making towards reducing the carbon impact of waste. We expect to achieve a 22% reduction in the carbon impact of waste through the implementation of current waste policies by 2025.
- The Carbon Metric is an indicator which combines progress on preventing waste and better waste management in a single measure.
- The Carbon Metric links the narrative on waste to other climate change and economic policy work throughout Scotland.

The purpose of the carbon metric for policy makers

The Scottish Carbon Metric

The Carbon Metric - A better way of measuring emissions from waste

The purpose of the carbon metric for businesses and the public sector

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THE PURPOSE OF THE CARBON METRIC FOR BUSINESSES AND THE PUBLIC SECTOR

The Carbon Metric can be used by organisations to show their progress on reducing the carbon impacts of waste. It is an opportunity for organisations to communicate the contribution they are making towards improving our environment with a new indicator.

Context

Organisations across Scotland are working towards improving our environment. Waste and climate change policies will drive individual organisations to reduce waste, which can be measured using the Carbon Metric.

A tool available on the [Zero Waste Scotland](#) website allows organisations to calculate the carbon impact of their waste in a way that is compatible with the national Carbon Metric approach. Organisations are asked to enter data on the waste they produce and how this is managed. If compositional data on waste, is this is known, this should be included to give a more accurate estimate. The results show the overall carbon impact of their waste and highlights which materials are contributing the most to this. Organisations can use the results to plan how to reduce their carbon impacts from preventing and more sustainable management of waste.

Linking to other reporting initiatives

The Carbon Metric has been designed to be compatible with other carbon accounting approaches, including:

- SEPA's new **waste data reporting approach** (both approaches use the Waste Statistics Regulations definitions for waste categories)

³ [SEPA \(2013\)](#)

- The Scottish Government's **Sustainability Reporting for the Public Sector**
- The Carbon Trust's **Carbon Management Plans** have incorporated the Carbon Metric carbon factors for landfilling mixed waste. As the CMPs are a territorial approach, integration of the two approaches has not been taken further yet, to avoid confusion
- The **DEFRA/DECC company reporting factors (Annex 14)** use the same background data to calculate the carbon factors for waste materials. The factors are presented differently, as explained in the Annex.

SUMMARY MESSAGES FOR BUSINESSES AND THE PUBLIC SECTOR

- The Carbon Metric can be used by organisations to communicate the progress they are making towards reducing the environmental impact of waste.
- A tool is available on the Zero Waste Scotland website to allow organisations to calculate the carbon impacts of their waste
- The Carbon Metric is compatible with many other carbon reporting approaches (as listed above), helping organisations to communicate their impacts in a consistent manner.

⁴ [Scottish Government \(2012\) Public Sector Sustainability Reporting](#)

⁵ [DEFRA/DECC \(2013\) Greenhouse Gas conversion factors for company reporting](#)

For further information visit

www.zerowastescotland.org.uk/carbonmetric

or contact helpline@zerowastescotland.org.uk

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