



# The Carbon Footprint of Scotland's Household Waste

2018 Household Carbon Metric Brief

Prepared by: Ramy Salemdeeb and Michael Lenaghan,  
Zero Waste Scotland



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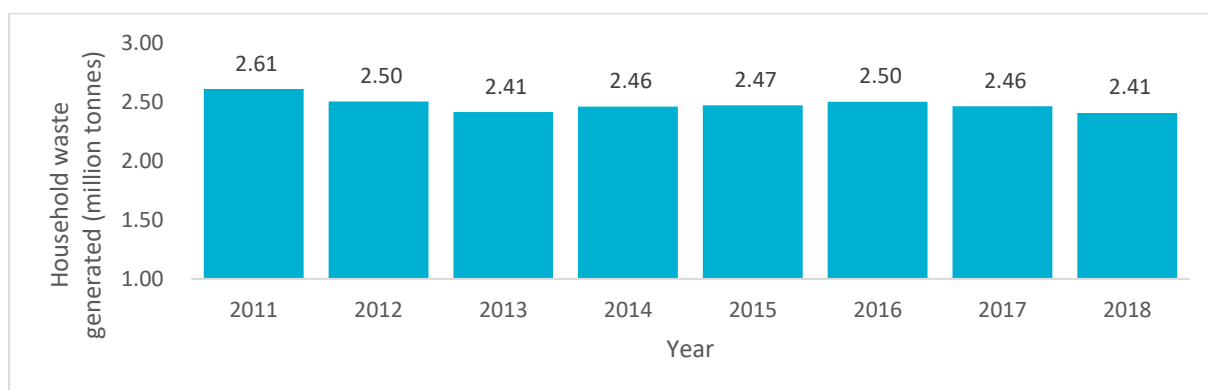
## Key Findings

The Scottish Carbon Metric measures the whole-life carbon impacts<sup>1</sup> of Scotland's waste, from resource extraction and manufacturing emissions, right through to waste management emissions, regardless of where in the world these impacts occur. This brief report summarises the key findings from the 2018 Carbon Metric for household waste using the latest Scottish Environment Protection Agency (SEPA) published waste data<sup>2</sup>. For more information about the Carbon Metric and its methodology, see the latest Carbon Metric Report on the Zero Waste Scotland website.

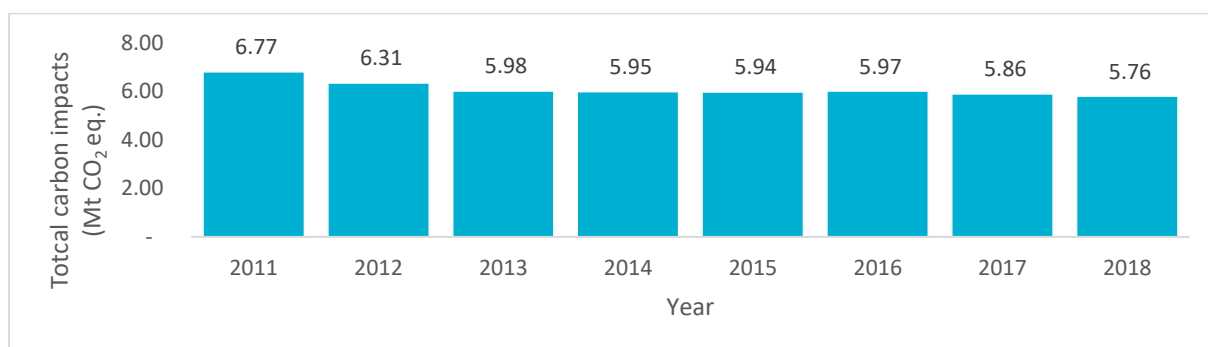
## Scotland's Household Waste and its Carbon Impacts in 2018

In 2018, the amount of Scottish household waste generated fell by 2.3% to 2.41 million tonnes (Mt), the lowest recorded since the Carbon Metric began in 2011. As a result, the carbon impacts of Scotland's household waste also fell, by 1.8% (~104,200 tonnes CO<sub>2</sub> eq.) from 2017, resulting in the lowest recorded carbon impacts for household waste to date. This decrease occurred despite a 0.9 percentage point drop in the household recycling rate from 2017, to 44.7%.

Scottish household waste generated has fluctuated (Figure 1). In 2018 it was 8% (approximately 201,600 tonnes) below the 2011 baseline. The reduction in waste arisings between 2011 and 2018 has led to approximately 1.01 Mt of CO<sub>2</sub> eq. saved (15%) as shown in Figure 2.



**Figure 1** Scottish Household waste generated, 2011 to 2018. Note: the vertical axis does not start at 0.

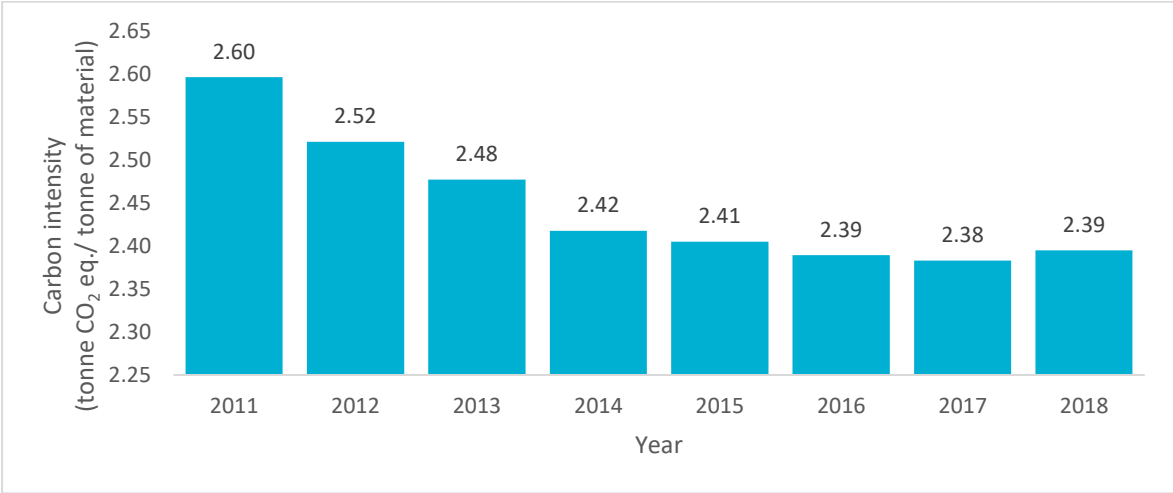


**Figure 2** Carbon impact of Scottish Household waste generated and managed 2011-2018.

<sup>1</sup> Shorthand term for the emissions of any of the greenhouse gases that affect climate change. Carbon emissions are usually expressed as tonnes of CO<sub>2</sub> eq. (equivalent), which is a unit of measurement based on the relative impact of a given gas on global warming.

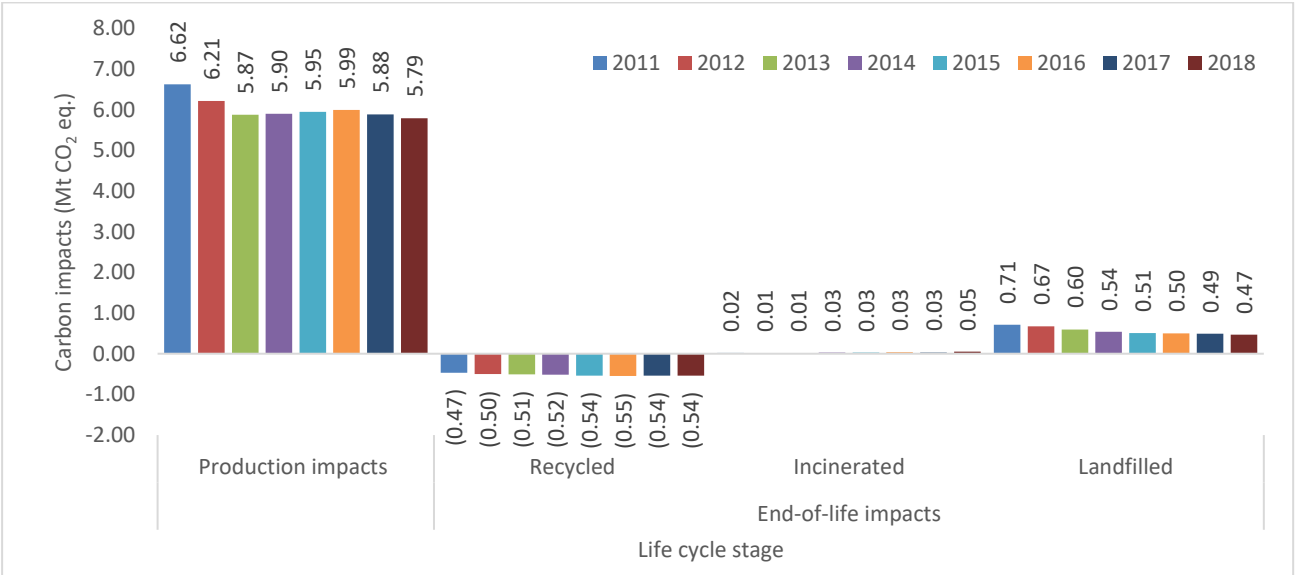
<sup>2</sup> <https://www.sepa.org.uk/environment/waste/waste-data/waste-data-reporting/waste-data-for-scotland/>

The total carbon impacts per tonne of household waste have been steadily declining since 2011 thanks to greater recycling and reduced waste to landfill, but increased slightly in 2018. This increase is partially attributed to increased waste incineration which, according to 2018 SEPA Scottish household waste report<sup>3</sup>, increased by 37% (95,600 tonnes) from 2017 to 240,900 tonnes. As more of the UK's electricity is generated from renewable sources, the environmental benefits of electricity from waste incineration declines.



**Figure 3 Net carbon intensity of Scottish Household wastes 2011-2018. Note: the vertical axis does not start at 0.**

Embodied carbon impacts from material production (i.e., impacts of producing the material in the first place before they become waste) are the greatest contributor to Scotland's waste carbon impacts (Figure 4). In 2018, carbon impacts from landfilling household wastes remained the second largest carbon contributor at 465,200 tonnes CO<sub>2</sub> eq., followed by incineration which reached 50,800 tonnes CO<sub>2</sub> eq., an increase of nearly 21,000 tonnes of CO<sub>2</sub> eq. in comparison to 2017, and the highest yet recorded. Recycling reduced Scotland's household waste carbon impacts by 541,000 tonnes CO<sub>2</sub> eq.



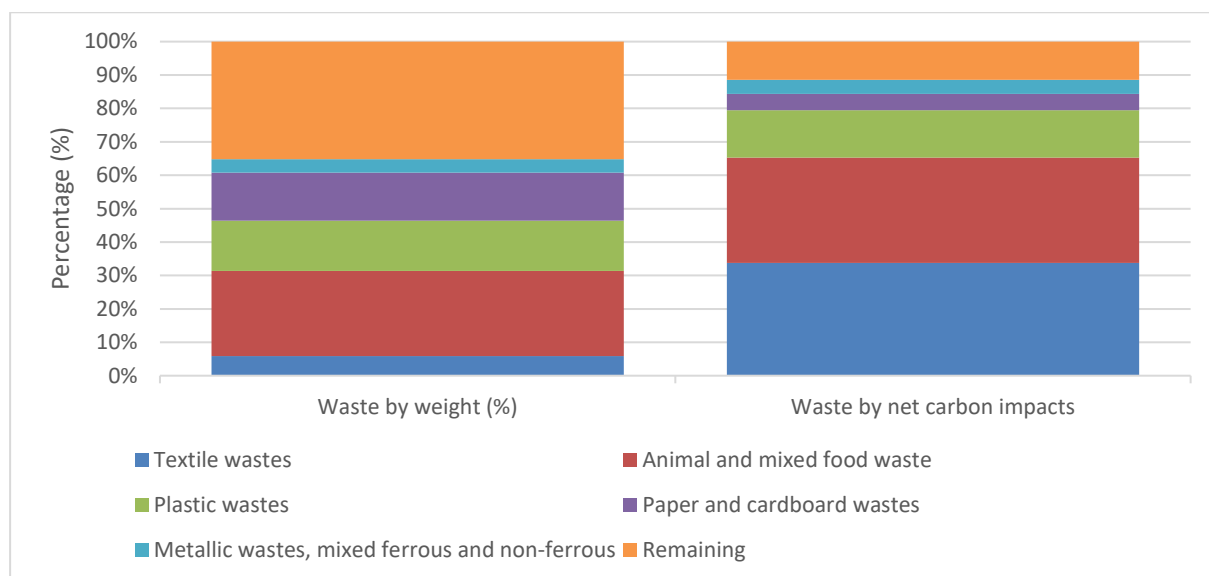
**Figure 4 Carbon life cycle impacts over time (Unit: million tonnes CO<sub>2</sub> eq.).**

<sup>3</sup> <https://www.sepa.org.uk/environment/waste/waste-data/waste-data-reporting/waste-data-for-scotland/>

## The Big Five Waste Materials: Weight vs. Carbon Impacts

Scotland's Carbon Metric shows that some materials in the household waste stream have a particularly high carbon impact relative to their tonnages. To maximise the climate change benefits of waste and resource management, focus should be placed on these carbon intensive waste materials.

The top five most carbon intensive materials accounted for just under half (65%) of all household waste in 2017, but 89% of household waste carbon impacts. Textile waste made up just 6% of waste arisings, but 34% of the carbon impacts. Food waste accounted for 25% of household waste by weight, but 32% of household waste carbon impacts.



**Figure 5** Relative weight vs. carbon impact of key waste materials (following disaggregation of the mixed Household and Similar Wastes category<sup>4</sup>).

## Conclusion

This report describes the key findings from the 2018 household waste Carbon Metric update:

- In 2018, Scottish households generated 2.41 million tonnes of waste, the lowest amount since Carbon Metric reporting began in 2011.
- **Household waste carbon impacts fell to 5.76 million tonnes CO<sub>2</sub> eq., approximately 1.01 Mt of CO<sub>2</sub> eq. (15%) below 2011 levels and the lowest recorded since the Carbon Metric began in 2011.**
- Despite a 0.9 percentage point drop in the household recycling rate, household waste carbon impacts achieved a record low due to lower waste volumes, highlighting the greater impact of waste prevention.
- The top five most carbon intensive materials accounted for 65% of all household waste tonnage in 2018, but 89% of the carbon impacts.
  - Textile waste made up just 6% of waste arisings, but 34% of the carbon impacts.
  - Food waste accounted for 25% of household waste by weight, but 32% of household waste carbon impacts.

Further information on the Carbon Metric and archived documents relating to its development can be found on the [Zero Waste Scotland website](#).

<sup>4</sup> The methodology of the disaggregation of mixed Household and Similar Wastes is explained in the Carbon Metric Technical report, published annually on Zero Waste Scotland website.

 01786 433930

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