

# Technical Note

<b>Project name</b> Nottinghamshire and Nottingham Waste Needs Assessment	<b>Project number</b> 60654055	<b>Client</b> Nottinghamshire County Council and Nottingham City Council	<b>Subject</b> Residual waste management benchmarking
<b>Date</b> 14 June 2024	<b>Issued by</b> Annette Hill	<b>Reason for issue</b> To benchmark residual waste management	<b>Prepared by</b> Annette Hill
<b>Revision No.</b> 002 - Final			

## 1. Introduction

Nottinghamshire County Council and Nottingham City Council concluded their Regulation 19 consultation on the Pre-Submission draft Waste Local Plan on 11 October 2023. In total, there were 18 respondents making 172 representations.

This Technical Note has been prepared by AECOM to support the responses to representations made on the evidence provided by the Waste Needs Assessment (WNA)<sup>1</sup> and described in Chapter 5 of the Plan, in preparation for the examination later in 2024.

This Technical Note presents the findings of an exercise to benchmark the Plan area performance against the [Environmental Targets \(Residual Waste\) \(England\) Regulations 2023](#)<sup>2</sup> residual waste long-term target, and estimate progress made towards the target by 2038 (at the end of the Plan period) if the proposed recycling scenarios are achieved.

## 2. Background

### 2.1 The Environmental Targets (Residual Waste) (England) Regulations 2023

The [Environmental Targets \(Residual Waste\) \(England\) Regulations 2023](#)<sup>2</sup> came into force on 30th January 2023 and apply in England. The Regulations set a long-term target within the area of resource efficiency and waste reduction, as required by the [Environment Act 2021](#)<sup>3</sup>, and aligns with the residual waste long-term target set out in the [Environmental Improvement Plan 2023](#)<sup>4</sup>

The Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup> set out the residual waste long-term target as:

<sup>1</sup> AECOM (2023). Nottinghamshire and Nottingham Waste Needs Assessment: 2022-2023 update. Dated May 2023.

<sup>2</sup> Environmental Targets (Residual Waste) (England) Regulations 2023 <https://www.legislation.gov.uk/uksi/2023/92/contents/made>

<sup>3</sup> Environment Act 2021 <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

<sup>4</sup> Department for Environment, Food & Rural Affairs (DEFRA) (2023). Environmental Improvement Plan 2023. Published 31 January 2023. <https://www.gov.uk/government/publications/environmental-improvement-plan>

- *the total mass of residual waste for the calendar year 2042 does not exceed 287 kilograms per head of population in England.*

Regulation 2 defines ‘residual waste’ as any waste, other than ‘excluded waste’, which originated in England and is treated by one of the following methods:

- *(a) sent to landfill in the United Kingdom;*
- *(b) put through incineration in the United Kingdom;*
- *(c) used in energy recovery in the United Kingdom (where ‘energy recovery’ means any waste treatment, excluding anaerobic digestion, which generates energy such as electricity or heat or which converts the waste into other energy products such as fuels and substitute natural gas); or*
- *(d) sent outside the United Kingdom for energy recovery.*

‘Excluded waste’ is defined in Regulation 5 as:

- *(a) waste of a type set out in the table in the Schedule; or*
- *(b) ferrous metals removed from bottom ash, with the waste code 19 01 02, which have been put through incineration or used in energy recovery in the United Kingdom and then sent for recycling.*

The ‘excluded waste’ listed in the Schedule to the Regulations (reproduced in Appendix A) mainly comprises major mineral wastes, including inert waste from construction, demolition, excavation and mining activities and wastes from the incineration or pyrolysis of waste.

## 2.2 Environmental Improvement Plan 2023

The [Environmental Improvement Plan 2023](#)<sup>4</sup> for England was published in January 2023 and is the first revision of the government’s [25 Year Environment Plan](#)<sup>5</sup> published in 2018.

The Environmental Improvement Plan 2023<sup>4</sup> continues to support the government’s goals and targets originally set out within the 25 Year Environment Plan, and includes the following targets and commitments:

- *We will eliminate avoidable waste by 2050 and double resource productivity by 2050.*
- *We will explore options for the near elimination of biodegradable municipal waste to landfill from 2028.*
- *We will eliminate avoidable plastic waste by 2042.*
- *We will seek to eliminate waste crime by 2042.*

Table 1 sets out the Environmental Improvement Plan 2023<sup>4</sup> quantitative targets for residual waste.

**Table 1. Environmental Improvement Plan 2023 targets and commitments<sup>4</sup>**

<b>Government Commitment</b>	<b>Stated Target</b>
We will halve ‘residual’ waste (excluding major mineral waste) produced per person by 2042. For the purposes of the target, we define ‘residual’ waste as waste that is sent to landfill, put through incineration or used in energy recovery in the UK, or that is sent overseas to be used in energy recovery.	Long term target: By 31 December 2042, the total mass of residual waste excluding major mineral wastes in a calendar year does not exceed 287 kg per capita.

<sup>5</sup> HM Government (2018). 25 Year Environment Plan: A Green Future: Our 25 Year Plan to Improve the Environment <https://www.gov.uk/government/publications/25-year-environment-plan>

Government Commitment	Stated Target	
The residual waste target is underpinned by the following interim targets, by 31 January 2028:		
Reduce residual waste (excluding major mineral waste) produced per person by 24%.	Interim target 1:	By 31 January 2028, the total mass of residual waste excluding major mineral wastes in the most recent full calendar year does not exceed 437 kg per capita.
Reduce residual waste (excluding major mineral waste) in total tonnes by 21%.	Interim target 2:	By 31 January 2028, the total mass of residual waste excluding major mineral waste in the most recent full calendar year does not exceed 25.5 million tonnes.
Reduce municipal residual waste produced per person by 29%.	Interim target 3:	By 31 January 2028, the total mass of municipal residual waste in a year does not exceed 333 kg per capita.
Reduce residual municipal food waste produced per person by 50%.	Interim target 4:	By 31 January 2028, the total mass of residual municipal food waste in the most recent full calendar year does not exceed 64 kg per capita. This is equivalent to a 50% reduction from 2019 levels.
Reduce residual municipal plastic waste produced per person by 45%.	Interim target 5:	By 31 January 2028, the total mass of residual municipal plastic waste in the most recent full calendar year does not exceed 42 kg per capita. This is equivalent to a 45% reduction from 2019 levels.
Reduce residual municipal paper and card waste produced per person by 26%.	Interim target 6:	By 31 January 2028, the total mass of residual municipal paper and card waste in the most recent full calendar year does not exceed 74 kg per capita. This is equivalent to a 26% reduction from 2019 levels.
Reduce residual municipal metal waste produced per person by 42%.	Interim target 7:	By 31 January 2028, the total mass of residual municipal metal waste in the most recent full calendar year does not exceed 10 kg per capita. This is equivalent to a 42% reduction from 2019 levels.
Reduce residual municipal glass waste produced per person by 48%.	Interim target 8:	By 31 January 2028, the total mass of residual municipal glass waste in the most recent full calendar year does not exceed 7 kg per capita. This is equivalent to a 48% reduction from 2019 levels.

The government proposes to deliver these targets by:

- *Implementing consistent recycling for households and businesses, to boost recycling rates.*
- *Introducing a Deposit Return Scheme for plastic and metal drinks containers from October 2025 to drive very high recycling rates.*
- *Implementing packaging Extended Producer Responsibility from 2024 to move the cost of dealing with household packaging waste from taxpayers and councils to the packaging producers.*
- *Mandating recycling labelling for packaged products by 31 March 2026 (except for plastic films and flexible which we will mandate by 31 March 2027).*
- *Banning the supply of single-use plastics like plastic plates and cutlery from October 2023.*
- *Introducing a mandatory digital waste tracking service to modernise existing waste record keeping and implement reforms to the waste carriers, brokers and dealers regime and bring forward legislation to tackle abuse of certain types of waste exemptions.*
- *Launching a call for evidence to support development of a plan to achieve the near elimination of biodegradable municipal waste going to landfill from 2028.*

## 3. Assessment

### 3.1 Baseline year (2019) residual waste per head of population

#### 3.1.1 Methodology

The residual waste long-term and interim targets are set against the performance in the baseline year of 2019. To estimate the 2019 benchmark performance for the Plan area, the Waste Needs Assessment<sup>1</sup> current waste arisings and current waste management models were updated to reflect the definition of residual waste in the Environmental Targets (Residual Waste) (England) Regulations 2023.

These updates comprised:

- Waste codes:
  - The waste codes included within the waste arisings for each waste stream were updated to exclude those defined as ‘excluded waste’ in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup> (reproduced in Appendix A).
  - Waste code 19 01 02 (ferrous metals removed from bottom ash) was also assumed to be an ‘excluded waste’, in line with Regulation 5.
- Approach to waste sub-chapter code 10 01:
  - The current waste arisings and current waste management models include the wastes with waste sub-chapter code 10 01 *wastes from power stations and other combustion plants* (where these waste codes are not ‘excluded wastes’). However, waste sub-chapter code 10 01 was excluded from the forecasted waste arisings and forecasted waste management models to both reduce the variability in the C&I waste arisings data and to account for the anticipated closure of the remaining coal-fired power stations within the Plan period. This approach is in line with the assumptions in the Waste Needs Assessment<sup>1</sup>.
- Waste streams:
  - The revised waste codes were used to update the waste arising and waste management data for the following waste streams:
    - Household, Industrial, Commercial (HIC) – including Local Authority Collected Waste (LACW) and Commercial and Industrial (C&I) waste
    - Construction, demolition and excavation (CD&E) waste
    - Agricultural waste
    - Mining waste
    - Hazardous waste
- Assessment years:
  - The revised waste arising and waste management data were prepared for the residual waste long-term target baseline year of 2019, and for the years 2020 and 2021 (the most recent years included in the Waste Needs Assessment<sup>1</sup>).
- Definition of residual waste:
  - Residual waste was assumed to comprise the waste received by combustion, incineration and landfill facilities. This assumption is in line with the definition of ‘residual waste’ in Regulation 2 of the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup>. Waste ‘sent outside the United Kingdom for energy recovery’ was not captured within the models as this information is difficult to interpret at the local authority area level due to

wastes being received by intermediary facilities, and combined with waste from other origins, prior to export.

- Calculating residual waste per head of population:
  - Residual waste per head of population was calculated by dividing the total residual waste by the population of each authority. Population data was provided by the councils based on Office for National Statistics annual population data.

### 3.1.2 Outputs

Table 2 presents the outputs for the total residual waste and residual waste per head of population for the residual waste long-term target baseline year of 2019. Table 3 presents the outputs for the residual waste long-term target baseline year of 2019, and for the years 2020 and 2021.

It should be noted that the waste quantities in Table 2 and Table 3 only include those wastes with a waste code that is not 'excluded waste' within the definition in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup>. Waste with a waste code that is 'excluded waste' within the definition in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup> is not included within this total, and the total quantity will therefore differ from the waste arisings quantities in the Waste Needs Assessment<sup>1</sup>.

Table 2 indicates that residual waste was approximately 552kg per head of population for the Plan area as a whole in 2019. This is comparable to the average figure for England of 574kg per head of population. The 2019 data indicates considerable differences in residual waste per head of population between Nottingham (1,067kg per head of population) and Nottinghamshire (350kg per head of population). The potential reasons for this have not been investigated, but these differences were also observed in the Waste Needs Assessment<sup>1</sup> for total waste arising, and may be due to the higher concentration of commercial activity within Nottingham City, as the main waste codes sent to incineration and landfill were mixed municipal wastes (20 03 01) and wastes from the mechanical treatment of waste (19 12 12).

Table 3 shows that the residual waste per head of population also varies between each of the three years. This also aligns with the variability in the C&I waste arisings observed in the Waste Needs Assessment<sup>1</sup>. The data for these baseline years includes the sub-chapter code 10 01 *wastes from power stations and other combustion plants* (where these waste codes are not 'excluded wastes'), which the Waste Needs Assessment<sup>1</sup> identified as a potential source of variability in the C&I waste arisings observed between years.

**Table 2. 2019 waste arising and waste management for waste codes included in the residual waste long-term target (baseline year)**

Area	Waste stream	Waste arisings (tonnes) [Note 1]	Waste management (tonnes) [Note 1]				Total residual waste (waste to combustion, incineration and landfill) [Note 1]		Population	Residual waste (kg) per head of population [Note 1]
			Recycling	Combustion	Incineration	Landfill	Tonnes	% of arisings		
<b>Nottingham City</b>	HIC	479,167	135,546	0	164,998	178,623	343,621	71.7%	323,160	1,063
	CD&E	15,178	15,178	0	0	0	0	0%		0
	Agricultural	87	77	0	0	10	10	11.0%		0.03
	Mining	0	0	0	0	0	0	0%		0
	Hazardous	6,277	5,103	0	69	1,105	1,174	18.7%		3.63
<b>TOTAL</b>		<b>500,710</b>	<b>155,905</b>	<b>0</b>	<b>165,067</b>	<b>179,738</b>	<b>344,805</b>	<b>68.9%</b>		<b>1,067</b>
<b>Nottinghamshire</b>	HIC	962,937	676,458	5,181	182,021	99,276	286,478	29.8%	819,900	349
	CD&E	58,482	58,482	0	0	0	0	0%		0
	Agricultural	30,833	30,813	0	0	20	20	0.1%		0.02
	Mining	0	0	0	0	0	0	0%		0
	Hazardous	40,200	40,140	0	40	21	61	0.2%		0.07
<b>TOTAL</b>		<b>1,092,452</b>	<b>805,893</b>	<b>5,181</b>	<b>182,061</b>	<b>99,317</b>	<b>286,559</b>	<b>26.2%</b>		<b>350</b>
<b>Total (Plan Area)</b>	HIC	1,442,104	812,005	5,181	347,019	277,899	630,099	43.7%	1,143,060	551
	CD&E	73,661	73,661	0	0	0	0	0%		0
	Agricultural	30,919	30,890	0	0	30	30	0.1%		0.03
	Mining	0	0	0	0	0	0	0%		0
	Hazardous	46,478	45,243	0	109	1,126	1,235	2.7%		1.08
<b>TOTAL</b>		<b>1,593,161</b>	<b>961,798</b>	<b>5,181</b>	<b>347,128</b>	<b>279,054</b>	<b>631,363</b>	<b>39.6%</b>		<b>552</b>

Note 1: The waste quantities in the table only include those wastes with a waste code that is not 'excluded waste' within the definition in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup>. Waste with a waste code that is 'excluded waste' within the definition in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup> is not included within this total, and the total quantity will therefore differ from the waste arisings quantities in the Waste Needs Assessment<sup>1</sup>.

**Table 3. Comparison of 2019, 2020 and 2021 waste arising and waste management for waste codes included in the residual waste long-term target**

Area	Waste stream	Waste arisings (tonnes) <sup>[Note 1]</sup>			Total residual waste (waste to combustion, incineration and landfill) (tonnes) <sup>[Note 1]</sup>			Residual waste (kg) per head of population <sup>[Note 1]</sup>		
		2019	2020	2021	2019	2020	2021	2019	2020	2021
<b>Nottingham City</b>	<b>Population</b>							<b>323,160</b>	<b>322,822</b>	<b>319,978</b>
	HIC	479,167	430,820	475,899	343,621	309,949	356,256	1,063	960	1,113
	CD&E	15,178	30,816	3,867	0	0	9	0	0	0
	Agricultural	87	46	1	10	8	1	0.03	0.02	0.00
	Mining	0	0	0	0	0	0	0	0	0
	Hazardous	6,277	19,663	34,574	1,174	184	467	3.63	0.57	1.46
	<b>TOTAL</b>	<b>500,710</b>	<b>481,345</b>	<b>514,342</b>	<b>344,805</b>	<b>310,141</b>	<b>356,733</b>	<b>1,067</b>	<b>961</b>	<b>1,115</b>
<b>Nottinghamshire</b>	<b>Population</b>							<b>819,900</b>	<b>822,118</b>	<b>826,132</b>
	HIC	962,937	1,161,720	1,287,573	286,478	543,379	633,211	349	661	766
	CD&E	58,482	55,048	61,945	0	0	0	0	0	0
	Agricultural	30,833	29,554	77,914	20	15	10	0.02	0.02	0.01
	Mining	0	0	0	0	0	0	0	0	0
	Hazardous	40,200	33,318	38,336	61	211	784	0.07	0.26	0.95
	<b>TOTAL</b>	<b>1,092,452</b>	<b>1,279,640</b>	<b>1,465,768</b>	<b>286,559</b>	<b>543,605</b>	<b>634,004</b>	<b>350</b>	<b>661</b>	<b>767</b>
<b>Total (Plan Area)</b>	<b>Population</b>							<b>1,143,060</b>	<b>1,144,940</b>	<b>1,146,110</b>
	HIC	1,442,104	1,592,540	1,763,472	630,099	853,328	989,467	551	745	863
	CD&E	73,661	85,864	65,812	0	0	9	0	0	0
	Agricultural	30,919	29,600	77,916	30	23	11	0.03	0.02	0.01
	Mining	0	0	0	0	0	0	0	0	0
	Hazardous	46,478	52,981	72,910	1,235	394	1,250	1.08	0.34	1.09
	<b>TOTAL</b>	<b>1,593,161</b>	<b>1,760,985</b>	<b>1,980,110</b>	<b>631,363</b>	<b>853,746</b>	<b>990,737</b>	<b>552</b>	<b>746</b>	<b>864</b>

Note 1: The waste quantities in the table only include those wastes with a waste code that is not 'excluded waste' within the definition in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup>. Waste with a waste code that is 'excluded waste' within the definition in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup> is not included within this total, and the total quantity will therefore differ from the waste arisings quantities in the Waste Needs Assessment<sup>1</sup>.

## 3.2 Forecasted residual waste per head of population

### 3.2.1 Methodology

To estimate likely progress towards the 2042 residual waste long-term target by the end of the Plan period in 2038, forecasts of future residual waste per head of population were modelled for Nottingham and Nottinghamshire. The interim targets for 2027/2028 set out in the Environmental Improvement Plan 2023 were also considered within the forecasts.

The Waste Needs Assessment<sup>1</sup> forecast waste arisings and forecast waste management models were updated to reflect the residual waste assessment requirements. These updates comprised:

- Forecast LACW and C&I waste only:
  - The baseline residual waste assessment outputs presented in Table 2 and Table 3 show that more than 99% of the total residual waste and residual waste per head of population arises from the HIC waste stream. Therefore, to simplify the process of forecasting future residual waste arisings and residual waste per head of population, only the HIC waste streams, including LACW and C&I waste, were considered within the forecasts.
- Approach to waste sub-chapter code 10 01:
  - Waste sub-chapter code 10 01 *wastes from power stations and other combustion plants* was excluded from the forecasted waste arisings and forecasted waste management models to account for the anticipated closure of the remaining coal-fired power stations within the Plan period. This approach is in line with the assumptions in the Waste Needs Assessment<sup>1</sup>.
- Forecast LACW arisings:
  - The baseline and forecasts of LACW arising were unchanged from the Waste Needs Assessment<sup>1</sup> forecasts as it is assumed that none of the LACW is 'excluded waste' in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup>.
- Forecast C&I waste arisings:
  - The forecasts of C&I waste arising were revised to incorporate the updated baseline waste arisings as shown in Table 2 and Table 3, with the LACW deducted as per the methodology applied in the Waste Needs Assessment<sup>1</sup>. The revised baseline C&I waste arisings were then forecasted by applying the assumptions included in the Waste Needs Assessment<sup>1</sup>.
- Future waste management:
  - The baseline waste management scenario for LACW was unchanged from the Waste Needs Assessment<sup>1</sup>. The baseline waste management scenario for C&I waste was revised to incorporate the updated baseline waste management as shown in Table 2 and Table 3, with the LACW deducted as per the methodology applied in the Waste Needs Assessment<sup>1</sup>. The future waste management scenarios for LACW and C&I waste were assumed to remain the same as those used in the Waste Needs Assessment<sup>1</sup>.
- Calculating residual waste per head of population:
  - Residual waste per head of population was estimated by dividing the forecast total residual waste for each year by the estimated population. Population data was provided by the councils based on Office for National Statistics annual population data. For the forecasted years, Office for National Statistics Projections rebased to 2022 mid-year estimates were used.
- Progress against the residual waste long-term target and interim targets (see Table 1):
  - Residual waste per head of population was estimated by dividing the forecast total residual waste for each year by the estimated population of the Plan area. This data was



used to estimate progress towards the residual waste long-term target and interim targets 1 and 2.

- No assessment was undertaken against Interim Targets 3 to 8 (see Table 1) because the detailed data required was not considered in the baseline models within the Waste Needs Assessment<sup>1</sup>.

### 3.2.2 Outputs

Table 4 presents the outputs for the total residual waste and residual waste per head of population for the residual waste long-term target baseline year of 2019 and forecasts to the end of the Plan period in 2038. Table 4 provides data for the low, medium and high recycling scenarios as set out in the Waste Needs Assessment<sup>1</sup>.

It should be noted that the waste quantities in Table 4 only include those wastes with a waste code that is not 'excluded waste' within the definition in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup>. Waste with a waste code that is 'excluded waste' within the definition in the Environmental Targets (Residual Waste) (England) Regulations 2023<sup>2</sup> is not included within this total, and the total quantity will therefore differ from the waste arisings quantities in the Waste Needs Assessment<sup>1</sup>.

Table 4 shows that in the preferred 'high recycling' scenario, residual waste in 2038 is estimated to be 330 kg per head of population. This represents a 40% decrease on the 2019 baseline of 551 kg per head of population. Therefore, under the preferred 'high recycling' scenario the data indicates that significant progress towards the residual waste long-term target in 2042 of 287 kg per head of population (equivalent to a 50% reduction from 2019 levels)<sup>2, 4</sup> will have been achieved by the end of the Plan period.

The Environmental Improvement Plan 2023<sup>4</sup> sets out Interim Target 1 (see Table 1) as:

- *By 31 January 2028, the total mass of residual waste excluding major mineral wastes in the most recent full calendar year does not exceed 437 kg per capita This is equivalent to a 24% reduction from 2019 levels.*

Table 4 shows that in the preferred 'high recycling' scenario, residual waste in 2027 is estimated to be 472 kg per head of population (14% reduction on 2019 levels) and in 2028 456 kg per head of population (17% reduction on 2019 levels). The interim target of 437 kg per capita is estimated to be achieved in 2029/2030.

The Environmental Improvement Plan 2023<sup>4</sup> sets out Interim Target 2 (see Table 1) as:

- *By 31 January 2028, reduce residual waste (excluding major mineral waste) in total tonnes by 21%.*

Table 4 shows that in the preferred 'high recycling' scenario, residual waste in 2027 is estimated to be approximately 565,000 tonnes. This represents a 14% reduction on 2019 levels. The interim target of 21% reduction in total residual waste tonnage is estimated to be achieved in 2030/2031.

**Table 4. Plan period progress towards the residual waste long-term target and interim targets 1 and 2**

Parameter	Year																				
	2019 [Note 1]	2020 [Note 1]	2021 [Note 1]	2021 [Note 2]	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
<b>Population ('000's) (ONS projections rebased to 2022 mid-year estimates)</b>																					
Nottingham City	323	323	320	320	329	329	331	332	334	336	337	339	340	342	343	344	345	346	346	347	347
Nottinghamshire	820	822	826	826	835	841	846	852	857	862	867	871	876	880	885	889	893	897	901	905	910
Total	1,143	1,145	1,146	1,146	1,163	1,170	1,177	1,184	1,191	1,198	1,204	1,210	1,216	1,222	1,228	1,233	1,238	1,243	1,248	1,252	1,256
<b>Total Residual Waste ('000 tonnes) (waste to EfW / incineration and landfill)</b>																					
Low recycling scenario	630	853	989	709	711	713	715	716	720	724	727	731	735	738	742	746	749	753	756	759	763
Medium recycling scenario	630	853	989	709	701	692	684	675	668	661	653	646	639	631	623	615	607	599	591	583	574
High recycling scenario	630	853	989	709	681	653	625	596	581	565	549	533	516	500	483	466	448	431	426	420	415
<b>Residual Waste (kg per head of population)</b>																					
Low recycling scenario	551	745	863	618	611	609	607	605	605	604	604	604	604	604	604	605	605	606	606	606	607
Medium recycling scenario	551	745	863	618	602	591	581	570	561	551	543	534	525	516	508	499	491	482	474	465	457
High recycling scenario	551	745	863	618	585	558	531	503	487	472	456	440	424	409	393	378	362	347	341	336	330

Note 1: The data for these years is baseline data and includes waste sub-chapter code 10 01 wastes from power stations and other combustion plant.

Note 2: The data for this year excludes waste sub-chapter code 10 01 wastes from power stations and other combustion plant and is used to forecast futures years.

## 4. Additional comments and limitations

The Waste Needs Assessment<sup>1</sup> models have a current waste arisings baseline year of 2021 from which the forecasts are projected. For C&I waste the data shows a considerable increase in the current waste arisings between 2019 (the baseline year for the 'residual waste long-term target') and 2021. In the Waste Needs Assessment<sup>1</sup> this difference was partially addressed through the exclusion of the waste sub-chapter code 10 01 *wastes from power stations and other combustion plants* from the forecasted waste arisings, due to the expected closure of the coal-fired power station in the coming years. However, the 2021 current waste arisings (excluding 10 01 wastes) are higher than the 2019 residual waste baseline (including 10 01 wastes) and the forecasts indicate that this will take a number of years to decline, leading to a delay in meeting the interim targets.

The recycling scenarios used in the Waste Needs Assessment<sup>1</sup> forecasting models are based on achieving defined recycling scenarios by a particular date. The models do not specifically include for the effect of the government interventions set out in the Environmental Improvement Plan 2023<sup>4</sup> and the timing for delivering these interventions. Monitoring the programme for these national interventions and the likely effect on the recycling scenarios may enable progress towards Interim Targets 1 and 2 to be achieved at an earlier date if step changes in recycling performance are delivered as a result of these interventions.

## Appendix A Excluded waste (The Environmental Targets (Residual Waste) (England) Regulations 2023)

Regulation 5 states:

“excluded waste” means—

(a) waste of a type set out in the table in the Schedule; or

(b) ferrous metals removed from bottom ash, with the waste code 19 01 02, which have been put through incineration or used in energy recovery in the United Kingdom and then sent for recycling<sup>6</sup>

### SCHEDULE Regulation 5

#### Excluded waste

1. The table [included as Table 5 below] sets out the types of waste which are excluded waste for the purposes of the definition of residual waste.
2. The first column of the table sets out the relevant waste code.
3. The second column of the table sets out the relevant waste description in the List of Waste.

**Table 5. Excluded waste**

Waste Code	Waste Description
01 01 01	wastes from mineral metalliferous excavation
01 01 02	wastes from mineral non-metalliferous excavation
01 03 04*	acid-generating tailings from processing of sulphide ore
01 03 05*	other tailings containing hazardous substances
01 03 06	tailings other than those mentioned in 01 03 04 and 01 03 05
01 03 07*	other wastes containing hazardous substances from physical and chemical processing of metalliferous minerals
01 03 08	dusty and powdery wastes other than those mentioned in 01 03 07
01 03 09	red mud from alumina production other than the wastes mentioned in 01 03 10
01 04 07*	wastes containing hazardous substances from physical and chemical processing of non-metalliferous minerals
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
01 04 10	dusty and powdery wastes other than those mentioned in 01 04 07
01 04 11	wastes from potash and rock salt processing other than those mentioned in 01 04 07
01 04 12	tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11
01 04 13	wastes from stone cutting and sawing other than those mentioned in 01 04 07
01 05 04	freshwater drilling muds and wastes
01 05 06*	drilling muds and other drilling wastes containing hazardous substances
01 05 07	barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
01 05 08	chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06

<sup>6</sup> For the purpose of the assessment, waste code 19 01 02 is assumed to be an excluded waste and has been added into the excluded waste table (Table 5) below.

<b>Waste Code</b>	<b>Waste Description</b>
02 04 01	soil from cleaning and washing beet
02 04 02	off-specification calcium carbonate
05 01 05*	oil spills
06 07 01*	wastes containing asbestos from electrolysis
06 09 03*	calcium-based reaction wastes containing or contaminated with hazardous substances
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03
06 11 01	calcium-based reaction wastes from titanium dioxide production
06 13 04*	wastes from asbestos processing
08 02 02	aqueous sludges containing ceramic materials
08 02 03	aqueous suspensions containing ceramic materials
10 03 05	waste alumina
10 09 05*	casting cores and moulds which have not undergone pouring containing hazardous substances
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 07*	casting cores and moulds which have undergone pouring containing hazardous substances
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 14	waste binders other than those mentioned in 10 09 13
10 10 05*	casting cores and moulds which have not undergone pouring, containing hazardous substances
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 07*	casting cores and moulds which have undergone pouring, containing hazardous substances
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 11 03	waste glass-based fibrous materials
10 11 05	particulates and dust
10 11 09*	waste preparation mixture before thermal processing, containing hazardous substances
10 11 10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 09
10 11 13*	glass-polishing and -grinding sludge containing hazardous substances
10 11 14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13
10 12 01	waste preparation mixture before thermal processing
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 11*	wastes from glazing containing heavy metals
10 12 12	wastes from glazing other than those mentioned in 10 12 11
10 13 01	waste preparation mixture before thermal processing
10 13 04	wastes from calcination and hydration of lime
10 13 06	particulates and dust (except 10 13 12 and 10 13 13)
10 13 09*	wastes from asbestos-cement manufacture containing asbestos
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 14	waste concrete and concrete sludge
11 02 02*	sludges from zinc hydrometallurgy (including jarosite, goethite)
12 01 16*	waste blasting material containing hazardous substances

<b>Waste Code</b>	<b>Waste Description</b>
12 01 17	waste blasting material other than those mentioned in 12 01 16
12 01 20*	spent grinding bodies and grinding materials containing hazardous substances
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20
15 01 11*	metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers
16 01 11*	brake pads containing asbestos
16 02 12*	discarded equipment containing free asbestos
16 11 01*	carbon-based linings and refractories from metallurgical processes containing hazardous substances
16 11 02	carbon-based linings and refractories from metallurgical processes other than those mentioned in 16 11 01
16 11 03*	other linings and refractories from metallurgical processes containing hazardous substances
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 05*	linings and refractories from non-metallurgical processes containing hazardous substances
16 11 06	linings and refractories from non-metallurgical processes other than those mentioned in 16 11 05
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 06*	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02 04*	glass, plastic and wood containing or contaminated with hazardous substances
17 03 01*	bituminous mixtures containing coal tar
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 03 03*	coal tar and tarred products
17 05 03*	soil and stones containing hazardous substances
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 05*	dredging spoil containing hazardous substances
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 07*	track ballast containing hazardous substances
17 05 08	track ballast other than those mentioned in 17 05 07
17 06 01*	insulation materials containing asbestos
17 06 03*	other insulation materials consisting of or containing hazardous substances
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05*	construction materials containing asbestos
17 08 01*	gypsum-based construction materials contaminated with hazardous substances
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01
17 09 01*	construction and demolition wastes containing mercury
17 09 03*	other construction and demolition wastes (including mixed wastes) containing hazardous substances
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

<b>Waste Code</b>	<b>Waste Description</b>
19 01 02 <sup>7</sup>	ferrous materials removed from bottom ash
19 01 05*	filter cake from gas treatment
19 01 06*	aqueous liquid wastes from gas treatment and other aqueous liquid wastes
19 01 07*	solid wastes from gas treatment
19 01 11*	bottom ash and slag containing hazardous substances
19 01 12	bottom ash and slag other than those mentioned in 19 01 11
19 01 13*	fly ash containing hazardous substances
19 01 14	fly ash other than those mentioned in 19 01 13
19 01 15*	boiler dust containing hazardous substances
19 01 16	boiler dust other than those mentioned in 19 01 15
19 01 17*	pyrolysis wastes containing hazardous substances
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	sands from fluidised beds
19 01 99	wastes not otherwise specified
19 07 02*	landfill leachate containing hazardous substances
19 07 03	landfill leachate other than those mentioned in 19 07 02
19 08 02	waste from desanding
19 09 01	solid waste from primary filtration and screenings
19 12 09	minerals (for example sand, stones)
19 13 01*	solid wastes from soil remediation containing hazardous substances
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes

<sup>7</sup> From The Environmental Targets (Residual Waste) (England) Regulations 2023, schedule 5, 'ferrous metals removed from bottom ash, with the waste code 19 01 02, which have been put through incineration or used in energy recovery in the United Kingdom and then sent for recycling'. For the purpose of the assessment, waste code 19 01 02 is assumed to be an excluded waste and has been added into the excluded waste table (Table 1).