

Scottish Household waste – summary data 2018

This release shows the 2018 calendar year summary of household waste data generated in Scotland and managed by or on behalf of Scottish local authorities. Information on the methodology used to prepare this release and a definition of terms is in the methodology and glossary at the end of this document.

Key points

Scottish Household waste – 2018 calendar year

- The total amount of household waste generated in Scotland was 2.41 million tonnes (Table 1) in 2018, a decrease of 55,574 tonnes (2%) from 2017.
- For 2018, the Scottish household waste recycling rate was 44.7%, a decrease of 0.9 percentage points from the 45.5% (Table 1) rate achieved in 2017¹. The amount of household waste recycled decreased by 45,886 tonnes to 1.07 million tonnes. This is the first year on year decrease in the household waste recycling rate since the start of reporting under the current definition of household waste in 2011. A seventh consecutive increase in plastics recycled was offset by a decrease in paper and cardboard wastes recycled and organic wastes composted.
- The amount of Scottish household waste landfilled in 2018 was 1.03 million tonnes, a decrease of 75,491 tonnes (7%) from 2017, and a decrease of 422,322 tonnes (29%) since 2011. This is the seventh consecutive decrease in household waste landfilled since 2011.
- For the second consecutive year, in 2018 there was more Scottish waste recycled (1.07 million tonnes) than landfilled (1.03 million tonnes).
- For 2018, the total amount of Scottish household waste managed by other diversion from landfill was 298,356 tonnes, an increase of 65,818 tonnes (28%) from 2017. Over three-quarters of the diverted waste was managed by incineration (81%, 240,935 tonnes), an increase of 65,638 tonnes from 2017.
- The carbon impact is a measure of the whole-life carbon impacts of waste, from resource extraction and manufacturing emissions, right through to waste management emissions. The carbon impact of household waste generated and managed in 2018 was 5.76 million tonnes of carbon dioxide equivalent (TCO_{2e}, Table 1), which is the equivalent to 1.06 TCO_{2e} per person (Table 2). This was a decrease of 104,228 TCO_{2e} from 2017, and a decrease of 1,007,754 TCO_{2e} from 2011.

All of the data in this report is available in the Household Waste Discover Data tool on [Scotland's Environment website](#). Annual household waste summary data tables are also available to download in Excel format on [SEPA's web site](#).

Enquiries on this publication to: SEPA Communications Department: 01786 452546.

This is an Official Statistics publication. These statistics have been produced to the high professional standards defined in the Code of Practice for Official Statistics, which sets out fourteen principles under the pillars of Trustworthiness, Quality and Value. More information on the Official Statistics Code of Practice can be found here:

<http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>.

¹ The 2017 recycling rate has been revised downwards from 45.6% to 45.5%. Refer to Table 11, *Revisions to 2017 Scottish Waste Data*.

Table 1. Scottish Household waste generated and managed in 2018 - summary data²

Local Authority	Generated (tonnes)	Recycled (tonnes)	Percentage Recycled (%)	Other diversion from landfill (tonnes)	Percentage Other diversion from Landfill (%)	Landfilled (tonnes)	Percentage Landfilled (%)	Carbon Impact (TCO ₂ e)	2017 Recycled (Percentage)
Aberdeen City	85,540	40,483	47.3	27,438	32.1	17,619	20.6	198,518	43.9
Aberdeenshire	120,519	52,298	43.4	2,784	2.3	65,437	54.3	308,193	43.7
Angus	54,619	29,890	54.7	22,346	40.9	2,383	4.4	112,134	55.2
Argyll and Bute	47,972	18,150	37.8	7,725	16.1	22,098	46.1	119,149	38.7
City of Edinburgh	193,341	74,962	38.8	17,678	9.1	100,701	52.1	492,832	41.0
Clackmannanshire	26,122	14,706	56.3	492	1.9	10,924	41.8	53,571	59.5
Dumfries and Galloway	79,325	21,757	27.4	22,504	28.4	35,064	44.2	227,001	27.8
Dundee City	60,773	21,761	35.8	34,673	57.1	4,340	7.1	148,299	35.5
East Ayrshire	53,148	27,553	51.8	4,957	9.3	20,647	38.8	118,087	52.9
East Dunbartonshire	51,643	28,218	54.6	9,994	19.4	13,431	26.0	111,395	47.9
East Lothian	50,134	26,623	53.1	1,987	4.0	21,524	42.9	110,686	53.1
East Renfrewshire	43,927	29,090	66.2	1,085	2.5	13,753	31.3	89,068	67.1
Falkirk	68,571	34,800	50.8	3,175	4.6	30,595	44.6	154,954	55.9
Fife	167,353	85,471	51.1	10,560	6.3	71,322	42.6	339,867	54.7
Glasgow City	245,318	60,438	24.6	17,377	7.1	167,502	68.3	733,950	26.7
Highland	127,880	54,571	42.7	7,280	5.7	66,029	51.6	317,214	43.6
Inverclyde	28,027	15,690	56.0	1,724	6.2	10,614	37.9	57,554	57.2
Midlothian	41,890	24,369.0	58.2	5,194	12.4	12,327	29.4	91,870	51.6
Moray	47,522	27,256	57.4	0	0.0	20,266	42.6	91,661	57.8
Na h-Eileanan Siar	14,325	3,305	23.1	1,756	12.3	9,265	64.7	37,897	23.9
North Ayrshire	61,421	33,510	54.6	6,815	11.1	21,096	34.3	141,057	55.8
North Lanarkshire	146,175	63,879	43.7	19,970	13.7	62,326	42.6	353,977	39.6
Orkney Islands	10,221	2,153	21.1	4,826	47.2	2,650	25.9	27,128	18.3
Perth and Kinross	71,815	37,120	51.7	4,045	5.6	30,650	42.7	140,239	55.6
Renfrewshire	81,255	39,998	49.2	24,087	29.6	17,010	20.9	189,505	47.8
Scottish Borders	52,491	20,365	38.8	1,455	2.8	30,671	58.4	134,140	39.9
Shetland Islands	9,649	1,017	10.5	6,477	67.1	2,156	22.3	31,049	8.0
South Ayrshire	55,814	29,340	52.6	6,490	11.6	19,984	35.8	124,772	52.5
South Lanarkshire	150,470	66,676	44.3	11,261	7.5	72,533	48.2	361,238	47.3
Stirling	41,925	22,688	54.1	434	1.0	18,804	44.9	88,173	55.1
West Dunbartonshire	41,867	18,206	43.5	4,036	9.6	19,624	46.9	102,739	47.6
West Lothian	74,194	48,340	65.2	7,730	10.4	18,124	24.4	152,069	61.3
Total Scotland	2,405,246	1,074,682	44.7	298,356	12.4	1,031,467	42.9	5,759,986	45.5

² Note: The carbon impact of mixed residual household waste is based on a national waste composition study and therefore does not reflect any difference in waste composition which may exist between Local Authorities.

Table 2. Scottish Household waste generated and managed per person in 2018 - summary data³

Local Authority	Generated (tonnes per person)	Recycled (tonnes per person)	Other diversion from landfill (tonnes per person)	Landfilled (tonnes per person)	Carbon Impact (TCO ₂ e per person)
Aberdeen City	0.38	0.18	0.12	0.08	0.87
Aberdeenshire	0.46	0.20	0.01	0.25	1.18
Angus	0.47	0.26	0.19	0.02	0.97
Argyll and Bute	0.56	0.21	0.09	0.26	1.38
City of Edinburgh	0.37	0.14	0.03	0.19	0.95
Clackmannanshire	0.51	0.29	0.01	0.21	1.04
Dumfries and Galloway	0.53	0.15	0.15	0.24	1.53
Dundee City	0.41	0.15	0.23	0.03	1.00
East Ayrshire	0.44	0.23	0.04	0.17	0.97
East Dunbartonshire	0.48	0.26	0.09	0.12	1.03
East Lothian	0.47	0.25	0.02	0.20	1.05
East Renfrewshire	0.46	0.31	0.01	0.14	0.94
Falkirk	0.43	0.22	0.02	0.19	0.97
Fife	0.45	0.23	0.03	0.19	0.91
Glasgow City	0.39	0.10	0.03	0.27	1.17
Highland	0.54	0.23	0.03	0.28	1.35
Inverclyde	0.36	0.20	0.02	0.14	0.74
Midlothian	0.46	0.27	0.06	0.13	1.01
Moray	0.50	0.29	0.00	0.21	0.96
Na h-Eileanan Siar	0.53	0.12	0.07	0.35	1.41
North Ayrshire	0.45	0.25	0.05	0.16	1.04
North Lanarkshire	0.43	0.19	0.06	0.18	1.04
Orkney Islands	0.46	0.10	0.22	0.12	1.22
Perth and Kinross	0.47	0.25	0.03	0.20	0.93
Renfrewshire	0.46	0.22	0.14	0.10	1.07
Scottish Borders	0.46	0.18	0.01	0.27	1.16
Shetland Islands	0.42	0.04	0.28	0.09	1.35
South Ayrshire	0.50	0.26	0.06	0.18	1.11
South Lanarkshire	0.47	0.21	0.04	0.23	1.13
Stirling	0.44	0.24	0.00	0.20	0.93
West Dunbartonshire	0.47	0.20	0.05	0.22	1.15
West Lothian	0.41	0.27	0.04	0.10	0.83
Total Scotland	0.44	0.20	0.05	0.19	1.06

³ Note: The carbon impact of mixed residual household waste is based on a national waste composition study and therefore does not reflect any difference in waste composition which may exist between Local Authorities

Trends

- The total amount of household waste generated in Scotland in 2018 was 2.41 million tonnes, a decrease of 55,574 tonnes (2%) from 2017 and 201,513 tonnes from 2011. This is the lowest amount of household waste generated since household waste statistics were first published using the current definition of household waste in 2011. Several authorities have attributed reductions in waste generated to a move from fortnightly to three weekly waste collection services.

Figure 1. Household waste generated in Scotland 2011-2018

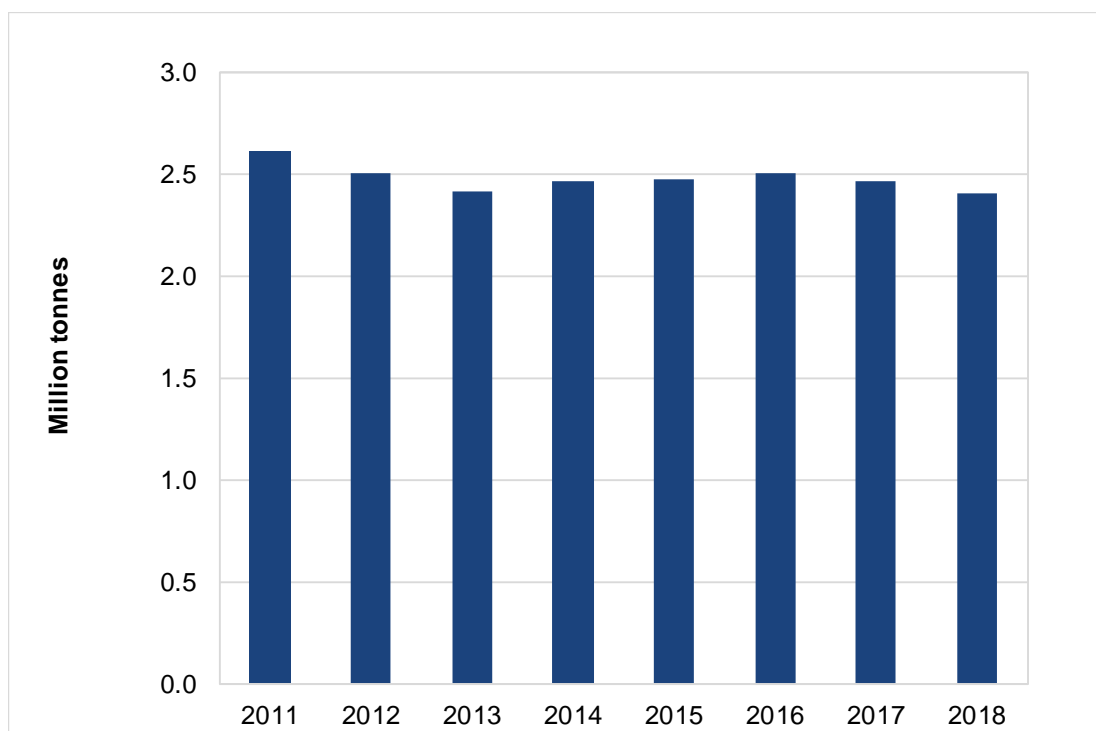


Table 3. Household waste generated in Scotland 2011-2018

Year	Waste generated (tonnes)
2011	2,606,759
2012	2,500,995
2013	2,412,630
2014	2,459,558
2015	2,468,781
2016	2,498,978
2017	2,460,820
2018	2,405,246

- For the second consecutive year, in 2018 there was more Scottish waste recycled (1.07 million tonnes) than landfilled (1.03 million tonnes, see Table 4 below).

Figure 2. Household waste managed in Scotland 2011-2018

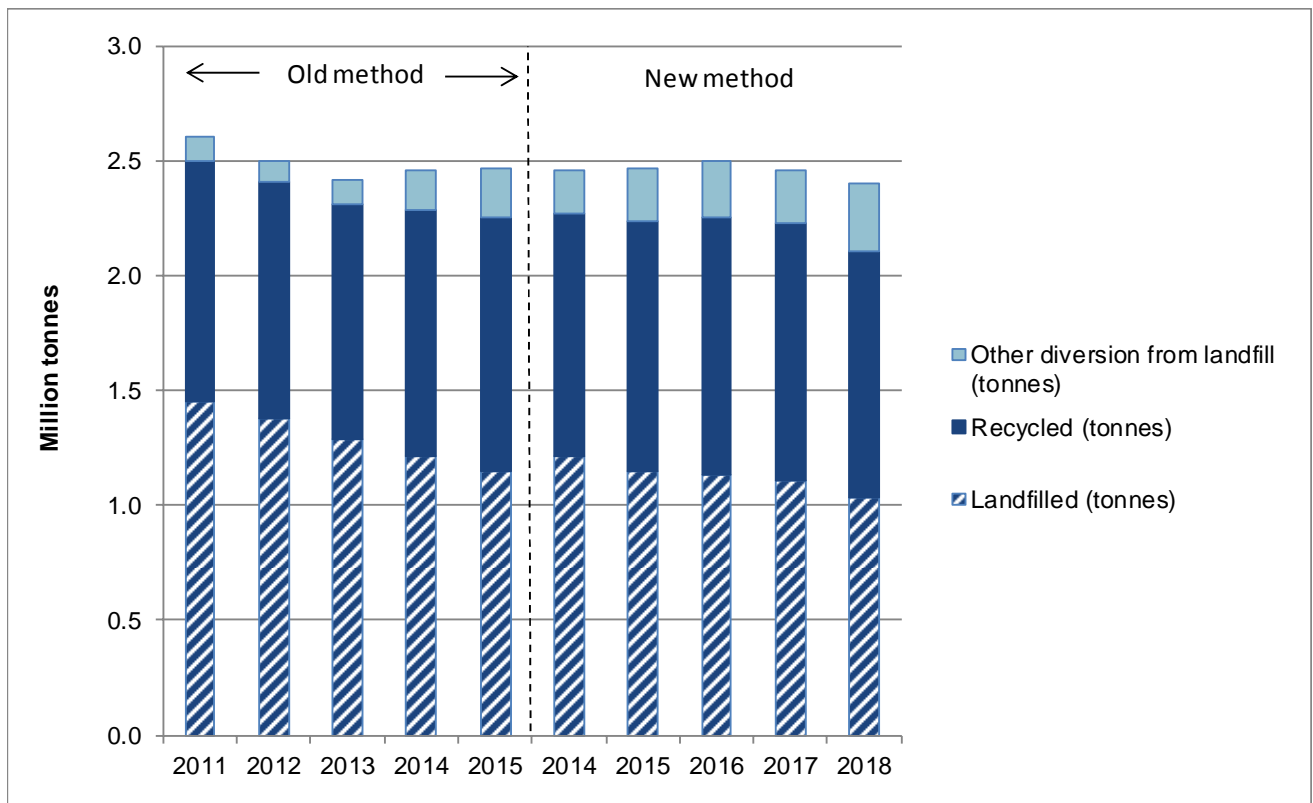


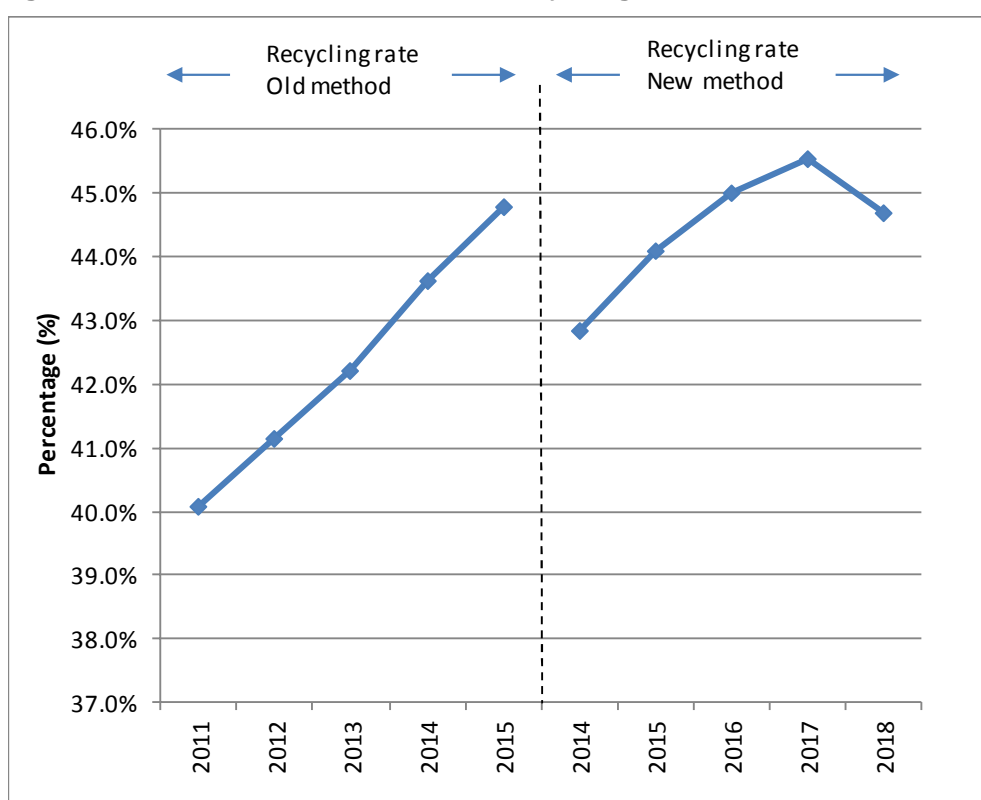
Table 4. Household waste managed in Scotland 2011-2018

Year	Landfilled	Recycled	Other diversion from landfill	Total Managed
2011 - OLD METHOD	1,453,789	1,045,013	107,831	2,606,633
2012 - OLD METHOD	1,382,153	1,029,150	85,754	2,497,057
2013 - OLD METHOD	1,290,829	1,018,189	104,512	2,413,530
2014 - OLD METHOD	1,212,479	1,072,953	173,433	2,458,865
2015 - OLD METHOD	1,150,537	1,105,211	212,737	2,468,485
2014	1,212,479	1,053,241	193,146	2,458,865
2015	1,150,537	1,088,426	229,522	2,468,485
2016	1,131,806	1,124,925	241,785	2,498,516
2017	1,106,959	1,120,568	232,538	2,460,065
2018	1,031,467	1,074,682	298,356	2,404,505

Waste Recycled

- Waste recycled includes waste reused, recycled or composted. A full description of what recycling is given in the glossary.
- For 2018, the Scottish household waste recycling rate was 44.7% (Figure 3), a decrease of 0.9 percentage points from the 45.5% recycling rate achieved in 2017⁴. Prior to 2014, household waste composted that did not reach the quality standards set by PAS 100/110 was included in the recycling figures. If this management method was included, as in the previous method, the overall recycling rate in 2018 would have been 45.4%, an increase of 5.3 percentage points from the 40.1% achieved in 2011.
- For 2018, the total tonnage of Scottish household waste recycled was 1.07 million tonnes, a decrease of 45,886 tonnes (4%) from 2017. Prior to 2014, household waste composted that did not reach the quality standards set by PAS 100/110 was included in the recycling figures. If such waste was included, as in the previous method, the total household waste recycled in 2018 would have been 1.09 million tonnes, which is 47,653 tonnes (5%) greater than the 1.05 million tonnes of waste recycled in 2011.

Figure 3. Scottish household waste recycling rates 2011-2018



⁴ The 2017 recycling rate has been revised downwards from 45.6% to 45.5%. Refer to Table 11, *Revisions to 2017 Scottish Waste Data*.

Table 5. Scottish household waste recycling rates 2011-2018

Recycling rate	Percentage (%)
2011 - OLD METHOD	40.1%
2012 - OLD METHOD	41.1%
2013 - OLD METHOD	42.2%
2014 - OLD METHOD	43.6%
2015 - OLD METHOD	44.8%
2014	42.8%
2015	44.1%
2016	45.0%
2017	45.5%
2018	44.7%

Note: recycled includes waste recycled or reused and waste composted

- In 2018, household waste recycled and reused comprised 691,966 tonnes (64%) of the 1.07 million tonnes of household waste recycled, with household waste composted contributing the remaining 382,716 tonnes (36%) (see Figure 4 below).

Figure 4. Breakdown of Scottish household waste recycled 2011-2018

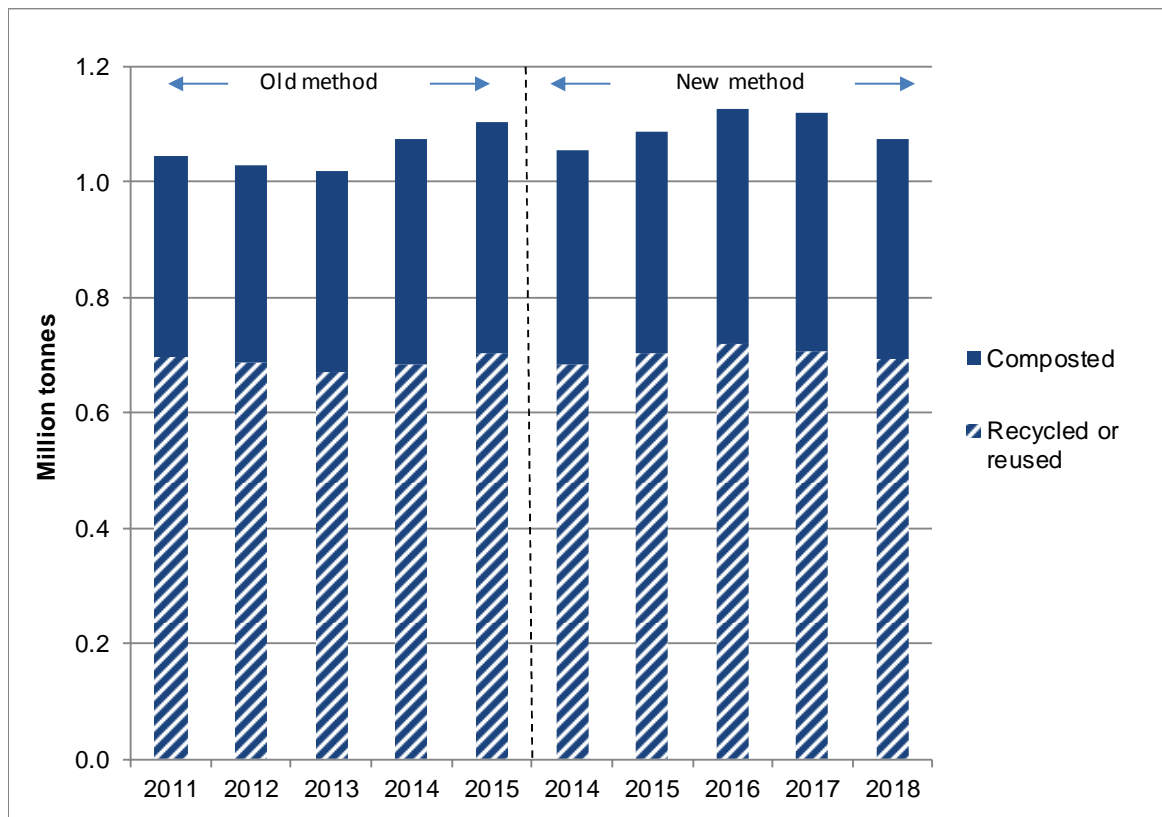


Table 6. Breakdown of Scottish household waste recycled 2011-2018

Year	Recycled + reused	Composted	Total
2011 - OLD METHOD	697,904	347,109	1,045,013
2012 - OLD METHOD	685,648	343,501	1,029,150
2013 - OLD METHOD	669,756	348,433	1,018,189
2014 - OLD METHOD	684,201	388,753	1,072,953
2015 - OLD METHOD	703,152	402,058	1,105,211
2014	684,201	369,040	1,053,241
2015	703,152	385,273	1,088,426
2016	721,181	403,743	1,124,925
2017	705,370	415,198	1,120,568
2018	691,966	382,716	1,074,682

- The 691,966 tonnes of household waste recycled or reused in 2018 was a decrease of 13,404 tonnes (2%) compared with 2017 and an decrease of 5,938 tonnes (0.9%) compared with 2011, indicating that the amount of household waste recycled or reused has remained relatively stable during the last seven years.
- The largest type of household waste recycled or reused in 2018 was Paper and cardboard wastes (209,120 tonnes, 19% of all waste recycled or reused, see Table 7 below). However, there is a general downward trend of Paper and cardboard wastes recycled or reused since 2011, with a 16,374 tonne (7%) reduction from 2017 and 31,226 tonne (13%) from 2011 (see Figure 5 below).
- In 2018 there was an increase of 8,163 tonnes (5%) of Plastic wastes recycled and an increase of 832 tonne (0.8%) of Glass wastes recycled. Recycling of Plastic wastes has increased each year for the last seven years, and Glass wastes has increased for all except one of the last seven years. The increase in plastics has been attributed to a variety of sources by local authorities, ranging from changes in waste recycling collections to increased awareness of consumers.

Figure 5 Scottish Paper and cardboard wastes recycled or reused (tonnes) 2011-2018

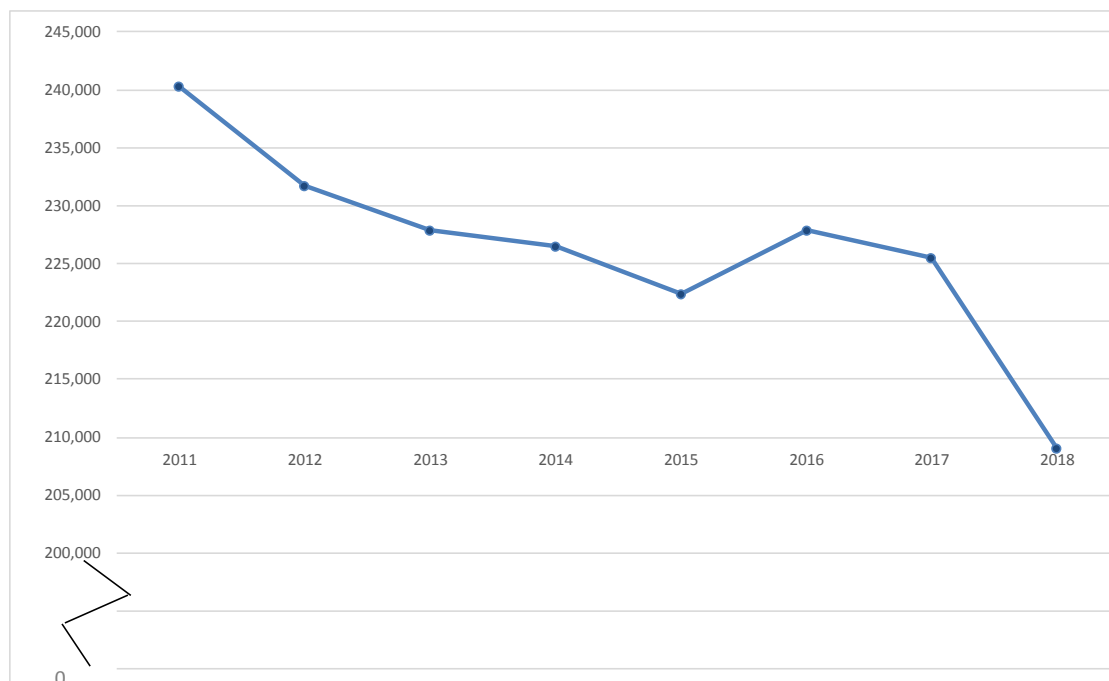


Figure 6 Scottish household waste recycled or reused by material 2011-2018

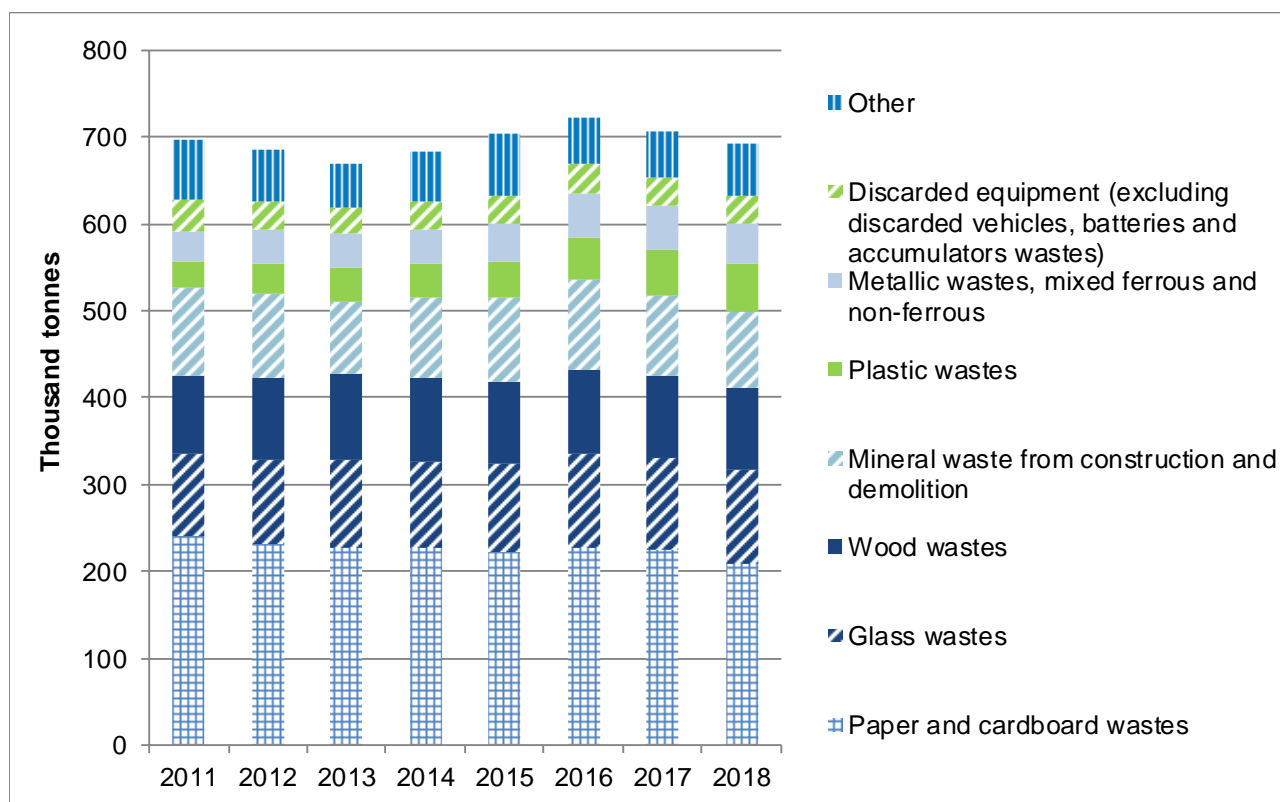


Table 7. Scottish Household waste recycled or reused by material 2011-2018 (tonnes)

Year	Paper and cardboard wastes	Glass wastes	Wood wastes	Mineral waste from construction and demolition	Plastic wastes	Metallic wastes, mixed ferrous and non-ferrous	Discarded equipment (excluding discarded vehicles, batteries and accumulators wastes)	Other	Total
2011	240,346	94,903	89,468	101,810	29,299	35,281	36,616	70,180	697,904
2012	231,776	96,658	93,857	96,701	34,528	39,082	33,743	59,304	685,648
2013	227,899	99,973	98,688	84,907	38,097	38,313	31,366	50,513	669,756
2014	226,463	100,580	94,800	93,290	39,525	39,316	31,748	58,478	684,201
2015	222,403	102,033	93,072	97,158	41,285	45,025	31,740	70,437	703,152
2016	227,921	106,548	97,672	102,974	48,422	50,935	34,378	52,331	721,181
2017	225,495	104,679	93,940	94,037	51,833	50,275	33,604	51,508	705,370
2018	209,120	107,380	94,877	86,984	56,586	45,796	30,946	60,277	691,966

- Waste composted is waste recycled by biological treatment through composting at a composting plant or through digestion at an anaerobic digestion facility.
- For 2018, the amount of Scottish household waste composted was 382,716 tonnes, a decrease of 32,482 tonnes (8%) from 2017. Prior to 2014, household waste composted that attained the quality standards set by PAS 100/110 were included in the composting figures. If such waste was included, as in the previous method, the total household waste composted in 2018 would have been 400,700 tonnes, which is 53,591 tonnes (15%) greater than the 347,109 tonnes composted in 2011.
- In 2018, three-quarters of the household waste composted was vegetal wastes (75%) with animal and mixed food waste, and wood wastes making up the remainder

(24% and 1% respectively). These proportions were similar to 2017. In 2011, the percentage of vegetal waste was higher (95%) and the percentages of animal and mixed food waste and wood waste were lower (5% and 0.1% respectively).

- For 2018, the total tonnage of Vegetal wastes composted was 287,309 tonnes, a decrease of 23,653 tonnes (8%) from 2017. Prior to 2014, vegetal wastes composted that did not reach the quality standards set by PAS 100/110 was included in the composting figures. If such waste were included, as in the previous method, the total vegetal waste composted in 2018 would have been 304,600 tonnes, which is 23,939 tonnes (7%) less than the 328,539 tonnes of vegetal wastes composted in 2011. The amount of vegetal wastes composted has been fairly constant from 2011 through 2016, with annual tonnages composted not varying from the average by over 5% over this period. At least one local authority attributed a decrease in Vegetal wastes composted in 2018 to the unusual “Beast from the east” cold weather pattern in 2018.
- For 2018, the total amount of Animal and mixed food waste composted was 91,076 tonnes, a decrease of 8,646 tonnes (9%) from 2017. Prior to 2014, Animal and mixed food waste composted that did not reach the quality standards set by PAS 100/110 was included in the composting figures. If such waste were included, as in the previous method, the total Animal and mixed food waste composted in 2018 would have been 91,418 tonnes, which is 73,314 tonnes (405%) greater than the 18,104 tonnes of food waste composted in 2011.
- For 2018, the amount of Wood wastes composted was 4,331 tonnes, a decrease of 183 tonnes (4%) from 2017, but an overall increase of 4,216 tonnes (905%) from 2011.

Figure 7. Scottish household waste composted by material 2011-2018

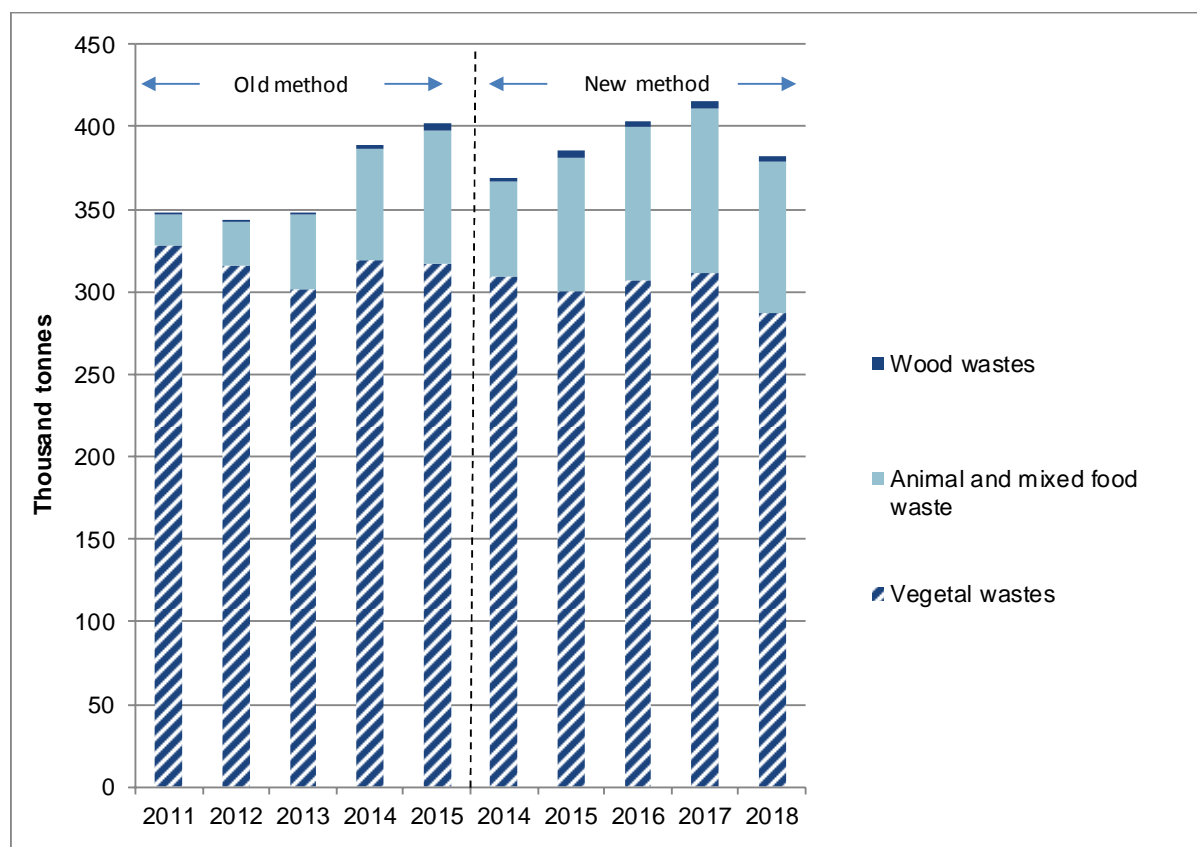


Table 8. Scottish household waste composted by material 2011-2018 (tonnes)

Year and method	Vegetal wastes	Animal and mixed food waste	Wood wastes	Total
2011 - OLD METHOD	328,539	18,104	466	347,109
2012 - OLD METHOD	315,751	26,296	1,454	343,501
2013 - OLD METHOD	300,899	45,672	1,861	348,433
2014 - OLD METHOD	319,247	67,029	2,477	388,753
2015 - OLD METHOD	316,851	81,348	3,860	402,058
2014	308,705	57,858	2,477	369,040
2015	300,463	80,951	3,860	385,273
2016	306,681	93,287	3,775	403,743
2017	310,962	99,722	4,514	415,198
2018	287,309	91,076	4,331	382,716

Other Diversion from Landfill

- Other diversion from landfill is waste material not recycled or landfilled. This includes net waste incinerated, incinerator outputs recycled, and organic material recycled that does not meet quality standards. A full description is given in the glossary.
- For 2018, the total amount of Scottish household waste managed by other diversion from landfill was 298,356 tonnes, an increase of 65,818 tonnes (28%) from the 232,538 tonnes⁵ diverted in 2017 (see Figure 8 below). Prior to 2014, household waste composted that did not reach the quality standards set by PAS 100/110 was excluded from the other diversion from landfill figures. If such waste was excluded, as in the previous method, the total amount of household waste managed by other diversion from landfill in 2018 would have been 280,372 tonnes, which is 172,541 tonnes (160%) greater than the 107,831 tonnes of other waste diverted from landfill in 2011.
- In 2018, over three-quarters of the waste diverted was managed by incineration (81%, 240,935 tonnes), followed by other treatment (13%, 39,437 tonnes) and non-certified composting/digestion (6%, 17,984 tonnes) (Figure 6 and Table 8).
- The 240,935 tonnes of Scottish household waste diverted from landfill through incineration was 65,638 tonnes (37%) greater than in 2017, and 160,319 tonnes (199%) greater in 2011, excluding incinerator outputs that are landfilled. In 2018 the total amount of Scottish household waste inputted to incineration facilities was 284,798 tonnes. The increase was primarily due to a 50,673 tonne increase (42%) of Household and similar wastes and 10,039 tonne (30%) increase of Mixed and undifferentiated materials incinerated (see Figure 9 below). Household and similar wastes comprise primarily general refuse, and Mixed and undifferentiated materials comprises primarily rejects following sorting of waste for recycling, and in previous years such wastes would be landfilled.
- There were 39,437 tonnes of waste diverted by other treatments in 2018, which was 4,941 tonnes (11%) less than in 2017. Other treatments include process loss associated with mechanical and biological treatments (e.g. production of CLO and production of RDF); process loss associated with waste composted that is disposed to landfill; and CLO diverted from landfill.

⁵ The 2017 Other diversion from landfill has been revised upwards from 230,983 tonnes to 232,538 tonnes. Refer to Table 11 on Page 17.

Figure 8. Breakdown of Scottish household waste that is not recycled or landfilled 2011-2018

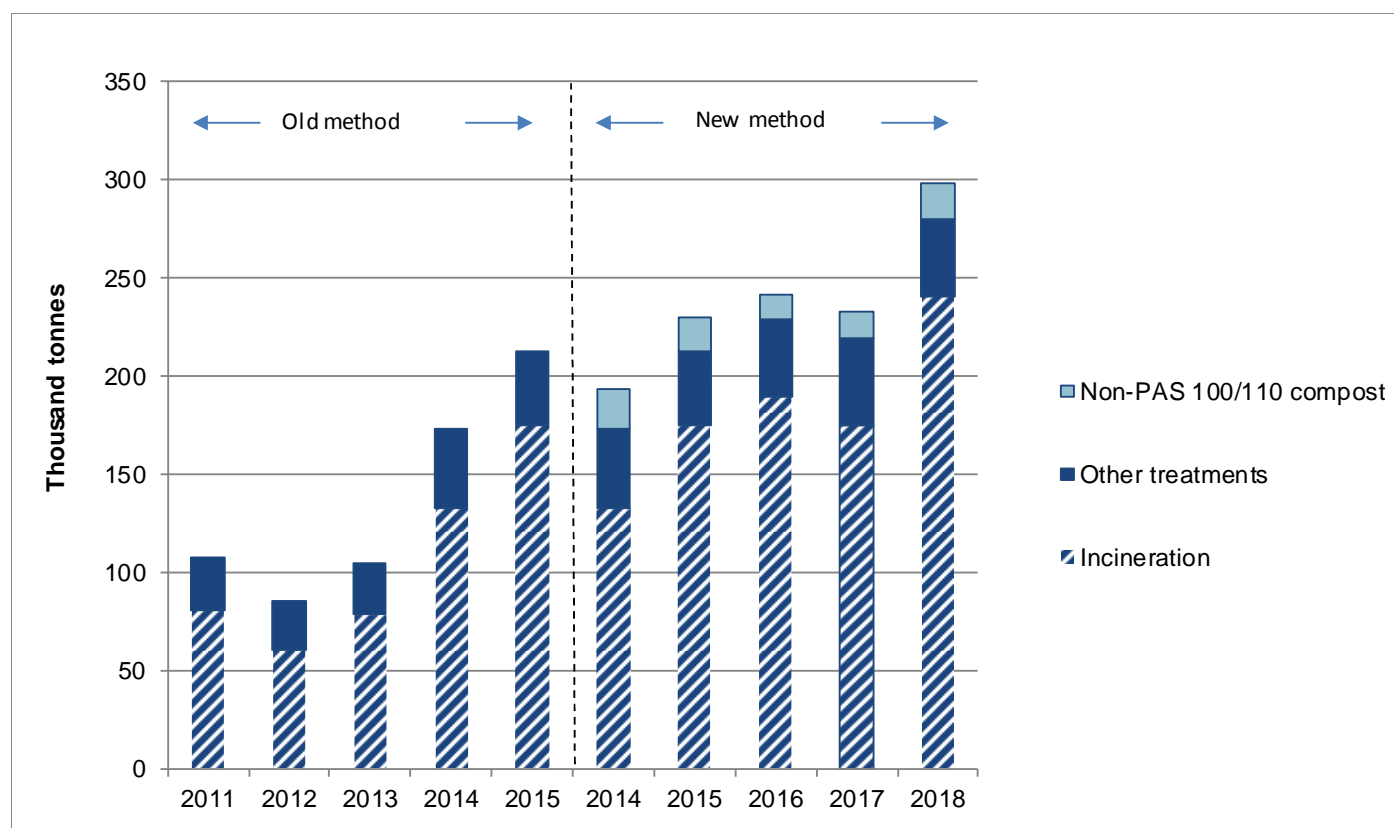


Table 9. Breakdown of Scottish household waste that is not recycled or landfilled 2011-2018 (tonnes)

Year and method	Incineration	Other treatments	Non-PAS 100/110 compost	Total
2011 - OLD METHOD	80,616	27,215	0	107,831
2012 - OLD METHOD	60,452	25,302	0	85,754
2013 - OLD METHOD	78,257	26,256	0	104,512
2014 - OLD METHOD	132,881	40,552	0	173,433
2015 - OLD METHOD	174,594	38,144	0	212,737
2014	132,881	40,552	19,713	193,146
2015	174,594	38,144	16,785	229,522
2016	189,417	39,366	13,002	241,785
2017	175,296	44,378	12,864	232,538
2018	240,935	39,437	17,984	298,356

Figure 9. Scottish household waste diverted from landfill through incineration broken down by waste category 2011-2018

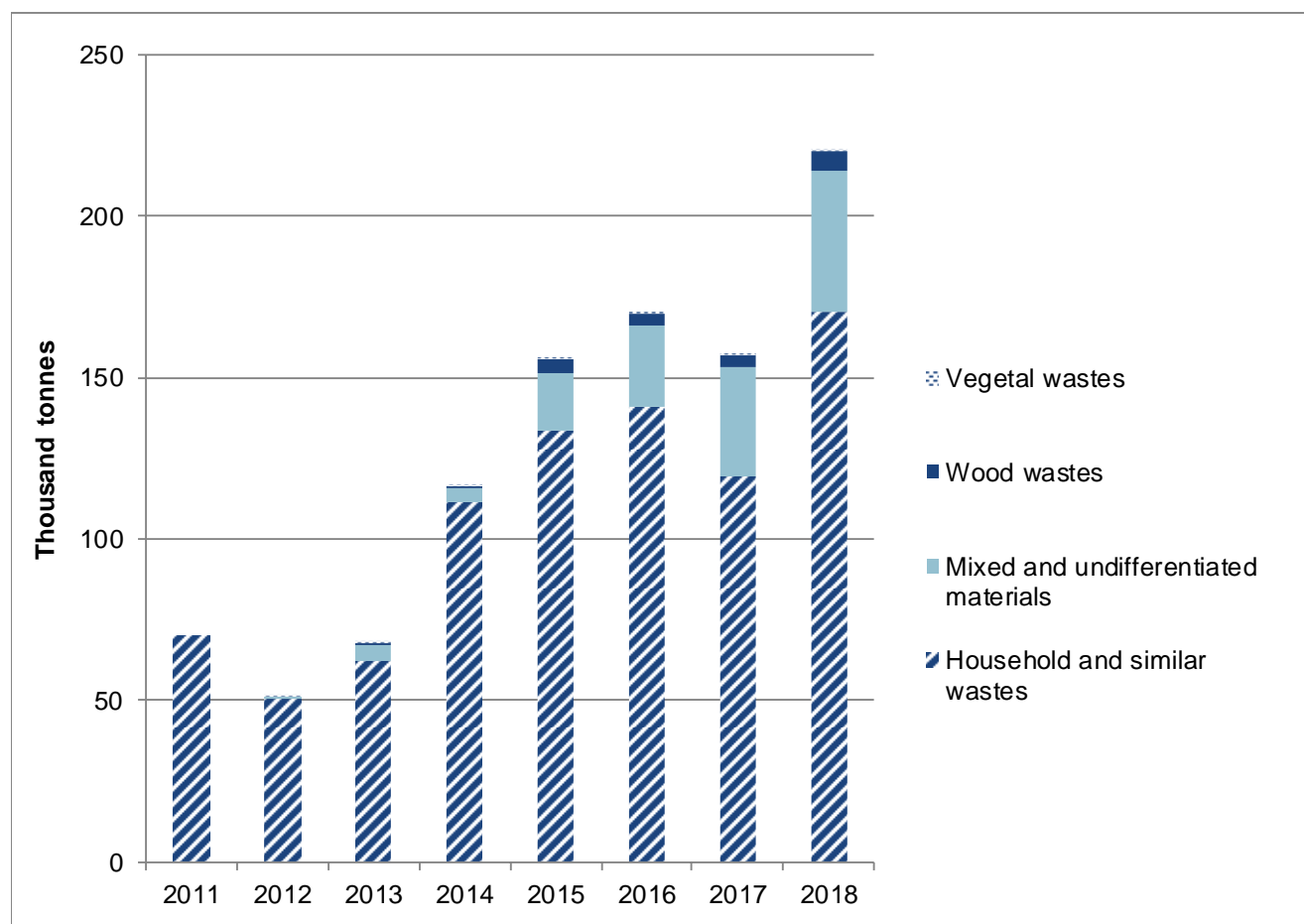


Table 10. Scottish household waste diverted from landfill through incineration broken down by waste category 2011-2018

Year	Household and similar wastes	Mixed and undifferentiated materials	Wood wastes	Vegetal wastes	Other	Total
2011	70,134	0	0	0	0	70,134
2012	50,541	429	0	502	0	51,473
2013	62,298	4,621	694	898	0	68,510
2014	111,587	4,131	534	496	1,930	118,678
2015	133,418	17,803	4,514	406	948	157,090
2016	140,699	25,198	4,094	515	95	170,601
2017	119,335	33,980	3,476	660	2,819	160,271
2018	170,008	44,019	6,005	525	235	220,792

Waste Landfilled

- The amount of household waste landfilled in 2018 was 1.03 million tonnes, a decrease of 75,491 tonnes (7%) from 2017, and a decrease of 422,322 tonnes (29%) since 2011. This is the seventh consecutive decrease in household waste landfilled since 2011. This decrease is due to in part less waste generated and partly more waste being diverted from landfill to incineration.
- For 2018, household waste landfilled as a percentage of waste generated was 42.9%, a decrease of 2.1 percentage points from 2017 and a decrease of 12.9 percentage points from 2011.
- In 2018, 94% (0.97 million tonnes) of the total household waste landfilled comprised Household and similar wastes (see Figure 10 below).
- Over one quarter (30%, 300,735 tonnes) of the total household waste landfilled first passed through another waste management facility (data not shown). This included any reject wastes from mixed waste that was sent to waste sorting facilities for segregation prior to recycling, and it also included combustion waste outputs from incineration facilities.

Figure 10. Scottish household waste landfilled by waste category 2011-2018

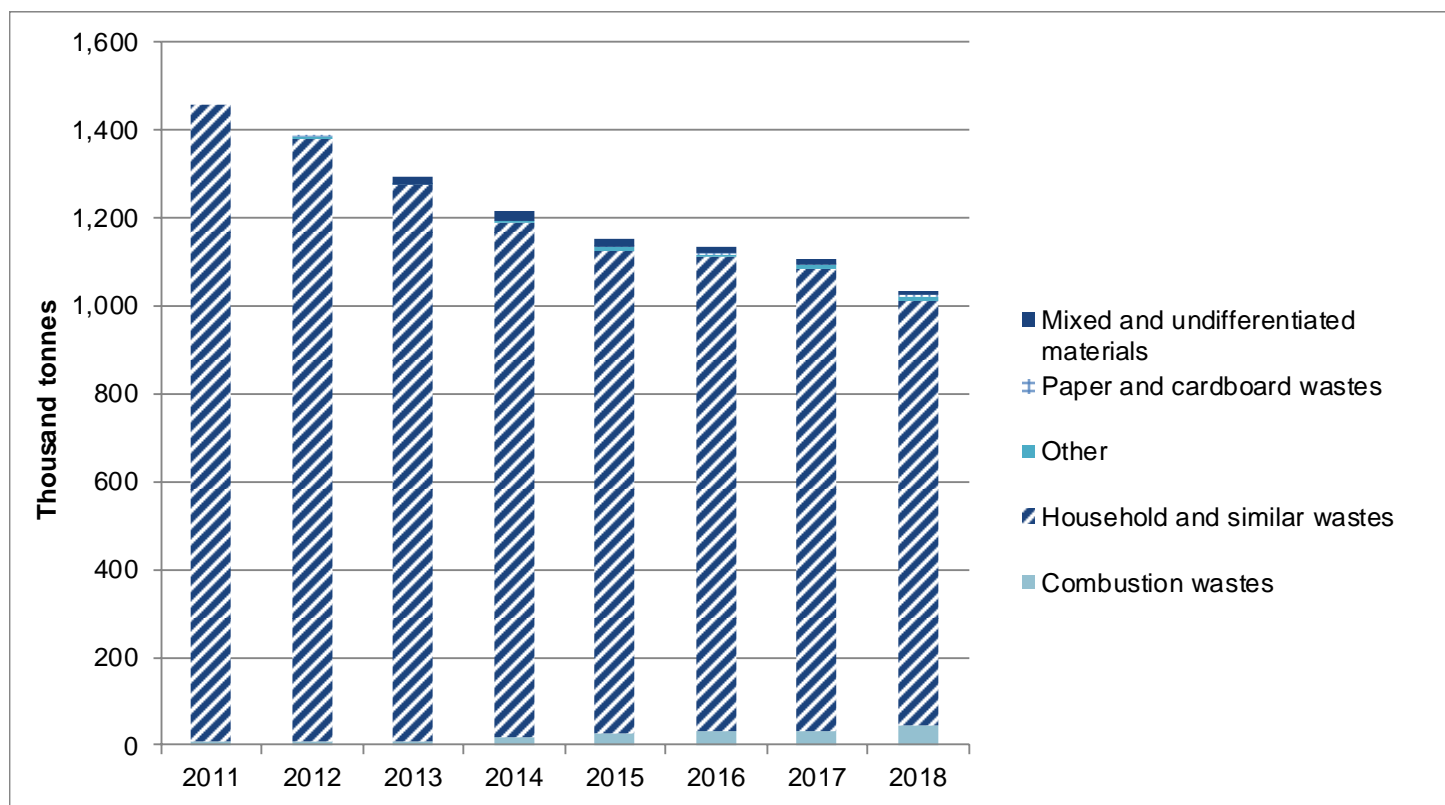


Table 11. Scottish household waste landfilled by waste category 2011-2018 (tonnes)

Year	Household and similar wastes	Combustion wastes	Mixed and undifferentiated materials	Paper and cardboard wastes	Other	Total
2011	1,443,265	10,524	0	0	0	1,453,789
2012	1,372,426	8,050	0	8	1,669	1,382,153
2013	1,264,024	8,276	15,256	37	3,236	1,290,829
2014	1,168,571	19,596	18,905	119	5,288	1,212,479
2015	1,098,473	27,324	17,470	283	6,987	1,150,537
2016	1,076,562	31,956	14,630	663	7,996	1,131,806
2017	1,050,454	31,882	14,756	1,155	8,712	1,106,959
2018	968,043	43,863	8,035	4,962	6,565	1,031,467

Carbon impacts of Scottish household waste

- The whole of life carbon impact of household waste generated and managed in 2018 was 5.76 TCO₂e. This was a decrease of 104,228 TCO₂e (2%) from 2017, and a decrease of 1,007,754 TCO₂e (15%) since 2011 (see Figure 11 below).
- The amount of waste generated by Scottish households was 8% below 2011 levels (see Page 4). In contrast, the carbon impact of Scottish household waste generated and managed in 2018 was 15% (1,007,754 TCO₂e) below the 2011 level.
- The lifecycle impact of a tonne of household waste (TCO₂e/tonnes of waste) has been steadily declining since 2011, with an 8% decrease from 2011 to 2018. This was largely a result of improved recycling rates, particularly for high impact waste materials, as well as reduction in waste generated and reduced landfilling of biodegradable waste.

Figure 11. Carbon impact of Scottish waste generated and managed 2011-2018 (TCO₂e)

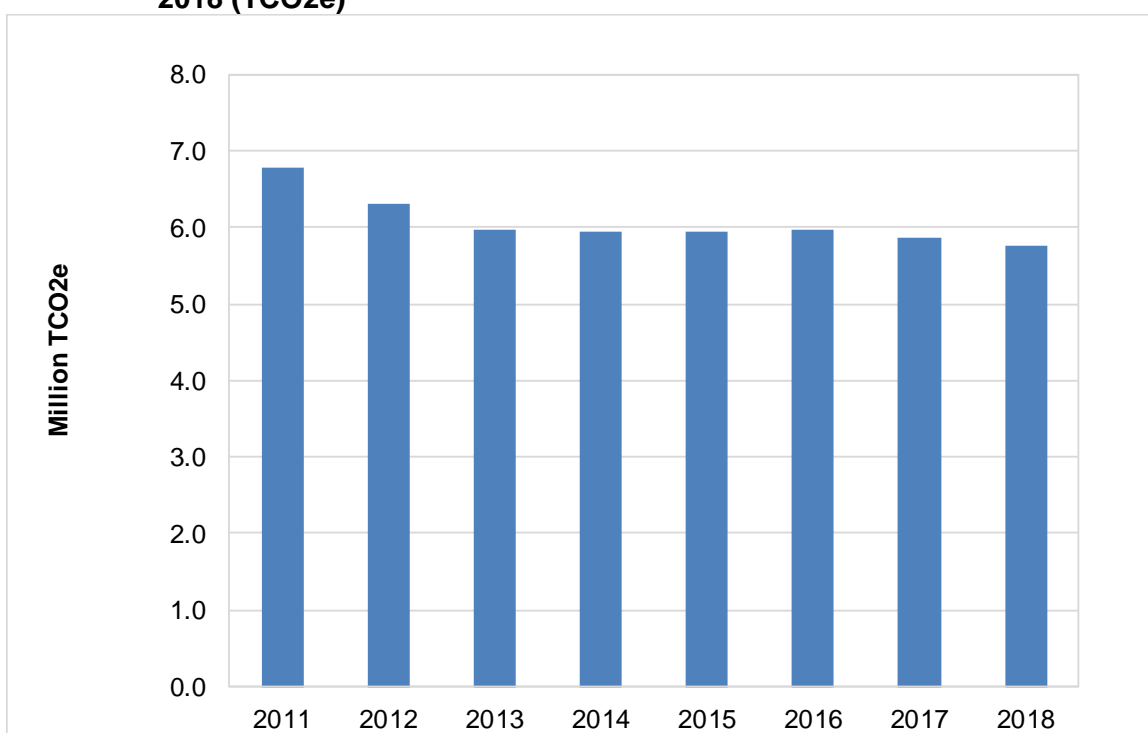


Table 12. Carbon impact of Scottish waste generated and managed 2011-2018 (TCO₂e)

Year	TCO ₂ e
2011	6,767,740
2012	6,304,982
2013	5,976,790
2014	5,946,619
2015	5,937,542
2016	5,971,329
2017	5,864,215
2018	5,759,986

DATA USES, FEEDBACK, REVISIONS POLICY, METHODOLOGY, GLOSSARY OF TERMS AND MEASURES, AND REFERENCES

User Statement

Data on Scottish household waste generation and management are collected to support policy development and monitor policy effectiveness, particularly the commitments in [Making Things Last - A Circular Economy Strategy for Scotland](#). The data are also used to meet legislative reporting targets on recycling as set out in the Waste Framework Directive (2008/98/EC), and in the Commission Decision establishing rules and calculation methods for verifying compliance with the targets set in the Waste Framework Directive (2011/753/EU) and used to fulfil the reporting requirements of the Waste Statistics Regulation (2002/2150/EC). The data are also used extensively by local and central government, the waste industry, researchers and the general public.

Feedback

We welcome feedback on the data from all users including how and why the data are used. This helps us to understand the value of the statistics to external users. Please see our contact details at the bottom of the first page of this notice or e-mail: WasteData.Flow@sepa.org.uk.

Revisions Policy

SEPA will provide information about any revisions made to published information in this statistics release and the associated datasets. Revisions could occur for various reasons, including when data from third parties is unavailable or provisional at the time of publishing or if there are subsequent methodological improvements or refinements.

The figures are accurate at the time of publication. However, the data may be updated if further revisions are necessary. Normally these revisions will be published concurrent with the next official release.

Corrections to 2017 local authority data since the last statistical publication in September 2018 are shown in Table 13 below. These corrections were published simultaneous with the 2018 dataset in September 2019.

The carbon metric method has been revised, resulting in revised data for TCO_{2e} emissions from waste (see Table 14 below). The revised methodology is for estimating the waste composition of residual waste (Household and similar wastes). Previously, the food waste content of residual waste was assumed constant and therefore unaffected by an increase in separately collected food waste, resulting in an implied increase in total household food waste over time. In the new method, total per capita food waste in source segregated and residual waste is now assumed constant, so any change in separately collected food waste tonnage will result in an equal and opposite change in residual food waste. SEPA, Zero Waste Scotland and the Scottish Government are reviewing the frequency of waste composition studies to better understand these changes in future.

Table 13. Revisions to 2017 Scottish household waste data¹

Local Authority	Generated (tonnes)		Recycled (tonnes)		Percentage Recycled (%)		Other diversion from landfill* (tonnes)		Percentage Other diversion from Landfill (%)		Landfilled (tonnes)		Percentage Landfilled (%)	
	Original	Revised	Original	Revised	Original	Revised	Original	Revised	Original	Revised	Original	Revised	Original	Revised
Aberdeen City	87,787	87,786	38,568	38,568	43.9	43.9	17,594	17,594	20.0	20.0	31,624	31,624	36.0	36.0
Aberdeenshire	127,632	127,632	55,714	55,714	43.7	43.7	1,997	1,997	1.6	1.6	69,921	69,921	54.8	54.8
Angus	56,278	56,278	31,072	31,072	55.2	55.2	11,840	11,840	21.0	21.0	13,367	13,367	23.8	23.8
Argyll and Bute	50,437	50,437	19,536	19,536	38.7	38.7	7,323	7,323	14.5	14.5	23,578	23,578	46.7	46.7
City of Edinburgh	200,720	200,720	82,277	82,277	41.0	41.0	5,206	5,206	2.6	2.6	113,237	113,237	56.4	56.4
Clackmannanshire	27,201	27,201	16,196	16,196	59.5	59.5	2,867	2,867	10.5	10.5	8,138	8,138	29.9	29.9
Dumfries and Galloway	76,289	76,289	21,245	21,245	27.8	27.8	23,318	23,318	30.6	30.6	31,725	31,725	41.6	41.6
Dundee City	64,297	64,347	22,844	22,844	35.5	35.5	37,486	37,486	58.3	58.3	4,017	4,017	6.2	6.2
East Ayrshire	55,842	55,842	29,547	29,547	52.9	52.9	5,353	5,353	9.6	9.6	20,941	20,941	37.5	37.5
East Dunbartonshire	56,445	56,445	27,043	27,043	47.9	47.9	6,295	6,295	11.2	11.2	23,107	23,107	40.9	40.9
East Lothian	50,612	50,612	26,885	26,885	53.1	53.1	227	227	0.4	0.4	23,499	23,499	46.4	46.4
East Renfrewshire	47,564	47,564	31,937	31,937	67.1	67.1	1,480	1,480	3.1	3.1	14,146	14,146	29.7	29.7
Falkirk	74,651	74,651	41,728	41,728	55.9	55.9	8,504	8,504	11.4	11.4	24,419	24,419	32.7	32.7
Fife	178,478	178,478	97,546	97,546	54.7	54.7	12,146	12,146	6.8	6.8	68,786	68,786	38.5	38.5
Glasgow City	224,525	224,524	59,876	59,876	26.7	26.7	13,706	13,706	6.1	6.1	150,943	150,943	67.2	67.2
Highland	130,190	130,190	56,704	56,704	43.6	43.6	1,493	1,493	1.1	1.1	71,966	71,966	55.3	55.3
Inverclyde	27,565	27,565	15,771	15,771	57.2	57.2	1,528	1,528	5.5	5.5	10,265	10,265	37.2	37.2
Midlothian	42,725	42,725	22,049	22,049	51.6	51.6	1,819	1,819	4.3	4.3	18,857	18,857	44.1	44.1
Moray	51,090	51,090	29,517	29,517	57.8	57.8	0	0	0.0	0.0	21,573	21,573	42.2	42.2
Na h-Eileanan Siar	14,453	14,453	3,461	3,461	23.9	23.9	1,639	1,639	11.3	11.3	9,353	9,353	64.7	64.7
North Ayrshire	62,954	62,954	35,125	35,125	55.8	55.8	1,778	1,778	2.8	2.8	26,052	26,052	41.4	41.4
North Lanarkshire	156,813	156,813	62,037	62,037	39.6	39.6	7,765	7,765	5.0	5.0	87,011	87,011	55.5	55.5
Orkney Islands	10,798	10,798	1,980	1,980	18.3	18.3	4,855	4,855	45.0	45.0	3,325	3,325	30.8	30.8
Perth and Kinross	74,789	74,789	41,578	41,578	55.6	55.6	4,715	4,715	6.3	6.3	28,496	28,496	38.1	38.1
Renfrewshire	83,526	83,526	39,923	39,923	47.8	47.8	19,871	19,871	23.8	23.8	23,641	23,641	28.3	28.3
Scottish Borders	53,471	53,471	21,324	21,324	39.9	39.9	1,555	1,555	2.9	2.9	30,593	30,593	57.2	57.2
Shetland Islands	9,754	9,754	778	778	8.0	8.0	6,798	6,798	69.7	69.7	2,178	2,178	22.3	22.3
South Ayrshire	56,772	56,772	31,349	29,794	55.2	52.5	5,295	6,850	9.3	12.1	20,128	20,128	35.5	35.5
South Lanarkshire	151,740	151,740	71,753	71,753	47.3	47.3	0	0	0.0	0.0	79,987	79,987	52.7	52.7
Stirling	40,774	40,774	22,470	22,470	55.1	55.1	6,187	6,187	15.2	15.2	12,117	12,117	29.7	29.7
West Dunbartonshire	43,551	43,551	20,735	20,735	47.6	47.6	3,654	3,654	8.4	8.4	19,162	19,162	44.0	44.0
West Lothian	71,051	71,051	43,556	43,556	61.3	61.3	6,688	6,688	9.4	9.4	20,807	20,807	29.3	29.3
Total Scotland	2,460,772	2,460,820	1,122,124	1,120,568	45.6	45.5	230,983	232,538	9.4	9.4	1,106,959	1,106,959	45.0	45.0

1. Cells shaded in grey represent revisions amounting to greater than 50 tonnes or greater than 0.1 percentage points

Table 14. Revisions to 2017 Scottish household waste carbon metric data¹

Local Authority	TCO _{2e}	
	Original	Revised
Aberdeen City	198,580	198,458
Aberdeenshire	325,283	324,744
Angus	115,900	115,851
Argyll and Bute	127,000	126,817
City of Edinburgh	507,553	506,754
Clackmannanshire	55,349	55,303
Dumfries and Galloway	220,022	219,796
Dundee City	154,653	155,826
East Ayrshire	119,536	121,303
East Dunbartonshire	130,755	130,602
East Lothian	112,099	111,918
East Renfrewshire	95,976	95,963
Falkirk	149,870	149,771
Fife	349,263	348,828
Glasgow City	680,071	678,903
Highland	321,198	320,644
Inverclyde	56,720	56,822
Midlothian	98,306	98,178
Moray	97,536	97,368
Na h-Eileanan Siar	38,652	38,582
North Ayrshire	137,512	138,758
North Lanarkshire	406,737	409,845
Orkney Islands	29,073	29,076
Perth and Kinross	141,124	140,920
Renfrewshire	195,536	195,417
Scottish Borders	134,667	134,429
Shetland Islands	31,975	32,007
South Ayrshire	126,084	126,039
South Lanarkshire	370,821	370,202
Stirling	84,605	84,556
West Dunbartonshire	104,858	104,712
West Lothian	145,935	145,822
Total Scotland	5,863,249	5,864,215

1. Cells shaded in grey represent revisions amounting to greater than 50 TCO_{2e}

Methodology

Data was submitted by all 32 Scottish local authorities using the web-based reporting tool WasteDataFlow.

From 2014, composted wastes that did not reach the quality standards set by PAS 100/110 were accounted for as other wastes diverted from landfill and not as wastes composted, except where waste was processed at a new composting or anaerobic digestion site and the site indicated they had applied for and were working toward PAS compliance, in which case a 12-month grace period was applied for the purpose of including of wastes composted in household recycling data. In 2018 there were no new sites that met this criterion.

Further details on the methodology used to produce the figures are provided in the “Household waste” section of the annual Waste Data Quality Reports on [SEPA's web site](#). Please note that household waste figures published by individual UK countries may be based on alternative calculation methodologies and as such the figures may not be directly comparable.

Release

The release of this publication is in line with release practices specified in the Code of Practice for Official Statistics. The statistics are released at the standard time of 9.30 am on a preannounced weekday date. Pre-release access to the statistics in their final form is provided to Scottish ministers and those on a list of named officials advising them 5 working days before the public release. This is to ensure that at the time of release Scottish ministers are able to comment publicly on the statistics based on a correct understanding of them.

Glossary of terms

BSI PAS 100 / 110 – a national compost/digestate benchmark that specifies the minimum requirements for the process of composting/anaerobic digestion, the selection of material from which compost/digestate is made, and standards for the compost/digestate product quality. PAS 100 is applicable to composting facilities while PAS 110 is applicable to anaerobic digestion facilities. The use of this standard to improve the quality of compost/digestate in Scotland became Scottish Government policy in 2011, with 2014 being the first year it was applied to the household official statistics.

Carbon Impact – a measure of the whole-life carbon impacts of waste, from resource extraction and manufacturing emissions, right through to waste management emissions, regardless of where in the world these impacts occur. The carbon impact of waste was developed by Zero Waste Scotland (<https://www.zerowastescotland.org.uk/content/what-carbon-metric>).

Compost like output (CLO) – partially digested waste outputs generated from the biological treatment of residual municipal solid wastes at a process that involves both mechanical and biological treatment. Outputs typically do not conform to composting standards such as PAS 100/110.

Household waste – waste generated by households (see full definition in Paragraph 1.2 of the *Zero Waste Plan - guidance for local authorities* on the [WasteDataFlow web site](#)).

Other diversion from landfill – describes the fate of waste material not recycled or landfilled. It includes:

- household waste treated by incineration, including any incinerator bottom ash and metals from bottom ash that are diverted from landfill,
- weight loss that occurs during the composting/digestion of waste to PAS 100/110 and non PAS 100/110 compost/digestate where the output is landfilled,
- CLO that is not landfilled,
- weight loss that occurs during mechanical and biological treatment processes (e.g. production of CLO and RDF),
- from 2014, any waste composted/digested that has not reached the quality standards set by PAS 100/110 and is not landfilled.

Recycling rate – waste recycled as a percentage of all waste generated. Note that total waste generated does not equal total waste managed due to stockpiled waste, which is counted in the generation figures and will be included in the managed figures in the year it is sent to final management.

Refuse derived fuel (RDF) – waste separated from residual municipal solid waste with a calorific value suitable for use as a fuel in combustion processes.

TCO_{2e} – tonnes of carbon dioxide equivalent, which is a measure that allows the comparison of greenhouse gases relative to one unit of CO₂.

Waste composted - is waste recycled by biological treatment through composting at a composting plant or through digestion at an anaerobic digestion facility.

Waste generated - is waste collected by or on behalf of local authorities that is managed within the relevant reporting year. This might include treated waste stockpiled prior to final management.

Waste landfilled – includes all household waste that is disposed of at a landfill site instead of being recycled or diverted from landfill through other methods. It also includes incinerator ash that is landfilled, plus any recycling and composting rejects that occur during collection, sorting or further treatment that go to landfill.

Waste managed - includes all wastes recycled, diverted from landfill and landfilled within the relevant reporting year. This includes stockpiled waste from a previous year sent to final management but excludes treated waste stockpiled prior to final management.

Waste recycled - includes recyclable materials that have been recycled or reused and also biodegradable materials that have been composted or digested. The amount of waste recycled, reused and composted is that accepted by the reprocessor facility. As such it excludes any recycling rejects that occur during collection, sorting or further treatment. From 2015, the composting figures using the new calculation methodology do not include any waste composted that has not reached the quality standards set by PAS 100/110.