ENERGY & UTILITY SKILLS

Workforce demand estimates – 2026 to 2032
Waste and Recycling

Summary report
November 2026



Workforce demand estimates – 2026 to 2032

Waste and Recycling

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Skills to deliver the UK's future

ENERGY & UTILITY SKILLS

Turning workforce evidence into action for a resilient waste and recycling sector.

Our ambition
A resilient waste and recycling sector that keeps the UK healthy, supports growth and protects the environment.

Our Growth
Creating jobs, skills and investment to deliver vital infrastructure across the UK.

Our Opportunity
Good careers. Stronger communities. A cleaner, greener future.

Research
Trusted evidence for action renewed every two years.

Core requirement of **48,000 people by 2032**

31% of the current workforce

Robust workforce evidence to guide investment and delivery.

- Credible, transparent forecasts and methodology.
- A consistent framework for monitoring industry progress and the accuracy of our forecasts.
- Insight across sub-industries, geographies, skill levels and occupations.

Trusted insights to inform decisions today and tomorrow.

Attract
Bring new people into the industry.

We forecast **21,000 new jobs by 2032**

14% growth in total employment

That's around **3,000** new jobs each year.

- More apprenticeships and training opportunities.
- A diverse and inclusive workforce.
- Rewarding, meaningful careers.

Attracting new talent is essential to deliver a safe, reliable and resilient waste and recycling sector.

Develop
Grow skills and embrace new technology.

Core requirement of **4,600 at RQF 3/SCQF 6 by 2032**

30% of the current workforce

Split across 1,400 in technical occupations and 3,200 in business support occupations.

- Increase productivity through innovation and technology.
- The adoption of AI and automation could reduce the core requirement by up to 4,320 people.

A more productive, higher skilled workforce that can deliver more.

Retain
Keep and develop our talented people.

We expect **27,000 retirements by 2032**

That's **18%** of today's workforce – around **3,900** people each year

- Improve job quality, health, safety and well-being.
- Create clear career pathways and progression.
- Through continuous improvement in workforce retention the industry could mitigate the effect of normal staff turnover by up to **26,600 people**.

Retaining our people protects expertise, builds stronger teams and keeps the sector moving forward.

Real economic impact. Stronger communities.

Growth as a % of current workforce
Northern Ireland = **15%**
England = **14%**
Wales = **13%**
Scotland = **12%**

21,000 new jobs could create **£738 million** of additional earnings.

By 2032, total GVA could reach between **£28 billion** and **£40 billion.**

1 About this report

1.1 Introduction

1.1.1 This report is one in a series that contain current workforce estimates and forecasts for the number of new jobs and people required across the UK energy and utilities sector between 2026 and 2032 inclusive, including:

- **Energy and utilities sector** (containing the aggregate analysis from across all six industries of the sector)
- **Community & domestic low carbon technologies** (including community and district heating, and the installation and repair of domestic gas boilers, heat pumps, smart meters, solar PV and battery storage and EV chargepoints)
- **Electricity networks** (including electrical equipment manufacturing, construction and installation, operation and maintenance and the trade of electricity)
- **Gas networks** (including the manufacture, distribution, construction of gas utility projects and retail trade of gas through the networks)
- **Power generation** (including thermal power and clean energy technologies)
- **Waste and recycling** (including the collection, treatment, disposal and recycling of waste)
- **Water and wastewater** (including the collection, treatment and supply of water; sewerage; the construction of water assets)

1.1.2 This report focuses on the UK's waste and recycling industry, which includes:

- Waste collection
- Waste treatment and disposal
- Materials recovery
- Remediation activities and other waste management services

1.1.3 This industry is defined by a series of Standard Industrial Classifications, which can be found in Annex 2.

1.2 From workforce evidence to strategic action

1.2.1 This report provides a factual estimate of the workforce required by the UK Waste & Recycling industry between 2026 and 2032. Its central purpose is to identify the gap between the number and mix of people the industry will require and the workforce available to meet that requirement.

1.2.1 The findings support the four pillars of the Energy and Utilities Skills Strategy 2025-2030[1] in distinct ways:

- **Research** provides the definitions, evidence, methodology and update cycle that make the estimates credible
- **Attract** identifies the core requirement for additional jobs and replacement of people retiring from the workforce
- **Develop** considers how productivity, artificial intelligence, automation and new working methods could reduce or reshape that requirement
- **Retain** shows how movement out of the industry could increase the number of new people who must be recruited.

1.2.2 These pillars are not separate forecasts. **Attract** provides the central workforce requirement, while **Develop** and **Retain** test the factors that could move it. **Research** establishes the credibility of the forecasts.

[1] https://euskills.co.uk/about/our-strategy/

2 Industry headlines

Figure 1: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032

Sub-Industry	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
Waste collection	76,300	85,600	9,300	*12%*	13,900	*18%*	23,200	*30%*	3,300
Waste treatment and disposal	40,600	43,900	3,200	*8%*	6,800	*17%*	10,000	*25%*	1,400
Materials recovery	27,500	34,500	7,000	*26%*	4,900	*18%*	11,900	*43%*	1,700
Remediation activities and other waste management services	9,600	11,000	1,400	*15%*	1,400	*15%*	2,900	*30%*	400
Waste & Recycling	**154,000**	**175,000**	**21,000**	***14%***	**27,000**	***18%***	**48,000**	***31%***	**6,900**

Note: Figures may not sum to the grand total due to rounding.

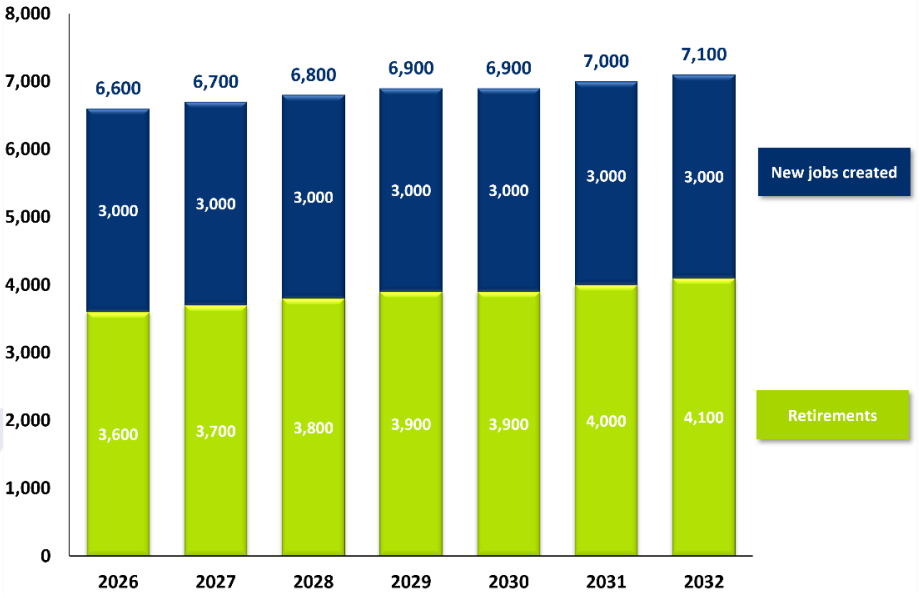
2.1 Attract: The core workforce requirement

2.1.1 Waste & Recycling has a core requirement for 48,000 people by 2032, equivalent to 31% of the current workforce. Employment is projected to increase from 154,000 to 175,000, creating 21,000 new jobs (14% growth), while 27,000 retirements account for the larger share of workforce demand.

2.1.2 Annual workforce demand rises gradually from 6,600 people in 2026 to 7,100 in 2032, indicating a sustained and slightly increasing recruitment requirement across the forecast period.

2.1.3 Retirements are the largest driver of annual workforce demand, increasing from 3,600 people in 2026 to 4,100 in 2032. New job creation remains constant at 3,000 people per year, meaning workforce renewal becomes increasingly important over the period.

Figure 2: Core requirement for people by year and cause



Note: Figures may not sum to the grand total due to rounding.

2.2 Develop: Potential impact of artificial intelligence and automation on 'At Risk of Reduction' occupations

2.2.1 Section 3 below systematically assesses how artificial intelligence, automation and associated technologies might affect workforce demand across individual occupations. It applies low, medium and high adoption scenarios across seven dimensions of technological adoption and classifies each occupation according to whether workforce demand is *At Risk of Reduction, Significantly Impacted, Augmented* or subject to *Limited Impact*.

2.2.2 The following occupations are *At Risk of Reduction* in their core workforce requirements as a result of these new technologies:

- 71 - Sales Occupations
- 72 - Customer Service Occupations
- 41 - Administrative Occupations
- 42 - Secretarial and Related Occupations
- 92 - Elementary Administration and Service Occupations
- 34 - Culture, Media and Sports Occupations
- 62 - Leisure, Travel and Related Personal Service Occupations

2.2.3 Together, these occupations have a core requirement of 14,400 people by 2032, equivalent to 30% of the overall core requirement. This identifies the part of the forecast most exposed to potential workforce demand reduction; it does not imply that the core requirement for people by 2032 could be reduced by 14,400.

2.2.4 Our analysis indicates that the potential impact of AI and automation on the *At Risk of Reduction* occupations (listed in paragraph 2.2.2 above) could be:

- 580 people under the low adoption scenario (equivalent to a reduction of up to 4%)
- Between 720–2,160 under the medium adoption scenario (equivalent to a reduction of between 5% to 15%)
- Between 2,300–4,320 under the high adoption scenario (equivalent to a reduction of between 16% to 30%)

2.2.5 These are illustrative sensitivity assumptions rather than forecasts of job losses.

2.2.6 Section 3 presents the detailed occupation-level assessment under each adoption scenario, with the full analytical framework set out in Annex A2.4.

2.3 Retain: Replacement demand sensitivity

2.3.1 In addition to the core requirement for people based on new job creation and retirements, we must consider the extent to which people might leave the workforce in order to take up employment in other sectors of the economy (or move overseas).

2.3.2 For this analysis we have not included any vacancies that may be created by one person leaving their job in the Waste & Recycling industry and taking up another position within the same industry.

2.3.3 As detailed in Annex 2.2, we have assumed a proportion of the workforce will leave each year for reasons other than retirement – these annual proportions range from 2% to 5% depending on the occupation.

2.3.4 In total, in addition to the core requirement for 48,000 people by 2032, an additional 26,600 people may be needed to fill vacancies by those who leave the workforce for other reasons

Figure 3: Potential additional vacancies (over-and-above the core requirement)

Sub-Industry	Number	*% of current workforce*
Waste Collection	12,500	*16%*
Waste Treatment and Disposal	7,200	*18%*
Materials Recovery	4,900	*18%*
Remediation activities and other waste management services	2,000	*21%*
Waste & Recycling	**26,600**	*17%*

Note: Figures may not sum to the grand total due to rounding.

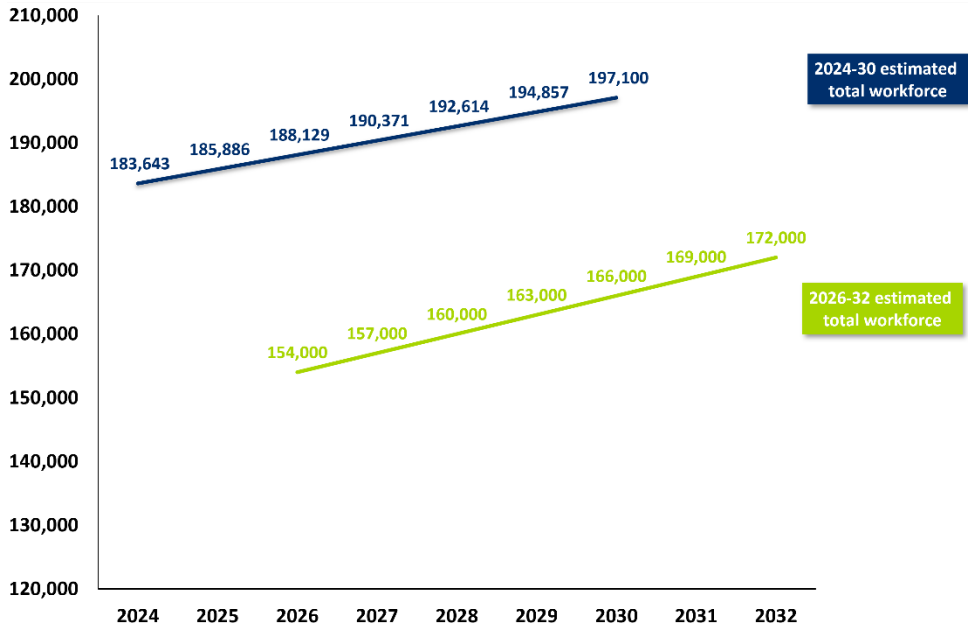
2.3.5 The challenge for the industry will be to minimise these additional vacancies, while recognising that some level of staff turnover is generally considered positive in terms of bringing in a diversity of people, experiences and ideas. Commitment 3: Retain experience and widen access to opportunity in the Call to Action below provides further information on how the sector might achieve improvements in workforce retention.

2.4 Research: Maintaining the credibility of these forecasts

2.4.1 These workforce demand estimates were published for the first time in 2024 and will be updated every two years.

2.4.2 In order to assess how our forecasts of workforce growth have changed since our 2024 forecasts, the figure below presents our latest forecasts side-by-side.

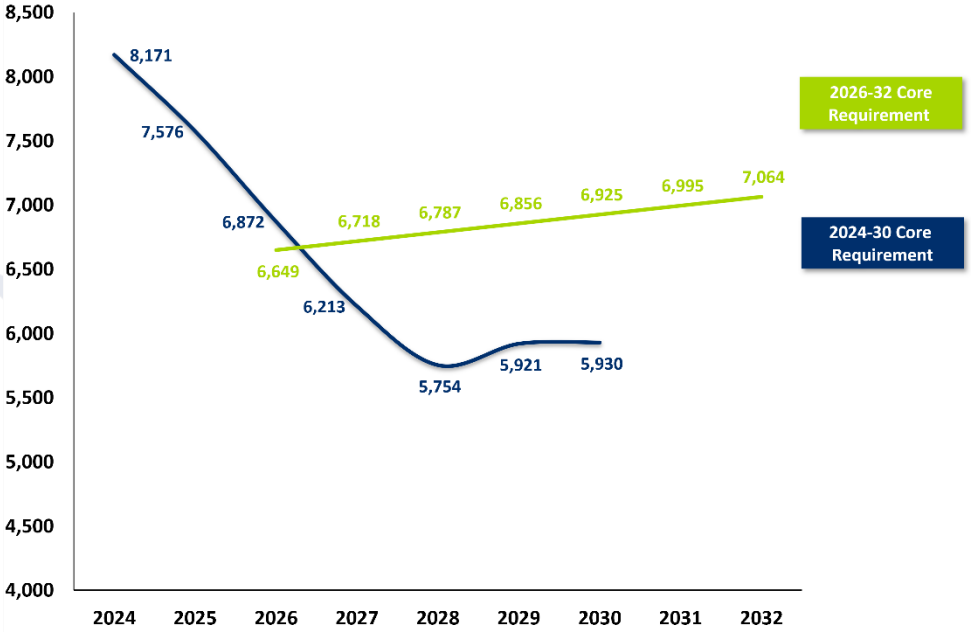
Figure 4: Forecast total workforce for 2026-32 compared to 2024-30 forecast



2.4.3 Across the 2026 to 2032 period, our new forecasts of total employment in the waste & recycling industry are consistently c30,000 people below the levels we forecast in 2024.

2.4.4 As the scope and definition of the waste & recycling industry has not changed since our last analysis, the principal reason for this appears to be changes to the data reported by Lightcast. Since 2024, their "datarun" has been updated five times. It is not possible to recreate the 2024 estimates in the Lightcast system, but it does appear that total workforce numbers have been revised down.

Figure 5: Forecast core requirement for 2026-32 compared to 2024-30 forecast



2.4.5 Our aim, wherever possible, is to improve the accuracy of these workforce demand estimates with each update.

2.5 Nations and regions

2.5.1 England accounts for the majority of workforce demand, requiring 39,400 of the 48,000 people needed by 2032.

2.5.2 Northern Ireland faces the greatest relative workforce pressure, with a core requirement equivalent to 33% of its current workforce, compared with 31% in England and 30% in Scotland and Wales. However, in absolute terms, requirements outside England are largest in Scotland at 3,700 people, followed by Wales at 2,900 and Northern Ireland at 2,000.

2.5.3 The South East has the largest regional workforce requirement at 6,800 people, followed by the North West (6,100) and Yorkshire & The Humber (4,900). Relative demand is highest in the North East at 34% of its current workforce, compared with around 30–32% across the other English regions.

Figure 6: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by nation and region

Nation & Region	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
England	126,100	143,500	17,300	*14%*	22,100	*18%*	39,400	*31%*	5,600
Northern Ireland	6,100	7,100	900	*15%*	1,100	*18%*	2,000	*33%*	300
Scotland	12,300	13,800	1,500	*12%*	2,100	*17%*	3,700	*30%*	500
Wales	9,400	10,700	1,200	*13%*	1,700	*18%*	2,900	*30%*	400
United Kingdom	**154,000**	**175,000**	**21,000**	***14%***	**27,000**	***18%***	**48,000**	***31%***	**6,900**
English regions									
East of England	13,000	14,800	1,800	*14%*	2,300	*18%*	4,100	*31%*	600
East Midlands	10,700	12,200	1,500	*14%*	1,800	*17%*	3,300	*31%*	500
London	14,600	16,400	1,900	*13%*	2,600	*18%*	4,500	*31%*	600
North East	6,800	7,900	1,100	*16%*	1,200	*17%*	2,300	*34%*	300
North West	19,100	21,800	2,700	*14%*	3,400	*18%*	6,100	*32%*	900
South East	22,200	25,200	3,000	*13%*	3,900	*17%*	6,800	*31%*	1,000
South West	12,300	14,100	1,800	*14%*	2,200	*18%*	3,900	*32%*	600
West Midlands	11,100	12,700	1,600	*14%*	1,900	*18%*	3,500	*32%*	500
Yorkshire & The Humber	16,200	18,300	2,100	*13%*	2,800	*17%*	4,900	*30%*	700

Note: Figures may not sum to the grand total due to rounding.

2.6 Skills and occupations

Skill levels

2.6.2 RQF 1 occupations account for the largest share of workforce demand, requiring 33,500 people by 2032, equivalent to 33% of the current workforce.

2.6.3 RQF 3 has the second-largest requirement at 4,600 people, followed by RQF 7–8 at 3,500 and RQF 4–5 at 3,200. This shows that, despite the concentration at RQF 1, recruitment requirements extend across all skill levels.

2.6.4 RQF 1 and RQF 7–8 face the greatest relative workforce pressures, with core requirements equivalent to 33% of their current workforces. For RQF 1, retirements are particularly significant, accounting for 19,900 of the 33,500 people required.

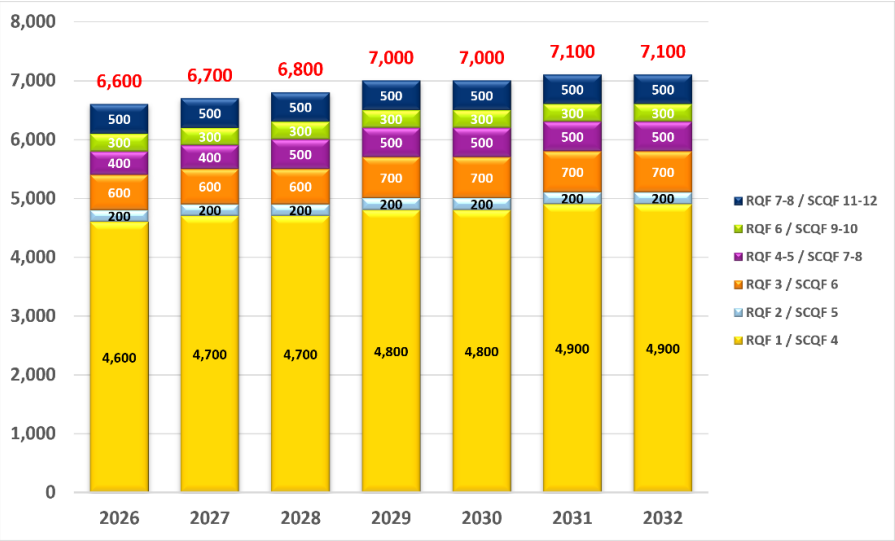
Figure 7: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by skill level

RQF/SCQF Level	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
RQF 7-8 SCQF 11-12	10,700	12,400	1,700	*15%*	1,900	*18%*	3,500	*33%*	500
RQF 6 SCQF 9-10	8,500	9,700	1,200	*14%*	900	*10%*	2,100	*25%*	300
RQF 4-5 SCQF 7-8	12,100	14,000	1,900	*16%*	1,300	*11%*	3,200	*26%*	500
RQF 3 SCQF 6	15,300	17,500	2,100	*14%*	2,400	*16%*	4,600	*30%*	700
RQF 2 SCQF 5	4,300	4,800	500	*12%*	600	*13%*	1,100	*25%*	200
RQF 1 SCQF 4	103,000	116,600	13,600	*13%*	19,900	*19%*	33,500	*33%*	4,800
Waste & Recycling	**154,000**	**175,000**	**21,000**	***14%***	**27,000**	***18%***	**48,000**	***31%***	**6,900**

Note: Figures may not sum to the grand total due to rounding.

2.6.5 The next figure shows the annual core requirement for people by skill level.

Figure 8: Core requirement for people by skill level and year



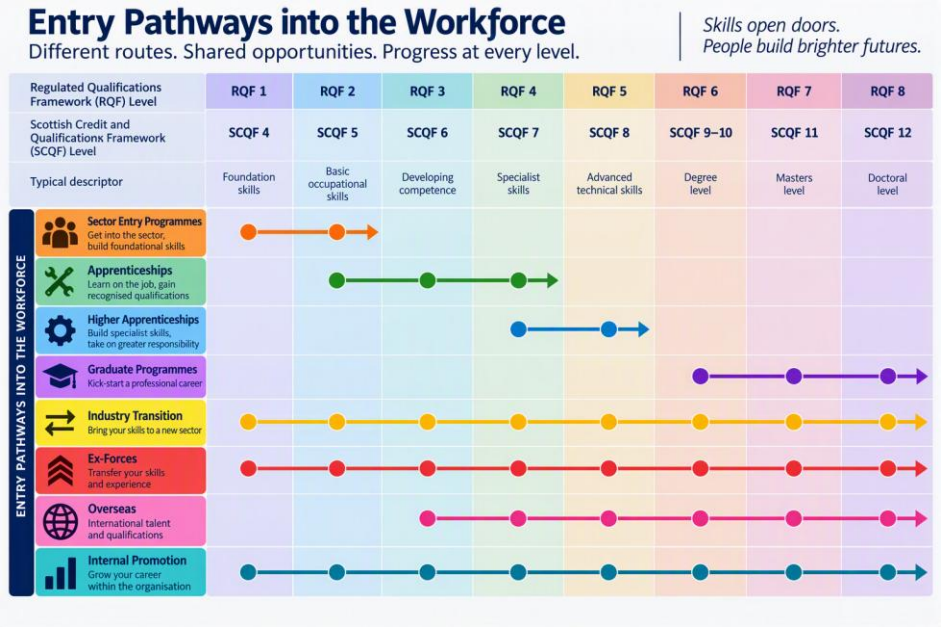
Note: Figures may not sum to the grand total due to rounding.

2.6.6 The entry pathways into the workforce will vary depending upon the skill level of the occupation. Each entry pathway will have its unique characteristics in terms of lead-time to competency and entry point into the workforce.

2.6.7 At skill levels 1 and 2 (4-5 in Scotland), sector entry-type programmes could provide an immediate solution. At skill levels 3-5 (6-8 in Scotland), a number of entry pathways may be appropriate, but lead-times to competency will determine the extent to which they are able to satisfy immediate demands (e.g. with training lead-times of 3 years+ for an apprentice (and the associated need for trainers, assessors and mentors), increasing the volume in the pipeline now will not produce positive outcomes until the turn of the decade).

2.6.8 Transitioning in experienced workers from other sectors will be a priority, as will developing the existing workforce and enabling career progression via internal promotions. However, this process cannot be rushed to point where people are promoted prematurely.

Figure 9: Potential entry pathways into the workforce



2.6.9 Industry will make use of range of different recruitment and training pathways, providing a balanced approach to meeting both short-term and longer-term demands for people.

Occupations

2.6.10 This analysis is based on UK's Standard Occupational Classification system at the two-digit – sub-major group – level.

2.6.11 All our estimates and forecasts have been broken down by 26 occupations – based on the two-digit Standard Occupational Classification taxonomy. Furthermore, these have been grouped into five occupational groups (more information can be found in Annex 1 below):

- **Managerial**: Directors and functional managers
- **Technical Professional**: Typically, science and engineering professional engineers
- **Business Support**: Typically, roles including media, marketing, site security, and specialist roles such as quantity surveyor, estimator and procurement
- **Front Line Technical**: Typically, operative and craft level workers such as Plant Operator, Driver, Recycling Operative, etc.
  - Waste & recycling is the only industry in this series of reports where SOC 92 - Elementary Administration and Service Occupations is classified within the Front Line Technical occupational group (as it includes job titles such as Refuse Loader; Waste Collection Operative; Recycling Operative – Manual Sorting; Street Cleansing Operative; Litter Picker; HWRC/Site Operative; Warehouse Operative; Security Officer). In the other industry reports, this occupation is included within the Business Support occupational group.
- **Other**: In the main, these occupations are generally not directly relevant to the core activities of the industry, but data collection processes may result in a small number of people being reported (e.g. nurses/first aiders, community development specialists, etc.).

2.6.12 Front Line Technical occupations dominate workforce demand in Waste & Recycling, requiring 34,900 people by 2032.

Figure 10: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by broad occupational group

Broad Occupational Group	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
Managerial	10,700	12,400	1,700	*15%*	1,900	*18%*	3,500	*33%*	500
Technical Professional	6,700	7,600	900	*14%*	600	*10%*	1,600	*24%*	200
Business Support	27,700	31,600	3,900	*14%*	3,700	*13%*	7,500	*27%*	1,100
Front Line Technical	107,500	121,800	14,300	*13%*	20,600	*19%*	34,900	*32%*	5,000
Other	1,500	1,700	200	*14%*	200	*15%*	400	*29%*	100
Waste & Recycling	**154,000**	**175,000**	**21,000**	***14%***	**27,000**	***18%***	**48,000**	***31%***	**6,900**

Note: Figures may not sum to the grand total due to rounding.

2.6.13 Business Support occupations have the second-largest requirement at 7,500 people, followed by Managerial occupations at 3,500. Together with Front Line Technical roles, these groups account for 45,900 people, around 96% of the core requirement.

2.6.14 Figure 11 below breaks down these broad occupational groups into 26 two-digit SOC.

Figure 11: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by occupation

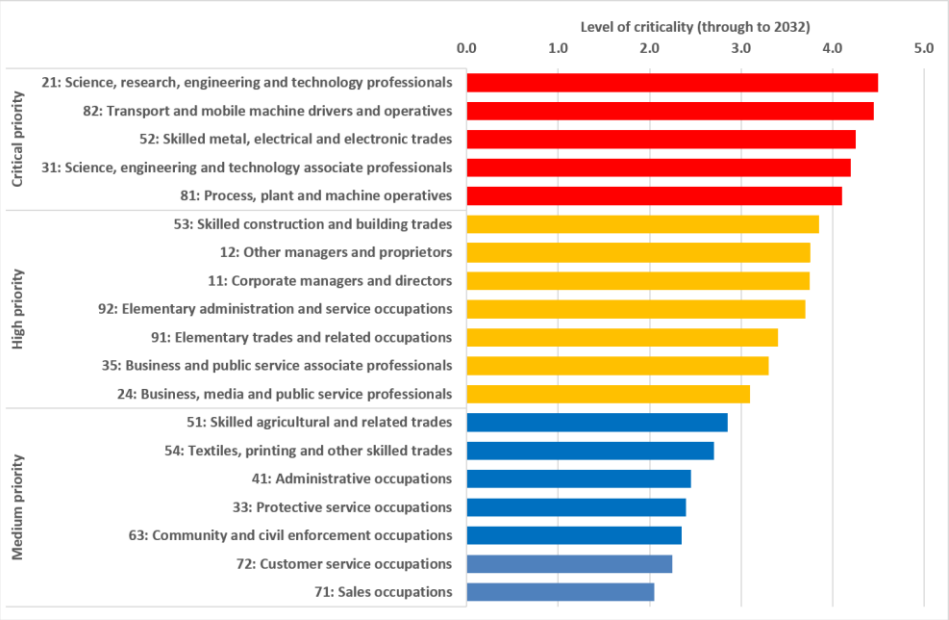
Skill level	Standard Occupational Classification (Sub-Major Group)	Total employment		New jobs created		Retirements		Core requirement for people		
		2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
RQF 7-8 SCQF 11-12	11 - Corporate Managers and Directors	5,500	6,300	800	15%	1,000	17%	1,800	32%	300
	12 - Other Managers and Proprietors	5,200	6,000	800	16%	900	18%	1,800	34%	300
RQF 6 SCQF 9-10	21 - Science, Research, Engineering and Technology Professionals	4,900	5,500	700	14%	400	9%	1,100	23%	200
	22 - Health Professionals	400	500	100	17%	100	14%	100	30%	<100
	23 - Teaching and Other Educational Professionals	0	0	0	--	0	--	0	--	0
	24 - Business, Media and Public Service Professionals	3,300	3,700	500	14%	400	12%	900	26%	100
RQF 4-5 SCQF 7-8	31 - Science, Engineering and Technology Associate Professionals	1,800	2,100	300	15%	200	11%	500	26%	100
	32 - Health and Social Care Associate Professionals	200	200	0	11%	<100	15%	100	26%	<100
	33 - Protective Service Occupations	500	500	0	8%	<100	7%	100	16%	<100
	34 - Culture, Media and Sports Occupations	0	0	0	--	0	--	0	--	0
	35 - Business and Public Service Associate Professionals	9,600	11,200	1,600	16%	1,000	11%	2,600	27%	400
RQF 3 SCQF 6	41 - Administrative Occupations	9,800	11,100	1,300	13%	1,600	16%	2,800	29%	400
	42 - Secretarial and Related Occupations	800	900	100	15%	200	23%	300	38%	<100
	51 - Skilled Agricultural and Related Trades	200	200	0	12%	<100	28%	100	41%	<100
	52 - Skilled Metal, Electrical and Electronic Trades	3,400	4,000	600	17%	500	15%	1,100	32%	200
	53 - Skilled Construction and Building Trades	900	1,000	100	12%	100	15%	200	27%	<100
	54 - Textiles, Printing and Other Skilled Trades	200	300	100	23%	<100	15%	100	38%	<100
	61 - Caring Personal Service Occupations	300	400	0	12%	100	16%	100	28%	<100
	62 - Leisure, Travel and Related Personal Service Occupations	300	300	0	10%	100	16%	100	25%	<100
	63 - Community and Civil Enforcement Occupations	0	0	0	--	0	--	0	--	0
RQF 2 SCQF 5	71 - Sales Occupations	3,000	3,300	300	11%	400	13%	700	25%	100
	72 - Customer Service Occupations	700	800	100	15%	100	10%	200	24%	<100
RQF 1 SCQF 4	81 - Process, Plant and Machine Operatives	5,300	6,100	800	16%	1,000	18%	1,800	34%	300
	82 - Transport and Mobile Machine Drivers and Operatives	42,900	48,400	5,500	13%	10,600	25%	16,200	38%	2,300
	91 - Elementary Trades and Related Occupations	3,300	3,900	600	17%	600	17%	1,100	34%	200
	92 - Elementary Administration and Service Occupations	51,500	58,200	6,600	13%	7,700	15%	14,400	28%	2,100
Waste & Recycling		**154,000**	**175,000**	**21,000**	*14%*	**27,000**	*18%*	**48,000**	*31%*	**6,900**

Note: Figures may not sum to the grand total due to rounding.

2.6.15 In order to assess how critical each occupation is to success of the industry through to 2032, we have developed a criticality framework based on 11 criteria. Further details of this methodology can be found in Annex 2.

2.6.16 The figure below ranks each occupation in terms of their level of criticality based on this framework – those occupations ranked as low criticality are not shown.

Figure 12: Forecasted level of occupational criticality through to 2032



2.6.17 Five occupations are ranked as critical:

- 21 – Science, research, engineering and technology professionals
- 82 – Transport and mobile machine drivers and operatives
- 52 – Skilled metal, electrical and electronic trades
- 31 – Science, engineering and technology associate professionals
- 81 – Process, plant and machine operatives

2.6.18 These occupations are likely to be major constraints on infrastructure delivery by 2032 because they combine high delivery criticality, existing shortages, long training lead times, regulatory importance and limited scalability. It is likely that immediate intervention is required, including targeted workforce strategies, apprenticeships, retraining programmes, recruitment campaigns and supply-chain action.

2.6.19 By 2032, these five critical occupations are forecast to account for 7,900 new jobs and a core requirement for 20,700 people.

2.6.20 Seven occupations are ranked as high priority:

- 53 – Skilled construction and building trades
- 11 – Corporate managers and directors
- 12 – Other managers and proprietors
- 92 – Elementary administration and service occupations
- 91 – Elementary trades and related occupations
- 35 – Business and public service associate professionals
- 24 – Business, media and public service professionals

2.6.21 These occupations present a significant workforce risk and are likely to experience recruitment pressure but are not expected to be a critical bottleneck across the industry. Active monitoring and targeted interventions is required.

2.6.22 By 2032, these seven high-priority occupations are forecast to account for 11,000 new jobs and a core requirement for 22,800 people.

2.6.23 Together, critical and high-priority occupations account for around 18,900 new jobs and a core requirement for more than 43,500 people.

2.6.24 Furthermore, we have applied this same methodology to a more detailed taxonomy of occupations – the four-digit Unit Group of occupations.

2.6.25 18 detailed occupations have been identified as being a critical priority for the waste & recycling industry over the next seven years. These are listed in Figure 13 below, along with estimates of the current and future workforce, new jobs created and the core requirement for people.

2.6.26 These critical detailed occupations are forecast to grow by 5,900 jobs and need 14,800 new people by 2032.

2.6.27 Mobile machine drivers and operatives has the highest core requirement of 7,800 (or 1,100 per year). Crane drivers follow, requiring 2,900 people (400 per year).

Figure 13: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 in critical priority occupations (four-digit Unit Group)

Skill level	Standard Occupational Classification (Unit Group)	Total employment		New jobs created		Retirements		Core requirement for people		
		2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
RQF 1 SCQF 4	8229 - Mobile machine drivers and operatives n.e.c.	20,600	23,300	2,700	13%	5,100	25%	7,800	38%	1,100
RQF 1 SCQF 4	8221 - Crane drivers	7,500	8,500	1,000	13%	1,900	25%	2,900	39%	400
RQF 1 SCQF 4	9139 - Elementary process plant occupations n.e.c.	2,900	3,400	500	17%	500	17%	1,000	34%	100
RQF 1 SCQF 4	8133 - Energy plant operatives	2,400	2,700	300	13%	400	17%	700	29%	100
RQF 3 SCQF 6	5241 - Electricians and electrical fitters	1,500	1,800	300	20%	200	13%	500	33%	100
RQF 1 SCQF 4	8211 - Large goods vehicle drivers	900	1,000	100	11%	200	22%	300	33%	<100
RQF 3 SCQF 6	5223 - Metal working production and maintenance fitters	800	1,000	200	25%	100	13%	300	38%	<100
RQF 6 SCQF 9-10	2123 - Electrical engineers	600	700	100	17%	100	17%	200	33%	<100
RQF 4-5 SCQF 7-8	3113 - Engineering technicians	900	1,000	100	11%	100	11%	200	22%	<100
RQF 4-5 SCQF 7-8	3582 - Health and safety managers and officers	700	800	100	14%	100	14%	200	29%	<100
RQF 6 SCQF 9-10	2122 - Mechanical engineers	500	600	100	20%	0	--	100	20%	<100
RQF 6 SCQF 9-10	2127 - Engineering project managers and project engineers	300	400	100	33%	0	--	100	33%	<100

Note: Figures may not sum to the grand total due to rounding.

Skill level	Standard Occupational Classification (Unit Group)	Total employment		New jobs created		Retirements		Core requirement for people		
		2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
RQF 6 SCQF 9-10	**2152 - Environment professionals**	300	400	100	*33%*	0	--	100	*37%*	<100
RQF 7-8 SCQF 11-12	**1241 - Managers in transport and distribution**	500	500	0	--	100	*20%*	100	*20%*	<100
RQF 4-5 SCQF 7-8	**3112 - Electrical and electronics technicians**	200	300	100	*50%*	0	--	100	*50%*	<100
RQF 3 SCQF 6	**5246 - Electrical service and maintenance mechanics and repairers**	100	200	100	*100%*	0	*0%*	100	*100%*	<100
RQF 6 SCQF 9-10	**2482 - Quality assurance and regulatory professionals**	500	500	0	--	100	*20%*	100	*20%*	<100
RQF 3 SCQF 6	**5249 - Electrical and electronic trades n.e.c.**	100	200	100	*100%*	0	--	100	*100%*	<100
Waste & Recycling – Critical priority detailed occupations		**41,200**	**47,100**	**5,900**	***14%***	**8,900**	***22%***	**14,800**	***36%***	**2,100**

Note: Figures may not sum to the grand total due to rounding.

3 Impact of artificial intelligence and automation on workforce demands

3.1.1 CIWM identifies AI-powered sorting as a key enabler of future recycling-system performance, particularly as waste volumes increase and material streams become more complex. According to CIWM, AI and robotics can support continuous operation of recycling facilities while improving the identification of recyclable materials beyond traditional manual sorting methods[2].

3.1.2 AI-powered computer vision, machine learning and robotic sorting systems are increasingly being deployed in recycling facilities to identify, classify and separate materials at high speed. These technologies can improve sorting accuracy, increase material recovery rates and reduce contamination within recycling streams. Automated and robotic sorting systems can undertake many activities that have traditionally relied on manual labour[3].

3.1.3 AI and automation are likely to have a more direct operational impact than in many other utilities sectors because a significant proportion of activity involves sorting, identification, material handling, logistics and processing – all areas where computer vision, robotics and machine learning are rapidly advancing.

3.1.4 The waste and recycling industry is undergoing a broader digital transformation through the introduction of digital waste-tracking systems and increased use of operational data. These initiatives aim to improve visibility of waste flows, reduce waste crime and provide more comprehensive information on material movements across the value chain.

3.1.5 Defra and the Environment Agency describe digital waste tracking as a transition from largely paper-based systems towards near real-time monitoring of waste movements, creating a more transparent and data-rich operating environment.[4]

3.1.6 As a result, demand for skills is increasingly shifting towards:

- Data skills
- Analytics
- Operational monitoring
- Digital compliance

3.1.7 There are, however, occupations which are highly exposed to automation because a significant proportion of their activity involves routine sorting, material identification, inspection or administrative processing. These include:

- **Waste sorters** — Computer vision, optical sorting and robotic sorting systems can increasingly identify and separate recyclable materials that have traditionally been sorted manually.

[2] Smarter waste: How AI is powering the UK's recycling revolution

[3] AI Revolution in Waste Sorting: 2026 Update, Waste Institute, March 2026

[4] Digital waste tracking: What is it and why it matters – Environment

- **Recycling operatives** — Automated sorting, materials handling systems and AI-enabled quality-control technologies can reduce the need for routine processing and sorting activities.
- **Materials recovery facility operatives** — AI-powered sorting, automated contamination detection and robotics can undertake increasing volumes of repetitive sorting and recovery activities while workers focus on oversight and exception management.
- **Weighbridge operators** — Digital waste-tracking systems, automated data capture and integrated reporting systems can reduce manual recording and transaction-processing activities, shifting the role towards validation, exception management and customer interaction.
- **Quality-control and inspection roles** — Machine vision and AI-enabled monitoring systems can identify contamination, material composition and quality issues more consistently and at higher speed than manual inspection processes.
- **Administrative support roles** — Compliance reporting, document management, scheduling, invoicing and workflow administration are increasingly supported by AI assistants and process automation tools.
- **Customer service roles** — AI-powered customer-service platforms, virtual assistants and self-service portals can automate routine enquiries, service requests and customer communications.

3.1.8 The following assessment considers how workforce demand may be affected under different levels of AI and automation adoption within the waste and recycling industry. Occupational groups have been classified according to their likely workforce-demand response to AI and automation adoption:

- **At Risk of Reduction** – Fewer workers may be required because AI and automation increase productivity and automate routine tasks.
- **Significantly Impacted** – Workforce demand remains broadly stable, but roles undergo substantial redesign as tasks, skills, responsibilities and workflows change significantly.
- **Augmented** – AI and automation improve productivity, decision-making and performance, but primarily enhance rather than redesign core roles, and demand for workers remains strong.
- **Limited Impact** – Little expected effect on workforce demand because activities continue to depend heavily on physical intervention, human interaction or site-based work.

3.1.9 Both *Significantly Impacted* and *Augmented* occupations are expected to experience widespread adoption of AI and automation. The key difference is that significantly impacted occupations are expected to undergo substantial job redesign, while augmented occupations primarily experience productivity and performance improvements with limited changes to the core nature of the roles.

3.1.10 Low, medium and high adoption scenarios have been developed using a seven-dimension framework covering:

- investment and pace of adoption;
- technology maturity and autonomy;
- breadth of deployment;
- depth of workflow integration;

- task automation and augmentation;
- job redesign and skills transformation;
- productivity ambition.

3.1.11 These adoption scenarios describe the extent to which AI and automation are deployed within the industry. The occupational assessment then considers how different occupations may be affected under each adoption scenario.

3.1.12 The scenarios are intended to illustrate a range of plausible outcomes through to 2032 rather than predict a single future state:

- **Low Adoption** — AI and automation adoption remains relatively limited and focused on specific use cases. Organisations deploy individual tools for activities such as information retrieval, reporting, scheduling, basic analytics or administrative support, but these technologies are not extensively integrated into operational workflows. Most work continues to be undertaken using existing processes and workforce-demand impacts are limited.
- **Medium adoption** — AI and automation become mainstream across many organisations and functions. Proven technologies are integrated into business processes and support activities such as planning, monitoring, customer engagement, decision support and predictive maintenance. Roles and skill requirements begin to evolve, productivity improves and organisations increasingly use technology to redesign workflows and operating practices.
- **High adoption** — AI and automation are extensively embedded across organisational processes, operational activities and decision-making. Technologies are integrated with core systems, data and workflows, enabling significant automation, augmentation and workflow redesign. Organisations achieve substantial productivity gains and workforce demand is affected according to the exposure of the occupation group, with impacts ranging from workforce reduction in some roles to significant augmentation in others.

3.1.13 Potential workforce effects are assessed separately through the occupational risk categories and scenario analysis.

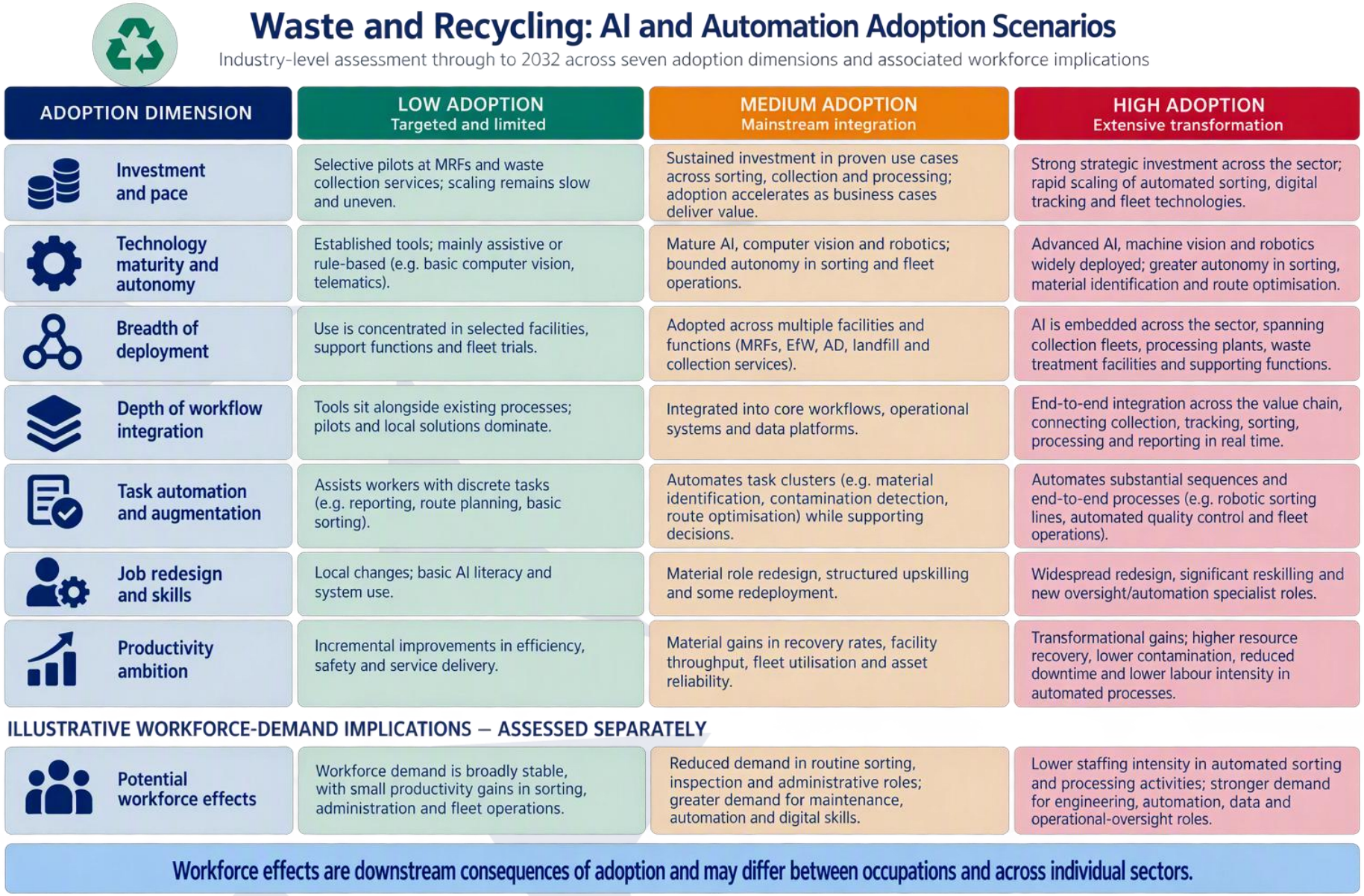
3.1.14 It is important to note that higher levels of AI and automation adoption do not automatically result in workforce reductions; impacts vary according to the characteristics of individual occupations and the extent to which tasks can be automated. Actual workforce outcomes will also depend on wider drivers including investment levels, regulatory requirements, infrastructure programmes, technological maturity and future demand for waste and recycling services.

Figure 14: Assessment of AI and automation risk by occupation

Risk category	Standard Occupational Classification	Occupational Group	Adoption Scenarios		
			Low Adoption	Medium Adoption	High Adoption
At Risk of Reduction	71 - Sales Occupations 72 - Customer Service Occupations 41 - Administrative Occupations 42 - Secretarial and Related Occupations 92 - Elementary Administration and Service Occupations 34 - Culture, Media and Sports Occupations	Business Support	AI is used mainly for document management, reporting, scheduling and customer-service support. Most administrative activities remain human-led and workforce demand remains broadly stable.	AI is routinely used for customer enquiries, digital waste-tracking administration, compliance documentation, reporting and scheduling. Productivity improves while recruitment demand slows as routine tasks are increasingly automated.	AI is deeply integrated across digital waste tracking, compliance reporting, contract administration and workflow management. Automated processes, virtual assistants and AI-generated reporting significantly reduce routine support activities and lower staffing intensity.
	62 - Leisure, Travel and Related Personal Service Occupations	Other	AI supports content creation, communications and stakeholder engagement activities. Human oversight remains central to most work.	Generative AI becomes widely used for communications, engagement materials, scheduling and content production. Routine support activities become increasingly automated.	AI automates large elements of communications production, marketing content and routine coordination activities, reducing demand for repetitive support work.
Significantly Impacted	24 - Business, Media and Public Service Professionals 35 - Business and Public Service Associate Professionals	Business Support	AI supports regulatory reporting, contract management, procurement and performance analysis. Most professional judgement remains unchanged.	AI becomes embedded within environmental compliance, resource planning, waste-tracking analysis and commercial reporting. Roles increasingly focus on interpretation, validation and assurance.	AI undertakes significant portions of performance reporting, compliance analysis, forecasting and procurement support. Roles are redesigned around oversight, governance and decision-making, requiring substantial reskilling.
	54 - Textiles, Printing and Other Skilled Trades	Other	AI-assisted design, production and workflow-management tools support existing processes, with limited changes to role requirements.	Intelligent design and production systems automate routine production activities, increasing demand for digital and systems-management skills.	AI is embedded throughout production workflows. Workers increasingly manage, quality-assure and optimise machine-generated outputs rather than producing them manually.
	31 - Science, Engineering and Technology Associate Professionals	Technical Professional	AI supports condition monitoring, equipment diagnostics and technical reporting across waste-processing and recycling facilities. Existing technician roles remain broadly unchanged.	Predictive maintenance, digital twins and AI-enabled equipment diagnostics become increasingly common across processing facilities. Technicians increasingly use AI to identify faults and optimise plant performance.	AI is deeply integrated into equipment diagnostics, asset management and maintenance planning. Roles shift towards interpreting AI outputs and overseeing increasingly autonomous processing systems.
	81 - Process, Plant and Machine Operatives	Front Line Technical	Automation mainly supports sorting, materials handling and operational monitoring. Plant operatives remain responsible for routine operational decisions.	Computer vision, optical sorting and automated quality-control systems become widespread within recycling and resource-recovery facilities. Workers increasingly oversee automated processes and respond to AI-generated insights.	Robotic sorting, computer vision, automated contamination detection and intelligent process-control systems significantly reshape operational roles. Workers increasingly manage exceptions, system assurance and plant optimisation rather than undertaking routine sorting and monitoring activities.

Risk category	Standard Occupational Classification	Occupational Group	Adoption Scenarios		
			Low Adoption	Medium Adoption	High Adoption
Augmented	11 - Corporate Managers and Directors	Managerial	Managers use AI for reporting, performance monitoring and operational information retrieval. Decision-making remains largely unchanged.	AI supports resource planning, facility performance management, workforce scheduling and fleet optimisation, enabling more data-driven management.	AI is embedded across operational planning, resource allocation, performance management and regulatory reporting. Managers achieve significant productivity gains while retaining accountability for operational and environmental outcomes.
	12 - Other Managers and Proprietors				
	21 - Science, Research, Engineering and Technology Professionals	Technical Professional	AI supports engineering analysis, asset reviews and process-improvement activities across waste-treatment and recycling facilities.	AI-enabled modelling, digital twins and advanced analytics improve processing efficiency, resource recovery and maintenance planning.	AI is deeply embedded in plant optimisation, process engineering, asset management and facility design. Productivity improves significantly while demand for engineering professionals remains strong.
	22 - Health Professionals 23 - Teaching and Other Educational Professionals 32 - Health and Social Care Associate Professionals	Other	AI supports training preparation, information management and administrative activities, with limited impact on workforce demand.	AI enhances workforce training, knowledge management and professional support activities, increasing demand for digital skills.	AI supports learning, skills analysis and workforce planning, making training and occupational-health activities more data-driven while workforce demand remains stable.
	33 - Protective Service Occupations	Business Support	AI supports site-security monitoring, surveillance and risk-detection activities, with limited changes to working practices.	Intelligent monitoring systems improve incident detection, threat identification and site-security management.	AI significantly improves surveillance, threat detection and incident response coordination. Human judgement remains essential for security, enforcement and emergency-response activities.
	51 - Skilled Agricultural and Related Trades	Front Line Technical	AI supports route planning, inspection scheduling, equipment monitoring and basic diagnostics. Most physical maintenance activities remain unchanged.	Predictive maintenance, fleet telematics and AI-assisted diagnostics improve efficiency across collection fleets, transfer stations and processing facilities. Workers increasingly use digital decision-support tools.	AI enhances maintenance planning, condition monitoring, route optimisation and equipment diagnostics. Workers increasingly use AI-generated insights and automated monitoring systems, but physical maintenance and operational intervention remain essential.
	82 - Transport and Mobile Machine Drivers and Operatives				
	52 - Skilled Metal, Electrical and Electronic Trades				
Limited Impact	53 - Skilled Construction and Building Trades	Front Line Technical	AI is limited to digital work instructions, scheduling tools and basic planning support, with little change to core physical work.	AI supports project planning, safety management and site coordination, but construction and manual site activities remain labour-intensive.	Physical construction, infrastructure development and site-based work remain essential. AI improves productivity and safety but has limited impact on workforce demand.
	91 - Elementary Trades and Related Occupations				
	61 - Caring Personal Service Occupations	Other	AI provides limited administrative support but has little influence on core activities.	Digital tools improve coordination and access to information, although work remains heavily dependent on human interaction and judgement.	Technology supports planning and information management but does not significantly alter workforce demand due to the inherently interpersonal nature of the work.
	63 - Community and Civil Enforcement Occupations				

Figure 15: Waste and recycling AI and automation adoption scenarios



4 Sub-industry forecasts

4.1 Waste collection

Figure 16: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by sub-industry

Sub-Industry	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
Waste & Recycling – Waste Collection	76,300	85,600	9,300	*12%*	13,900	*18%*	23,200	*30%*	3,300

Note: Figures may not sum to the grand total due to rounding.

4.1.1 Waste Collection has a core requirement for 23,200 people by 2032, equivalent to 30% of the current workforce. Employment is projected to increase from 76,300 to 85,600, creating 9,300 new jobs (12% growth), while 13,900 retirements account for the larger share of demand.

4.1.2 Annual workforce demand increases steadily from 3,210 people in 2026 to 3,410 in 2032, indicating a sustained and gradually increasing recruitment requirement throughout the forecast period.

4.1.3 Retirements are the main driver of annual workforce demand, rising from 1,880 people in 2026 to 2,080 by 2032. New job creation remains constant at around 1,330 people per year, meaning workforce renewal becomes an increasingly important component of demand over time.

Figure 17: Core requirement for people by year and cause



Note: Figures may not sum to the grand total due to rounding.

4.1.4 England accounts for the majority of Waste Collection workforce demand, requiring 19,000 of the 23,200 people needed by 2032.

4.1.5 Scotland requires 1,600 people, Wales 1,400 and Northern Ireland 1,200 by 2032.

4.1.6 Within England, workforce demand is highest in the North West at 3,500 people, followed closely by London (3,400) and the South East (3,100). Requirements are lowest in the North East at 400 people, reflecting the considerably smaller existing workforce.

Figure 18: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by nation and region

Nation & Region	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
England	62,700	70,300	7,700	*12%*	11,400	*18%*	19,000	*30%*	2,700
Northern Ireland	3,900	4,400	500	*12%*	700	*18%*	1,200	*30%*	200
Scotland	5,100	5,800	600	*12%*	1,000	*18%*	1,600	*30%*	200
Wales	4,600	5,100	600	*12%*	800	*18%*	1,400	*30%*	200
United Kingdom	**76,300**	**85,600**	**9,300**	***12%***	**13,900**	***18%***	**23,200**	***30%***	**3,300**
English regions									
East of England	7,200	8,000	900	*12%*	1,300	*18%*	2,200	*30%*	300
East Midlands	4,900	5,500	600	*12%*	900	*18%*	1,500	*30%*	200
London	11,100	12,400	1,400	*12%*	2,000	*18%*	3,400	*30%*	500
North East	1,300	1,500	200	*12%*	200	*18%*	400	*30%*	100
North West	11,400	12,800	1,400	*12%*	2,100	*18%*	3,500	*30%*	500
South East	10,300	11,600	1,300	*12%*	1,900	*18%*	3,100	*30%*	400
South West	5,400	6,000	700	*12%*	1,000	*18%*	1,600	*30%*	200
West Midlands	5,200	5,800	600	*12%*	900	*18%*	1,500	*30%*	200
Yorkshire & The Humber	5,900	6,600	700	*12%*	1,100	*18%*	1,800	*30%*	300

Note: Figures may not sum to the grand total due to rounding.

4.1.7 Front Line Technical occupations dominate workforce demand, requiring 20,300 people by 2032.

4.1.8 Business Support has the second-largest requirement at 1,500 people, followed by Managerial occupations at 900. However, these requirements are substantially smaller than the 20,300 people needed in Front Line Technical occupations.

Figure 19: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by broad occupational group

Broad Occupational Group	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
Managerial	2,900	3,300	400	*12%*	500	*17%*	900	*29%*	100
Technical Professional	1,800	2,100	200	*12%*	200	*10%*	400	*22%*	100
Business Support	5,900	6,600	700	*12%*	800	*14%*	1,500	*26%*	200
Front Line Technical	65,300	73,300	8,000	*12%*	12,300	*19%*	20,300	*31%*	2,900
Other	400	400	<100	*12%*	100	*15%*	100	*28%*	<100
Waste & Recycling — Waste collection	**76,300**	**85,600**	**9,300**	***12%***	**13,900**	***18%***	**23,200**	***30%***	**3,300**

Note: Figures may not sum to the grand total due to rounding.

4.1.9 Figure 20 shows demand is concentrated in a small number of occupations:

- Elementary Administration and Service Occupations — 9,800 people
- Transport and Mobile Machine Drivers and Operatives — 9,300 people
- Administrative Occupations —700 people
- Sales Occupations — 500 people

Figure 20: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by occupation

Skill level	Standard Occupational Classification	Total employment		New jobs created		Retirements		Core requirement for people		
		2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
RQF 7-8 SCQF 11-12	11 - Corporate Managers and Directors	1,500	1,600	200	12%	300	17%	400	29%	100
	12 - Other Managers and Proprietors	1,500	1,600	200	12%	300	17%	400	29%	100
RQF 6 SCQF 9-10	21 - Science, Research, Engineering and Technology Professionals	1,100	1,200	100	12%	100	9%	200	21%	<100
	22 - Health Professionals	0	0	0	--	0	--	0	--	0
	23 - Teaching and Other Educational Professionals	0	0	0	--	0	--	0	--	0
	24 - Business, Media and Public Service Professionals	400	400	<100	12%	100	12%	100	24%	<100
RQF 4-5 SCQF 7-8	31 - Science, Engineering and Technology Associate Professionals	800	900	100	12%	100	11%	200	23%	<100
	32 - Health and Social Care Associate Professionals	200	200	<100	12%	<100	15%	100	27%	<100
	33 - Protective Service Occupations	0	0	0	--	0	--	0	--	0
	34 - Culture, Media and Sports Occupations	0	0	0	--	0	--	0	--	0
	35 - Business and Public Service Associate Professionals	1,000	1,100	100	12%	100	10%	200	23%	<100
RQF 3 SCQF 6	41 - Administrative Occupations	2,500	2,800	300	12%	400	16%	700	28%	100
	42 - Secretarial and Related Occupations	100	100	<100	12%	<100	22%	<100	35%	<100
	51 - Skilled Agricultural and Related Trades	200	200	<100	12%	<100	28%	100	41%	<100
	52 - Skilled Metal, Electrical and Electronic Trades	1,500	1,600	200	12%	200	14%	400	26%	100
	53 - Skilled Construction and Building Trades	500	500	100	12%	100	15%	100	27%	<100
	54 - Textiles, Printing and Other Skilled Trades	0	0	0	--	0	--	0	--	0
	61 - Caring Personal Service Occupations	200	200	<100	12%	<100	16%	100	28%	<100
	62 - Leisure, Travel and Related Personal Service Occupations	100	100	<100	12%	<100	16%	<100	28%	<100
	63 - Community and Civil Enforcement Occupations	0	0	0	--	0	--	0	--	0
RQF 2 SCQF 5	71 - Sales Occupations	1,800	2,100	200	12%	300	13%	500	26%	100
	72 - Customer Service Occupations	100	100	<100	12%	<100	10%	<100	22%	<100
RQF 1 SCQF 4	81 - Process, Plant and Machine Operatives	1,100	1,300	100	12%	200	18%	400	30%	<100
	82 - Transport and Mobile Machine Drivers and Operatives	25,200	28,300	3,100	12%	6,200	25%	9,300	37%	1,300
	91 - Elementary Trades and Related Occupations	800	900	100	12%	100	16%	200	29%	<100
	92 - Elementary Administration and Service Occupations	36,200	40,600	4,400	12%	5,400	15%	9,800	27%	1,400
Waste & Recycling — Waste collection		**76,300**	**85,600**	**9,300**	**12%**	**13,900**	**18%**	**23,200**	**30%**	**3,300**

Note: Figures may not sum to the grand total due to rounding.

4.2 Waste treatment and disposal

Figure 21: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by sub-industry

Sub-Industry	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
Waste treatment and disposal	40,600	43,900	3,200	*8%*	6,800	*17%*	10,000	*25%*	1,400

Note: Figures may not sum to the grand total due to rounding.

4.2.1 Waste Treatment and Disposal has a core requirement for 10,000 people by 2032, equivalent to 25% of the current workforce. Employment grows relatively modestly from 40,600 to 43,900, creating 3,200 new jobs (8%), while 6,800 retirements account for around two-thirds of the overall requirement.

4.2.2 Annual workforce demand remains relatively stable, increasing gradually from 1,400 people in 2026 to 1,470 in 2032. This indicates a sustained recruitment requirement rather than significant peaks or troughs.

4.2.3 Retirements are the main driver of demand throughout the period, rising from 940 people in 2026 to 1,010 in 2032. New job creation remains constant at around 460 people per year, meaning the gradual increase in annual demand is driven entirely by rising retirements.

Figure 22: Core requirement for people by year and cause



Note: Figures may not sum to the grand total due to rounding.

4.2.4 England accounts for the majority of Waste Treatment and Disposal workforce demand, requiring 7,900 of the 10,000 people needed by 2032

4.2.5 Scotland requires 1,200 people and Wales 800 people by 2032, while Northern Ireland requires 100 people.

Figure 23: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by nation and region

Nation & Region	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
England	32,100	34,700	2,600	*8%*	5,300	*17%*	7,900	*25%*	1,100
Northern Ireland	400	400	<100	*8%*	100	*17%*	100	*25%*	<100
Scotland	5,100	5,500	400	*8%*	900	*17%*	1,200	*25%*	200
Wales	3,100	3,300	200	*8%*	500	*17%*	800	*25%*	100
United Kingdom	**40,600**	**43,900**	**3,200**	***8%***	**6,800**	***17%***	**10,000**	***25%***	**1,400**
English regions									
East of England	2,500	2,700	200	*8%*	400	*17%*	600	*25%*	100
East Midlands	2,600	2,800	200	*8%*	400	*17%*	600	*25%*	100
London	2,100	2,300	200	*8%*	400	*17%*	500	*25%*	100
North East	2,700	2,900	200	*8%*	400	*17%*	700	*25%*	100
North West	3,600	3,900	300	*8%*	600	*17%*	900	*25%*	100
South East	6,500	7,000	500	*8%*	1,100	*17%*	1,600	*25%*	200
South West	3,800	4,100	300	*8%*	600	*17%*	900	*25%*	100
West Midlands	3,200	3,400	300	*8%*	500	*17%*	800	*25%*	100
Yorkshire & The Humber	5,200	5,600	400	*8%*	900	*17%*	1,300	*25%*	200

Note: Figures may not sum to the grand total due to rounding.

4.2.6 Within England, the South East has the largest workforce requirement at 1,600 people by 2032, followed by Yorkshire & The Humber (1,300). The North West and South West each require around 900 people, while demand is more evenly distributed across the remaining regions.

4.2.7 Front Line Technical occupations dominate workforce demand, requiring 6,500 people by 2032.

4.2.8 Business Support has the second-largest requirement at 2,200 people, while Managerial occupations require a further 800. Together with Front Line Technical occupations, these groups account for 9,500 people, or 95% of the core requirement.

Figure 24: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by broad occupational group

Broad Occupational Group	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
Managerial	3,200	3,500	300	*8%*	500	*17%*	800	*25%*	100
Technical Professional	2,500	2,700	200	*8%*	200	*9%*	400	*17%*	100
Business Support	10,600	11,500	800	*8%*	1,400	*13%*	2,200	*21%*	300
Front Line Technical	23,700	25,600	1,900	*8%*	4,600	*19%*	6,500	*27%*	900
Other	600	700	100	*8%*	100	*14%*	100	*22%*	<100
Waste & Recycling — Waste treatment and disposal	**40,600**	**43,900**	**3,200**	*8%*	**6,800**	*17%*	**10,000**	*25%*	**1,400**

Note: Figures may not sum to the grand total due to rounding.

4.2.9 Figure 25 shows demand is concentrated in a small number of occupations:

- Transport and Mobile Machine Drivers and Operatives — 3,600 people
- Elementary Administration and Service Occupations — 2,100 people
- Administrative Occupations — 1,000 people
- Business and Public Service Associate Professionals — 600 people

Figure 25: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by occupation

Skill level	Standard Occupational Classification	Total employment		New jobs created		Retirements		Core requirement for people		
		2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
RQF 7-8 SCQF 11-12	11 - Corporate Managers and Directors	1,800	2,000	100	8%	300	17%	500	25%	100
	12 - Other Managers and Proprietors	1,400	1,500	100	8%	200	17%	300	25%	<100
RQF 6 SCQF 9-10	21 - Science, Research, Engineering and Technology Professionals	2,000	2,200	200	8%	200	9%	300	17%	<100
	22 - Health Professionals	200	200	<100	8%	<100	13%	<100	21%	<100
	23 - Teaching and Other Educational Professionals	0	0	0	--	0	--	0	--	0
	24 - Business, Media and Public Service Professionals	1,300	1,400	100	8%	200	12%	300	20%	<100
RQF 4-5 SCQF 7-8	31 - Science, Engineering and Technology Associate Professionals	400	500	<100	8%	100	11%	100	19%	<100
	32 - Health and Social Care Associate Professionals	<100	<100	<100	8%	<100	15%	<100	23%	<100
	33 - Protective Service Occupations	400	500	<100	8%	<100	7%	100	15%	<100
	34 - Culture, Media and Sports Occupations	0	0	0	--	0	--	0	--	0
	35 - Business and Public Service Associate Professionals	3,200	3,500	300	8%	300	10%	600	18%	100
RQF 3 SCQF 6	41 - Administrative Occupations	4,100	4,400	300	8%	600	15%	1,000	23%	100
	42 - Secretarial and Related Occupations	300	400	<100	8%	100	22%	100	30%	<100
	51 - Skilled Agricultural and Related Trades	0	0	0	--	0	--	0	--	0
	52 - Skilled Metal, Electrical and Electronic Trades	500	500	<100	8%	100	14%	100	22%	<100
	53 - Skilled Construction and Building Trades	200	200	<100	8%	<100	15%	<100	23%	<100
	54 - Textiles, Printing and Other Skilled Trades	<100	<100	<100	8%	<100	14%	<100	22%	<100
	61 - Caring Personal Service Occupations	100	100	<100	8%	<100	15%	<100	23%	<100
	62 - Leisure, Travel and Related Personal Service Occupations	200	200	<100	8%	<100	15%	100	23%	<100
	63 - Community and Civil Enforcement Occupations	0	0	0	--	0	--	0	--	0
RQF 2 SCQF 5	71 - Sales Occupations	1,000	1,100	100	8%	100	13%	200	21%	<100
	72 - Customer Service Occupations	200	200	<100	8%	<100	10%	<100	17%	<100
RQF 1 SCQF 4	81 - Process, Plant and Machine Operatives	1,500	1,600	100	8%	300	18%	400	26%	100
	82 - Transport and Mobile Machine Drivers and Operatives	11,100	12,000	900	8%	2,700	24%	3,600	32%	500
	91 - Elementary Trades and Related Occupations	1,000	1,100	100	8%	200	16%	200	24%	<100
	92 - Elementary Administration and Service Occupations	9,400	10,200	700	8%	1,400	15%	2,100	23%	300
Waste & Recycling — Waste treatment and disposal		**40,600**	**43,900**	**3,200**	**8%**	**6,800**	**17%**	**10,000**	**25%**	**1,400**

Note: Figures may not sum to the grand total due to rounding.

4.3 Materials recovery

Figure 26: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by sub-industry

Sub-Industry	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
Materials recovery	27,500	34,500	7,000	*26%*	4,900	*18%*	11,900	*43%*	1,700

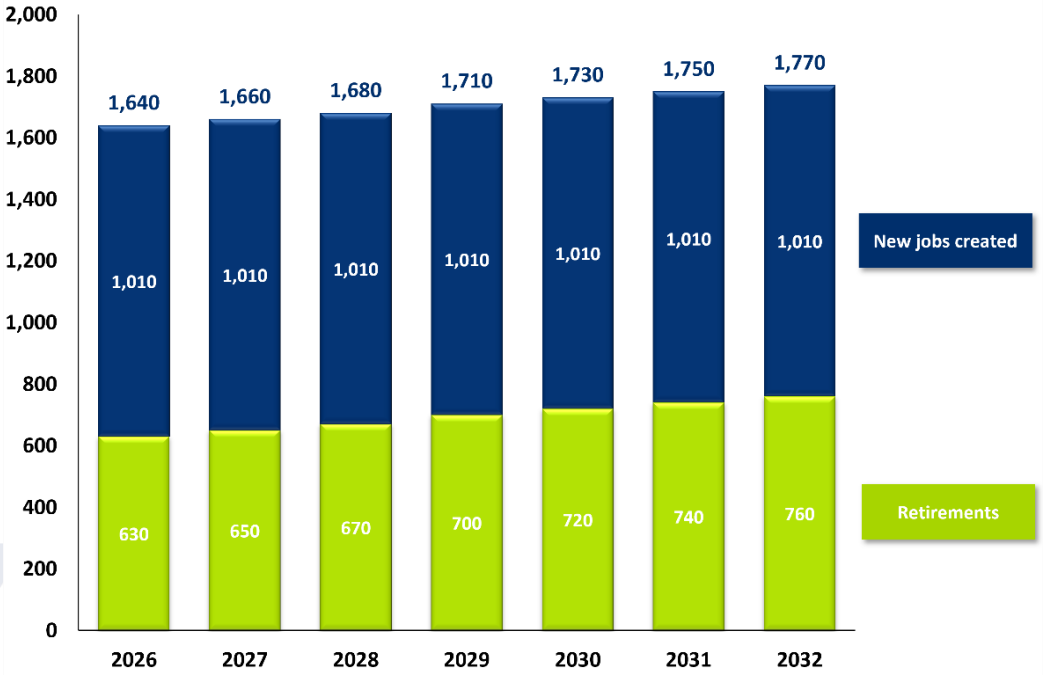
Note: Figures may not sum to the grand total due to rounding.

4.3.1 Materials Recovery has a core requirement for 11,900 people by 2032, equivalent to 43% of the current workforce. Employment is projected to increase from 27,500 to 34,500, creating 7,000 new jobs (26% growth), alongside 4,900 retirements.

4.3.2 Annual workforce demand rises steadily from 1,640 people in 2026 to 1,770 in 2032, indicating a sustained and gradually increasing recruitment requirement throughout the forecast period.

4.3.3 New job creation is the largest driver of annual demand, remaining constant at around 1,010 people per year. Retirements increase from 630 people in 2026 to 760 in 2032, accounting for the gradual increase in total annual demand.

Figure 27: Core requirement for people by year and cause



Note: Figures may not sum to the grand total due to rounding.

4.3.4 England accounts for the majority of Materials Recovery workforce demand, requiring 9,000 of the 11,900 people needed by 2032.

4.3.5 Scotland and Northen Ireland require 700 people, while Wales requires 600 people by 2032.

4.3.6 Within England, the North West and South East have the largest workforce requirements at 1,600 people each, followed by the South West (1,300) and North East (1,200).

Figure 28: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by nation and region

Nation & Region	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
England	22,900	28,800	5,900	*26%*	4,100	*18%*	9,000	*43%*	1,400
Northern Ireland	1,500	1,900	400	*26%*	300	*18%*	700	*43%*	100
Scotland	1,600	2,000	400	*26%*	300	*18%*	700	*43%*	100
Wales	1,400	1,800	400	*26%*	200	*18%*	600	*43%*	100
United Kingdom	**27,500**	**34,500**	**7,000**	***26%***	**4,900**	***18%***	**11,900**	***43%***	**1,700**
English regions									
East of England	2,100	2,700	600	*26%*	400	*18%*	900	*43%*	100
East Midlands	1,900	2,400	500	*26%*	400	*18%*	800	*43%*	100
London	1,200	1,500	300	*26%*	200	*18%*	500	*43%*	100
North East	2,800	3,600	700	*26%*	500	*18%*	1,200	*43%*	100
North West	3,600	4,600	900	*26%*	700	*18%*	1,600	*43%*	200
South East	3,600	4,500	900	*26%*	600	*18%*	1,600	*43%*	200
South West	3,100	3,800	800	*26%*	500	*18%*	1,300	*43%*	200
West Midlands	2,400	3,000	600	*26%*	400	*18%*	1,100	*43%*	200
Yorkshire & The Humber	2,200	2,700	600	*26%*	400	*18%*	900	*43%*	100

Note: Figures may not sum to the grand total due to rounding.

4.3.7 Front Line Technical occupations have by far the largest workforce requirement, requiring 7,200 people by 2032.

4.3.8 Business Support has the second-largest requirement at 2,400 people, followed by Managerial occupations at 1,500 people.

Figure 29: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by broad occupational group

Broad Occupational Group	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
Managerial	3,400	4,300	900	*26%*	600	*18%*	1,500	*44%*	200
Technical Professional	1,600	2,100	400	*26%*	200	*10%*	600	*36%*	100
Business Support	6,200	7,800	1,600	*26%*	800	*13%*	2,400	*39%*	300
Front Line Technical	15,800	19,900	4,100	*26%*	3,200	*20%*	7,200	*46%*	1,000
Other	400	500	100	*26%*	100	*15%*	200	*41%*	<100
Waste & Recycling — Materials recovery	**27,500**	**34,500**	**7,000**	***26%***	**4,900**	***18%***	**11,900**	***43%***	**1,700**

Note: Figures may not sum to the grand total due to rounding.

4.3.9 Figure 30 shows demand is concentrated in a small number of occupations:

- Transport and Mobile Machine Drivers and Occupations – 2,900 people
- Elementary Administration and Service Occupations – 2,300 people
- Business and Public Service Associate Professionals – 1,300 people

Figure 30: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by occupation

Skill level	Standard Occupational Classification	Total employment		New jobs created		Retirements		Core requirement for people		
		2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
RQF 7-8 SCQF 11-12	11 - Corporate Managers and Directors	1,500	1,900	400	26%	300	18%	700	44%	100
	12 - Other Managers and Proprietors	1,900	2,400	500	26%	400	18%	800	44%	100
RQF 6 SCQF 9-10	21 - Science, Research, Engineering and Technology Professionals	1,200	1,400	300	26%	100	10%	400	35%	100
	22 - Health Professionals	200	200	<100	26%	<100	14%	100	40%	<100
	23 - Teaching and Other Educational Professionals	0	0	0	--	0	--	0	--	0
	24 - Business, Media and Public Service Professionals	700	900	200	26%	100	13%	300	39%	<100
RQF 4-5 SCQF 7-8	31 - Science, Engineering and Technology Associate Professionals	500	600	100	26%	100	12%	200	38%	<100
	32 - Health and Social Care Associate Professionals	0	0	0	--	0	--	0	--	0
	33 - Protective Service Occupations	0	0	0	--	0	--	0	--	0
	34 - Culture, Media and Sports Occupations	0	0	0	--	0	--	0	--	0
	35 - Business and Public Service Associate Professionals	3,600	4,500	900	26%	400	11%	1,300	37%	200
RQF 3 SCQF 6	41 - Administrative Occupations	1,300	1,700	300	26%	200	17%	600	43%	100
	42 - Secretarial and Related Occupations	300	300	100	26%	100	24%	100	50%	<100
	51 - Skilled Agricultural and Related Trades	0	0	0	--	0	--	0	--	0
	52 - Skilled Metal, Electrical and Electronic Trades	1,400	1,800	400	26%	200	15%	600	41%	100
	53 - Skilled Construction and Building Trades	0	0	0	--	0	--	0	--	0
	54 - Textiles, Printing and Other Skilled Trades	200	200	<100	26%	<100	15%	100	41%	<100
	61 - Caring Personal Service Occupations	<100	<100	<100	26%	<100	17%	<100	43%	<100
	62 - Leisure, Travel and Related Personal Service Occupations	0	0	0	--	0	--	0	--	0
	63 - Community and Civil Enforcement Occupations	0	0	0	--	0	--	0	--	0
RQF 2 SCQF 5	71 - Sales Occupations	100	100	<100	26%	<100	14%	<100	40%	<100
	72 - Customer Service Occupations	100	100	<100	26%	<100	10%	<100	36%	<100
RQF 1 SCQF 4	81 - Process, Plant and Machine Operatives	1,800	2,300	500	26%	300	19%	800	45%	100
	82 - Transport and Mobile Machine Drivers and Operatives	5,700	7,100	1,500	26%	1,500	26%	2,900	52%	400
	91 - Elementary Trades and Related Occupations	1,500	1,900	400	26%	300	18%	700	43%	100
	92 - Elementary Administration and Service Occupations	5,400	6,800	1,400	26%	900	16%	2,300	42%	300
Waste & Recycling — Materials recovery		**27,500**	**34,500**	**7,000**	**26%**	**4,900**	**18%**	**11,900**	**43%**	**1,700**

Note: Figures may not sum to the grand total due to rounding.

4.4 Remediation activities and other waste management services

Figure 31: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by sub-industry

Sub-Industry	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
Remediation activities and other waste management services	9,600	11,000	1,400	*15%*	1,400	*15%*	2,900	*30%*	400

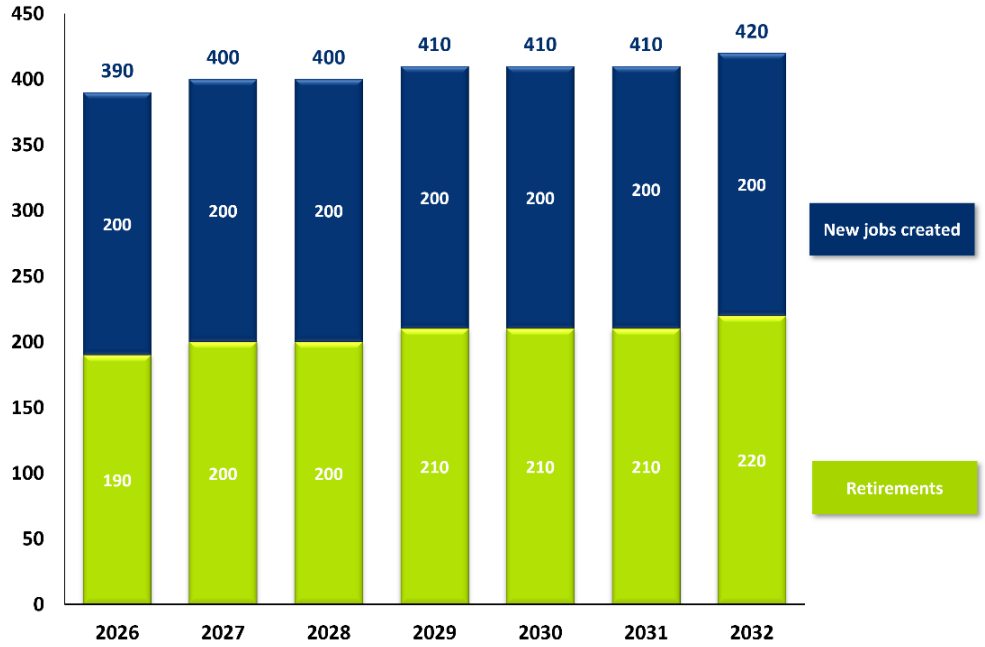
Note: Figures may not sum to the grand total due to rounding.

4.4.1 Remediation Activities and Other Waste Management Services has a core requirement for 2,900 people by 2032, equivalent to 30% of the current workforce. Employment is projected to increase from 9,600 to 11,000, creating 1,400 new jobs (15% growth), alongside 1,400 retirements.

4.4.2 Annual workforce demand remains broadly stable, increasing gradually from 390 people in 2026 to 420 in 2032. This indicates a consistent recruitment requirement across the forecast period.

4.4.3 New job creation and retirements contribute almost equally to annual demand. New job creation remains at around 200 people per year, while retirements gradually increase from 190 in 2026 to 220 in 2032, becoming slightly larger than new job creation by the end of the period.

Figure 32: Core requirement for people by year and cause



Note: Figures may not sum to the grand total due to rounding.

4.4.4 England accounts for the majority of the workforce requirement, requiring 2,500 of the 2,900 people needed by 2032.

4.4.5 Scotland requires 200 people, while Wales and Northern Ireland each require around 100.

4.4.6 Within England, workforce demand is concentrated in Yorkshire & The Humber, which requires 900 people by 2032, followed by the South East at 500.

Figure 33: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by nation and region

Nation & Region	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
England	8,400	9,600	1,200	*15%*	1,200	*15%*	2,500	*30%*	400
Northern Ireland	300	300	<100	*15%*	<100	*15%*	100	*30%*	<100
Scotland	500	600	100	*15%*	100	*15%*	200	*30%*	<100
Wales	400	500	100	*15%*	100	*15%*	100	*30%*	<100
United Kingdom	**9,600**	**11,000**	**1,400**	***15%***	**1,400**	***15%***	**2,900**	***30%***	**400**
English regions									
East of England	1,200	1,400	200	*15%*	200	*15%*	400	*30%*	100
East Midlands	1,300	1,500	200	*15%*	200	*15%*	400	*30%*	100
London	200	300	<100	*15%*	<100	*15%*	100	*30%*	<100
North East	<100	<100	<100	*15%*	<100	*15%*	<100	*30%*	<100
North West	500	500	100	*15%*	100	*15%*	100	*30%*	<100
South East	1,800	2,100	300	*15%*	300	*15%*	500	*30%*	100
South West	100	100	<100	*15%*	<100	*15%*	<100	*30%*	<100
West Midlands	300	400	<100	*15%*	<100	*15%*	100	*30%*	<100
Yorkshire & The Humber	3,000	3,400	400	*15%*	400	*15%*	900	*30%*	100

Note: Figures may not sum to the grand total due to rounding.

4.4.7 Business Support occupations have the largest core workforce requirement, requiring 1,400 people by 2032.

4.4.8 Front Line Technical occupations have the second-largest requirement at 900 people, comprising around 400 new jobs and 500 retirements. Together, Business Support and Front Line Technical account for around 79% of total workforce demand.

Figure 34: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by broad occupational group

Broad Occupational Group	Total employment		New jobs created		Retirements		Core requirement for people		
	2025 baseline	2032	Number	*% Growth*	Number	*% of current workforce*	Total	*% of current workforce*	Average per year
Managerial	1,200	1,400	200	*15%*	200	*17%*	400	*32%*	100
Technical Professional	700	800	100	*15%*	100	*9%*	200	*24%*	<100
Business Support	5,000	5,800	700	*15%*	600	*13%*	1,400	*28%*	200
Front Line Technical	2,600	3,000	400	*15%*	500	*19%*	900	*34%*	100
Other	100	100	<100	*15%*	<100	*16%*	<100	*31%*	<100
Waste & Recycling — Remediation activities and other waste management services	**9,600**	**11,000**	**1,400**	***15%***	**1,400**	***15%***	**2,900**	***30%***	**400**

Note: Figures may not sum to the grand total due to rounding.

4.4.9 Figure 35 shows demand is concentrated in a small number of occupations:

- Administrative Occupations — 600 people
- Business and Public Service Associate Professionals — 500 people
- Process, Plant and Machine Operatives — 300 people
- Transport and Mobile Machine Drivers and Operatives — 300 people

Figure 35: Current workforce estimates and forecast number of new jobs created, retirements and the total core requirement for people by 2032 by occupation

Skill level	Standard Occupational Classification	Total employment		New jobs created		Retirements		Core requirement for people		
		2025 baseline	2032	Number	% Growth	Number	% of current workforce	Total	% of current workforce	Average per year
RQF 7-8 SCQF 11-12	11 - Corporate Managers and Directors	700	900	100	15%	100	17%	200	32%	<100
	12 - Other Managers and Proprietors	400	500	100	15%	100	17%	100	32%	<100
RQF 6 SCQF 9-10	21 - Science, Research, Engineering and Technology Professionals	600	700	100	15%	100	9%	200	24%	<100
	22 - Health Professionals	0	0	0	--	0	--	0	--	0
	23 - Teaching and Other Educational Professionals	0	0	0	--	0	--	0	--	0
	24 - Business, Media and Public Service Professionals	800	900	100	15%	100	12%	200	27%	<100
RQF 4-5 SCQF 7-8	31 - Science, Engineering and Technology Associate Professionals	100	100	<100	15%	<100	11%	<100	26%	<100
	32 - Health and Social Care Associate Professionals	<100	<100	<100	15%	<100	15%	<100	30%	<100
	33 - Protective Service Occupations	<100	<100	<100	15%	<100	8%	<100	22%	<100
	34 - Culture, Media and Sports Occupations	0	0	0	--	0	--	0	--	0
	35 - Business and Public Service Associate Professionals	1,800	2,100	300	15%	200	11%	500	25%	100
RQF 3 SCQF 6	41 - Administrative Occupations	1,900	2,100	300	15%	300	16%	600	31%	100
	42 - Secretarial and Related Occupations	100	100	<100	15%	<100	23%	100	37%	<100
	51 - Skilled Agricultural and Related Trades	0	0	0	--	0	--	0	--	0
	52 - Skilled Metal, Electrical and Electronic Trades	100	100	<100	15%	<100	14%	<100	29%	<100
	53 - Skilled Construction and Building Trades	200	300	<100	15%	<100	15%	100	30%	<100
	54 - Textiles, Printing and Other Skilled Trades	0	0	0	--	0	--	0	--	0
	61 - Caring Personal Service Occupations	<100	<100	<100	15%	<100	16%	<100	31%	<100
	62 - Leisure, Travel and Related Personal Service Occupations	<100	<100	<100	15%	<100	16%	<100	31%	<100
	63 - Community and Civil Enforcement Occupations	0	0	0	--	0	--	0	--	0
RQF 2 SCQF 5	71 - Sales Occupations	<100	<100	<100	15%	<100	14%	<100	28%	<100
	72 - Customer Service Occupations	400	400	100	15%	<100	10%	100	25%	<100
RQF 1 SCQF 4	81 - Process, Plant and Machine Operatives	800	900	100	15%	200	18%	300	33%	<100
	82 - Transport and Mobile Machine Drivers and Operatives	900	1,000	100	15%	200	25%	300	40%	<100
	91 - Elementary Trades and Related Occupations	100	100	<100	15%	<100	17%	<100	31%	<100
	92 - Elementary Administration and Service Occupations	500	600	100	15%	100	15%	200	30%	<100
Waste & Recycling — Remediation activities and other waste management services		**9,600**	**11,000**	**1,400**	**15%**	**1,400**	**15%**	**2,900**	**30%**	**400**

Note: Figures may not sum to the grand total due to rounding.

5 Future labour supply

5.1 The UK population

5.1.1 These population projections are based on assumptions about fertility, mortality and migration. They are not forecasts of future government policy, economic conditions or global events. The principal long-term assumptions are:

- annual net international migration of 230,000 from mid-2027 onwards;
- long-term fertility of 1.42 children per woman;
- continuing improvements in mortality.

5.1.2 The 2024-based projections indicate that the UK population is projected to remain broadly stable through to 2040. However, this stability masks two labour supply pressures:

- declining birth rates, resulting in fewer young people entering the workforce;
- continued reliance on migration to sustain population growth and the working-age population.

5.1.3 These pressures become increasingly apparent after 2030, particularly in sectors with ageing workforces and long training lead times.

5.2 Falling birth rates and the domestic entrant pipeline

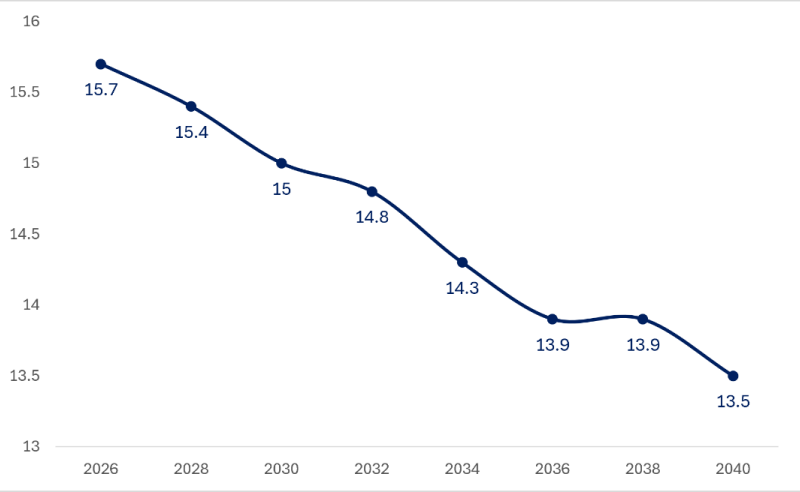
5.2.1 Birth rates in England and Wales have fallen steadily since the early 2010s. The total fertility rate declined from 1.94 children per woman in 2012 to 1.39 in 2025, including a fall from 1.41 in 2024.[5]

5.2.2 These lower birth rates will directly affect workforce entrants during the period covered by this analysis:

- people entering employment at age 18 in 2032 were born in 2014;
- those entering at age 18 in 2040 were born in 2022;
- young people entering apprenticeships at age 16 between 2032 and 2040 were born approximately between 2016 and 2024.

5.2.3 Reflecting these demographic trends, the number of people aged under 20 is projected to fall from 15.7 million in 2026 to 13.5 million by 2040.

Figure 36: Population projections for people aged 0-19 from 2026 to 2040 in millions[6]



[5] Births in England and Wales: 2025, ONS, September 2026

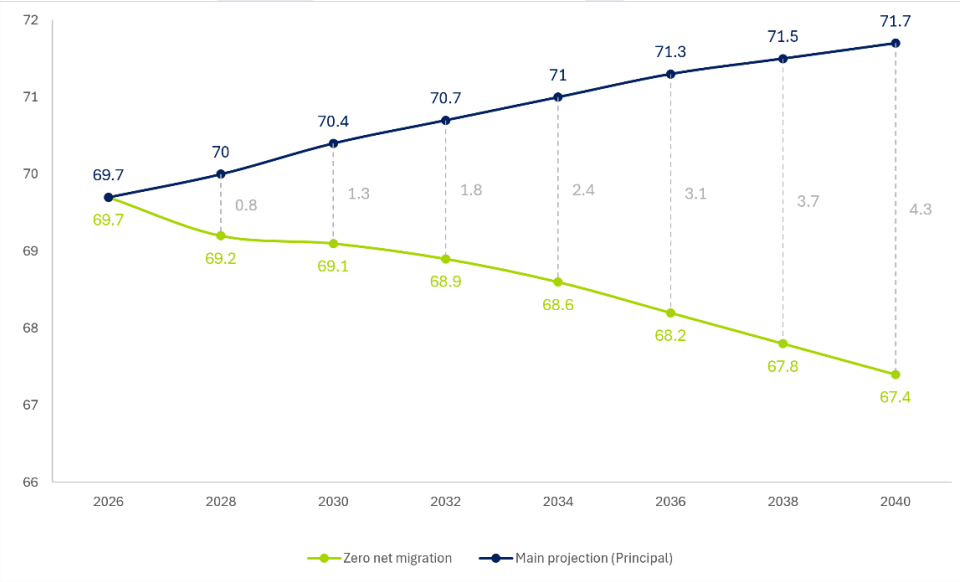
[6] UK Population Projection Explorer, ONS, April 2026

5.2.4 This decline indicates that fewer young people will be available to enter employment and training during the 2030s, resulting in a tighter domestic talent pipeline. As a result, workforce demand will increasingly need to be met through higher retention, retraining, productivity improvements and, where appropriate, migration.

5.3 Migration and sustaining the working-age population

5.3.1 Under the principal projection, migration is the sole source of long-term population growth. The UK population is projected to increase from around 69.7 million in mid-2026 to 71.6 million by 2040.

Figure 37: UK population projections under principal and zero net migration scenarios from 2026 to 2040 with the widening population gap shown in millions[7]



5.3.2 Under the zero net migration variant, the population begins to decline as deaths exceed births, falling towards 67 million by 2040. This illustrates the extent to which future population growth is dependent on migration.

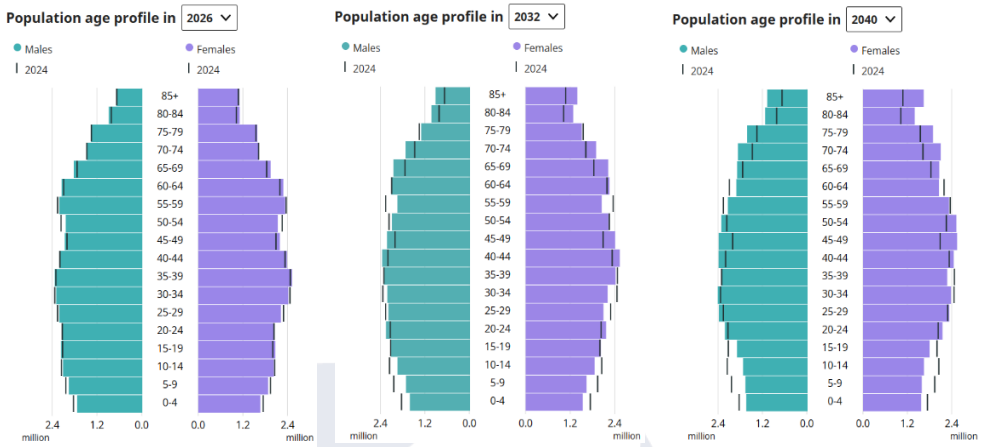
5.3.3 In 2025, there was an estimated net migration of 204,000.[8] This was two-thirds lower than a year earlier (649,000). Net migration remains an important contributor to population and workforce growth, but the decline from 649,000 to 204,000 within a year demonstrates that migration flows can change rapidly in response to policy, economic and international factors. This introduces uncertainty for sectors that rely heavily on migration to meet workforce requirements.

5.3.4 Figure 38 illustrates how the UK's age structure is projected to change between 2026 and 2040. The base of the population pyramid narrows over time, reflecting lower birth rates and a reduced flow of future labour market entrants. At the same time, older age groups become larger as life expectancy improves and larger cohorts move into later life. The working-age population remains substantial throughout the projection period, but its age profile shifts upwards. This suggests that workforce pressures are likely to arise less from an overall shortage of people and more from increasing replacement demand as larger cohorts approach retirement while fewer younger workers enter the labour market.

[7] UK Population Projection Explorer, ONS, April 2026

[8] Long-term international migration, provisional: year ending June 2025, ONS, May 2026

Figure 38: UK population age profile, 2026, 2032 and 2040[9]



5.4 Implications for the sector

5.4.1 Future labour supply will be shaped by a narrowing domestic entrant pipeline and continued reliance on migration.

5.4.2 As the youth population declines, energy and utilities employers will face growing competition for engineering and technical talent from construction, advanced manufacturing, transport, defence, digital and wider infrastructure sectors.

5.4.3 Migration can also provide targeted labour supply in occupations facing shortages. The Migration Advisory Committee found that sponsored engineering workers are concentrated in younger age groups, particularly between ages 26 and 35, while the domestic engineering workforce is more evenly distributed across the working-age population.[10]

5.4.4 Migration can also help where training lead times are long, skills are internationally transferable and recruitment supports time-limited infrastructure delivery. However, it is should not be considered a substitute for sustained domestic workforce development.

5.4.5 The principal workforce challenge from 2032 onwards is therefore not overall population decline, but the interaction of four factors:

- a smaller domestic entrant pipeline;
- high replacement demand from an ageing workforce;
- increasing competition for technical skills;
- continued dependence on migration to sustain labour supply.

[9] UK Population Projection Explorer, ONS, April 2026

[10] Professionals in IT and engineering, Migration Advisory Committee, May 2025

6 Potential economic and social benefits

6.1.1 Attracting and recruiting the required 48,000 people could cost the industry an estimated £160 million just in recruitment costs alone[11] (excluding any additional training or other costs incurred once new recruits are on-boarded).

6.1.2 However, the economic benefits to the industry and to UK PLC are significantly higher.

6.1.3 Assuming that each of the 21,000 additional people in the workforce earns the median salary for their occupation[12], this could create an estimated £738 million of additional earnings entering the economy by 2032. Approximately 60% of this - c£441 million - would be paid out to the 13,900 new recruits in entry-level occupations.

Figure 39: Estimated additional salaries paid out to new recruits by 2032

Skill level	Standard Occupational Classification	Additional jobs by 2032	Median Salary	New Income Generated
RQF 7-8 SCQF 11-12	11 - Corporate Managers and Directors	800	£63,350	£51,473,971
	12 - Other Managers and Proprietors	800	£40,799	£34,405,957
RQF 6 SCQF 9-10	21 - Science, Research, Engineering and Technology Professionals	700	£52,297	£35,448,558
	22 - Health Professionals	100	£46,131	£3,019,183
	23 - Teaching and Other Educational Professionals	0	£47,479	£0
	24 - Business, Media and Public Service Professionals	500	£49,513	£22,919,651
RQF 4-5 SCQF 7-8	31 - Science, Engineering and Technology Associate Professionals	300	£35,945	£9,640,903
	32 - Health and Social Care Associate Professionals	<100	£29,652	£690,471
	33 - Protective Service Occupations	<100	£42,806	£1,760,995
	34 - Culture, Media and Sports Occupations	0	£36,510	£0
	35 - Business and Public Service Associate Professionals	1,600	£41,404	£64,907,092
RQF 3 SCQF 6	41 - Administrative Occupations	1,300	£30,787	£38,583,119
	42 - Secretarial and Related Occupations	100	£28,388	£3,436,705
	51 - Skilled Agricultural and Related Trades	<100	£28,980	£540,502
	52 - Skilled Metal, Electrical and Electronic Trades	600	£39,942	£23,647,390
	53 - Skilled Construction and Building Trades	100	£35,764	£3,835,990
	54 - Textiles, Printing and Other Skilled Trades	100	£29,208	£1,534,425
	61 - Caring Personal Service Occupations	<100	£26,859	£1,063,601
	62 - Leisure, Travel and Related Personal Service Occupations	<100	£27,911	£867,855
	63 - Community and Civil Enforcement Occupations	0	£32,945	£0
RQF 2 SCQF 5	71 - Sales Occupations	300	£26,121	£8,800,556
	72 - Customer Service Occupations	100	£28,485	£2,918,469

[11] Based on recruitment costs of: Managerial = £9,000; Technical Professional = £6,000; Front Line Technical = £3,500; Business Support = £2,100; Other = £2,000.

[12] Source: Earnings and hours worked, occupation by four-digit SOC: ASHE Table 14, 23rd October 2025.

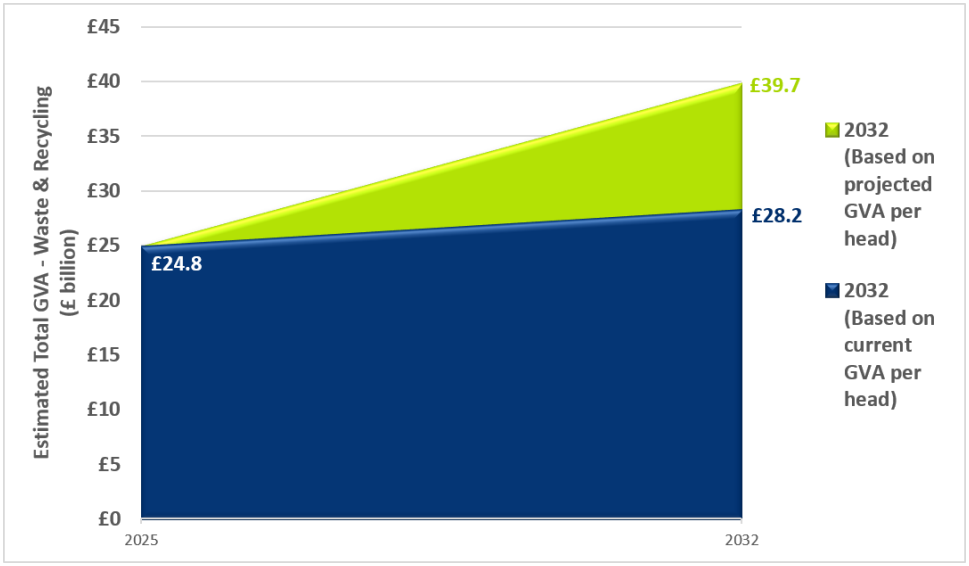
Skill level	Standard Occupational Classification	Additional jobs by 2032	Median Salary	New Income Generated
RQF 1 SCQF 4	81 - Process, Plant and Machine Operatives	800	£31,158	£26,290,329
	82 - Transport and Mobile Machine Drivers and Operatives	5,500	£36,869	£204,290,289
	91 - Elementary Trades and Related Occupations	600	£28,259	£16,130,219
	92 - Elementary Administration and Service Occupations	6,600	£27,486	£182,270,787
Waste & Recycling		**21,000**		**£738,477,018**

Note: Figures may not sum to the grand total due to rounding.

6.1.4 An approximate estimate of the total GVA of the waste & recycling industry in 2025 is £25 billion (based on output per worker in the water and waste industry multiplied by the total workforce).

6.1.5 By 2032, total GVA could reach between £28 billion (based on 2025 output per worker) and £40 billion (based on annual growth of 5% in output per worker – continuing the growth trajectory seen over the past five years)[13].

Figure 40: Estimated total GVA created by the waste & recycling industry (£ billions)



[13] Energy & Utility Skills' estimate of GVA per head in the waste & recycling industry is based on Output per job, UK, ONS, 18th August 2026 and headcount estimates produced for this analysis.

7 Conclusions

7.1.1 The waste and recycling industry faces a substantial workforce challenge over the period to 2032. The workforce is projected to grow from 154,000 to 175,000, creating 21,000 additional jobs. Combined with around 27,000 retirements, the industry has a core requirement for 48,000 people over the forecast period, equivalent to 31% of the current workforce and an average of around 6,900 people per year.

7.1.2 Annual workforce demand rises gradually from 6,600 people in 2026 to 7,100 in 2032. Retirements are the largest driver of the core requirement, while new job creation remains relatively stable. In addition, staff turnover could create a further 26,600 vacancies by 2032 if people leave the industry for employment elsewhere or overseas, emphasising the importance of retention alongside attraction.

7.1.3 The scale and nature of workforce demand varies considerably between sub-industries. Waste Collection has the largest core requirement, requiring 23,200 people by 2032, followed by Materials Recovery at 11,900 and Waste Treatment and Disposal at 10,000. Materials Recovery faces the greatest relative challenge, with its core requirement equivalent to 43% of its current workforce, driven by both workforce growth and retirements. Remediation Activities and Other Waste Management Services require a further 2,900 people.

7.1.4 Demand is distributed across the UK but varies across nations and regions. England accounts for 39,400 of the 48,000 people in the core requirement, while Northern Ireland faces the greatest relative pressure, with demand equivalent to 33% of its current workforce. Among the English regions, the South East has the largest requirement at 6,800 people, followed by the North West at 6,100 and Yorkshire and the Humber at 4,900. The North East faces the greatest relative pressure, with its core requirement equivalent to 34% of the current workforce.

7.1.5 Workforce demand is heavily concentrated at RQF Level 1 / SCQF Level 4, where 33,500 people are required by 2032, accounting for around 70% of the total core requirement. RQF Level 3 has the second-largest requirement at 4,600 people, followed by RQF Levels 7–8 at 3,500. This reflects the industry's particularly high requirement for entry-level and operational roles, while recruitment needs continue across all skill levels.

7.1.6 Front Line Technical occupations dominate workforce demand, with a core requirement for 34,900 people by 2032. Business Support occupations have the second-largest requirement at 7,500 people, followed by Managerial occupations at 3,500. Together, these three groups account for around 96% of the industry's core requirement, demonstrating the importance of operational, logistics and supporting functions to future delivery.

7.1.7 Five occupational groups are assessed as critical to delivery:

- Science, Research, Engineering and Technology Professionals
- Transport and Mobile Machine Drivers and Operatives
- Skilled Metal, Electrical and Electronic Trades
- Science, Engineering and Technology Associate Professionals
- Process, Plant and Machine Operatives

7.1.8 These critical occupational groups are forecast to create 7,900 additional jobs and require 20,700 people to enter their workforces by 2032. A further seven occupational groups are assessed as high priority. Together, critical and high-priority occupational groups account for around 18,900 additional jobs and require more than 43,500 people to enter their workforces, highlighting the concentration of workforce pressure in occupations central to collection, treatment, recycling and resource recovery.

7.1.9 At a more detailed level, 18 occupations are assessed as critical priorities. Together, they are forecast to create 5,900 additional jobs and have a core requirement for 14,800 people by 2032. Mobile machine drivers and operatives have the largest requirement at 7,800 people, followed by crane drivers at 2,900. Engineering, maintenance, operational and technical occupations also feature among the industry's critical workforce needs.

7.1.10 Future labour supply is likely to become more constrained as the domestic entrant pipeline narrows. The number of people aged under 20 is projected to fall from 15.7 million in 2026 to 13.5 million by 2040, while the industry will continue to compete for drivers, operatives, technicians and engineering talent. Migration can help address occupation-specific shortages but is unlikely to substitute for sustained domestic workforce development.

7.1.11 AI and automation have greater potential to reshape workforce demand in waste and recycling than in many other utility industries. Seven occupational groups, with a combined core requirement for 14,400 people, are identified as at risk of workforce-demand reduction. Under the high-adoption scenario, the analysis indicates a potential reduction of up to approximately 4,320 workers from this requirement. Technologies such as computer vision, robotic sorting and digital waste tracking could reduce staffing intensity in some activities, although collection, maintenance and other physically intensive roles will continue to require workers.

7.1.12 No single recruitment or training route can deliver the number and mix of people required. Industry will need to use a range of entry pathways, including sector-entry programmes, apprenticeships, graduate programmes, industry transitions, experienced-hire recruitment and internal progression. Lead times to competence mean that expanding some pipelines will not meet immediate demand, making the transition of experienced workers, development of the existing workforce and retention of critical skills particularly important.

7.1.13 Meeting this workforce requirement would also bring substantial economic benefits. Attracting and recruiting the 48,000 people within the core requirement is estimated to cost around £160 million before training and onboarding costs. The 21,000 additional jobs are estimated to generate approximately £738 million in additional earnings, while the industry's total GVA could increase from approximately £25 billion in 2025 to between £28 billion and £40 billion by 2032.

7.1.14 The workforce requirement is therefore both a significant delivery challenge and an important economic opportunity. Meeting it will require coordinated action to attract new people, expand routes to competence, retain experience and critical knowledge, support workforce mobility and use technology responsibly to increase delivery capacity. Workforce planning will need to be treated as a strategic priority if the industry is to secure the people required to support future waste collection, treatment, recycling and resource recovery activities.

8 Call to action

8.1 Ambition, growth and opportunity

8.1.1 The UK's waste and recycling industry faces a substantial workforce challenge over the period to 2032. Employers must maintain safe, reliable and effective services while responding to growing workforce requirements, changing technology and the evolving ways in which waste and materials are collected, treated, recovered and managed.

8.1.2 The industry must continue to collect, treat and manage waste safely and effectively while increasing its capacity to recover materials and resources. At the same time, employers must respond to changing operational and technological requirements, including increasing automation, digital waste tracking and more data-driven approaches to waste and resource management.

8.1.3 Delivering this ambition will require a skilled, productive and adaptable workforce. The challenge is not simply one of replacing retiring workers or filling vacancies. It is about ensuring that the industry has the capability, capacity and competence required to collect, transport, sort, process, treat, recover and manage waste and resources safely and effectively.

8.1.4 The opportunity extends across every nation and region of the UK. It includes engineering, science, environmental management, operations, construction, project delivery, digital and data professions, skilled technical trades and a wide range of supporting occupations. It creates opportunities for young people entering the labour market, experienced workers progressing within the sector, people transitioning from related industries and those who have traditionally faced barriers to employment.

8.1.5 Workforce investment must be treated as a critical enabler of industry outcomes rather than a consequence of them. Investment in infrastructure, technology and operational capacity must be planned alongside investment in the workforce. Employers, governments, regulators, education and skills providers, professional bodies and supply-chain partners all have a role to play in ensuring that workforce capability grows at the pace required.

8.1.6 The commitments that follow bring together three interconnected themes:

- **Ambition**: delivering safe, reliable and effective waste and recycling services while supporting improved resource recovery and meeting environmental, regulatory and economic objectives.
- **Growth**: ensuring the industry has the workforce capacity and capability required to deliver future investment and operational requirements.
- **Opportunity**: creating pathways that enable people and communities across the UK to access rewarding, long-term careers in the waste and recycling industry.

8.1.7 This approach reflects the four interconnected pillars of the Skills Strategy 2025–2030:

- **Research:** developing the insight, evidence and intelligence needed to understand workforce demand, identify emerging challenges and support informed decision-making
- **Attract:** raising awareness of sector careers, broadening access to opportunities and attracting the diverse talent needed to meet future workforce requirements

- **Develop:** supporting the continuous development of a safe, skilled and productive workforce through learning, progression and skills development
- **Retain:** creating the conditions for people to build long-term careers within the sector by supporting inclusion, progression, wellbeing and workforce resilience

8.1.8 Equality, Diversity and Inclusion, AI and Technology, and Productivity provide cross-cutting themes through which activity under the four pillars should be considered.

8.2 Safety is the foundation of delivery

8.2.1 Safety and occupational competence must remain the foundation of workforce growth. They are not barriers to expansion, new entry routes, productivity improvement or technological change. They are the conditions that enable these changes to be delivered responsibly and sustainably.

8.2.2 Drivers and mobile machine operatives, engineering professionals, skilled engineering trades, engineering technicians and process, plant and machine operatives are among the occupations most critical to delivery. Across the five broad occupational groups identified as critical, 20,700 people will be required to enter their workforces by 2032. Many of these roles require specialist skills, recognised competence, licences or qualifications, and periods of training and workplace development.

8.2.3 Expanding the workforce must not dilute occupational standards, reduce the quality of training or lead to people being deployed before they are competent. Employers must also avoid placing unsustainable pressure on the trainers, assessors, mentors and supervisors responsible for supporting new entrants and developing the existing workforce.

8.2.4 The same principle applies to artificial intelligence, automation and other digital technologies. Technology should be adopted where it can improve safety, quality, productivity or service. However, safety-critical and regulatory decisions must remain subject to clear human accountability. Data, models and automated outputs must be appropriately validated and assured, and affected workers must be supported to develop the capabilities required by redesigned roles.

8.3 Five commitments for delivery

8.3.1 The scale and timing of demand mean that no single organisation can close the workforce gap independently. Employers must lead, supported by coordinated action from supply-chain organisations, governments, regulators, education and skills providers, trade unions, professional and standards bodies, and the Energy & Utility Skills Partnership.

Commitment 1: Plan and invest against evidenced workforce demand

8.3.2 The workforce requirement is immediate, significant and unevenly distributed. Demand varies by occupation, sub-industry, region and year.

8.3.3 Employers and supply-chain organisations should convert the forecasts into practical, funded and regularly updated workforce plans covering:

- Critical occupations and job roles
- Annual and regional demand
- Recruitment, retention and progression
- Routes to occupational competence
- Training, supervision, mentoring and assessment capacity

- Dependencies on suppliers, contractors and other infrastructure sectors

8.3.4 Plans should be reviewed as investment profiles, delivery schedules and labour-market conditions change. Regulation, policy, procurement and contracting arrangements should give employers and their supply chains sufficient visibility and certainty to invest ahead of demand.

8.3.5 Primary ownership sits with:

- **Employers and supply-chain organisations** should produce, fund and deliver workforce plans
- **Governments and regulators** should align policy, regulation, investment and contracting arrangements with credible workforce delivery
- **The Energy & Utility Skills Partnership** should maintain the shared evidence base and provide a consistent framework for workforce planning

8.3.6 Alignment with the 2025-2030 Skills Strategy and EUSP CEO Council 2026/27 priorities:

- This commitment principally supports the **Research** pillar. It also supports the **Develop** and **Retain** pillars because effective workforce plans must address competence, progression and retention
- It directly aligns with the priorities to:
  - Update workforce demand estimates so that industry and government plan using one set of workforce-planning assumptions (**G2**)
  - Champion workforce and skills decisions based on nationally recognised, employer-informed evidence (**P1**)
  - Use industry evidence to inform regulation, price controls and contracting periods for long-term workforce planning (**UK1**)
- It also supports the wider priorities to maintain a current research programme (**G3**) and strengthen evidence-led workforce planning through partnership (**P2**)

Commitment 2: Expand safe routes to competence

8.3.7 Demand is concentrated in operational, technical and vocational occupations, with a particularly significant requirement in entry-level roles. Sector-entry programmes can help meet some immediate requirements, while apprenticeships, graduate routes and other longer training pathways will be important for occupations requiring higher levels of technical competence. Some pathways take three years or more to produce an occupationally competent worker and therefore cannot meet the earliest demand on their own.

8.3.8 Employers, education and skills providers, governments and standards bodies should jointly increase the capacity and range of routes into competent employment by:

- Increasing apprenticeship and graduate provision in critical occupations
- Expanding trainer, assessor, mentor, supervisor, facility and placement capacity
- Scaling sector-entry programmes linked to genuine vacancies and progression opportunities
- Developing funded modular provision aligned with sector-specific occupational requirements
- Creating progression routes for experienced workers whose capability is not fully represented by prior academic attainment

- Supporting career transitions from sectors with transferable skills
- Using targeted migration where urgent shortages cannot be filled domestically within the required timeframe

8.3.9 Every pathway must lead towards clearly defined occupational competence. Faster entry must not mean weaker standards or premature deployment into safety-critical work.

8.3.10 Primary ownership sits with:

- **Employers** should provide vacancies, placements, mentors, assessors and progression opportunities
- **Education and skills providers** should expand responsive provision and demonstrate how learning leads to recognised competence
- **Governments** should improve the flexibility, accessibility and consistency of skills funding across the UK
- **Regulators, professional bodies and standards organisations** should protect competence and quality while enabling proportionate innovation in delivery
- **The Energy & Utility Skills Partnership** should coordinate occupational profiles, standards, pathway design and cross-sector transferability

8.3.11 Alignment with the 2025-2030 Skills Strategy and EUSP CEO Council 2026/27 priorities:

- This commitment principally supports the **Develop** pillar. It also supports **Attract**, by creating credible entry routes, and **Retain**, by enabling progression and continued development.
- It directly aligns with the priorities covering:
  - Occupational profiles and occupational mapping (**G6**)
  - Standards and workforce competence (**G7**)
  - Expansion of Sector Entry provision and learner places (**P6**)
  - Flexible routes towards RQF Level 3 competence through apprenticeship units (**P7**)
  - Protection of safety and competence during apprenticeship reform (**UK2**)
  - Alternative progression routes for experienced workers into RQF Level 4 and above (**UK5**)
  - Simpler and more consistent apprenticeship funding, administration and delivery (UK6)
  - Removal of disincentives for frontline workers to become trainers and assessors (**UK7**)
- It also supports:
  - Development of a Youth Guarantee model (**G8**)
  - Effective use of skills investment and the levy (**P8**)
  - Sustainable routes from economic inactivity and unemployment into the sector (**UK3**)
  - Place-based adult skills investment (**UK4**)
  - Pathways for skilled workers moving from other industries (**P10**)

Commitment 3: Retain experience and widen access to opportunity

8.3.12 Employers should treat retention, succession and knowledge transfer as essential infrastructure-delivery activities by:

- Identifying retirement and turnover exposure in critical roles
- Strengthening career development and internal progression

- Protecting time for experienced workers to train and mentor others
- Improving job quality, inclusion, wellbeing and workforce experience
- Retaining unsuccessful applicants and displaced workers within the wider sector talent pool
- Opening routes for people who are unemployed, economically inactive, under-represented or moving from other industries

8.3.13 UK-wide action should be combined with place-based delivery so that people can access genuine vacancies, appropriate support and clear progression from entry-level roles into skilled employment.

8.3.14 Primary ownership sits with:

- **Employers** should improve retention, succession, progression and knowledge transfer
- **Governments and public employment services** should connect employment, welfare, careers and skills policy to evidenced sector demand
- **Education and skills providers** should create accessible entry and progression pathways that reflect regional labour markets
- **The Energy & Utility Skills Partnership** should coordinate talent referral, inclusion, attraction and cross-sector transition activity

8.3.15 Alignment with the 2025-2030 Skills Strategy and EUSP CEO Council 2026/27 priorities:

- This commitment principally supports the **Retain** and **Attract** pillars. It also supports **Develop** through mentoring, knowledge transfer and career progression.
- It directly aligns with the priorities to:
  - Retain skilled people and unsuccessful candidates within the sector and its supply chains (**G9**)
  - Launch the evaluated Inclusion Measurement Framework, supported by best practice and recommendations (**P9**)
  - Create pathways for skilled workers moving from industries undergoing programme-driven transitions (**P10**)
  - Reduce economic inactivity and unemployment while strengthening progression from entry-level roles into apprenticeships and skilled occupations (**UK3**)
- It also supports:
  - Development of the Youth Guarantee model (**G8**)
  - Access to careers, routes, tools and insight through the sector platform (**P4**)
  - Inclusive attraction and recruitment activity through Destination Energy (**P5**)
  - Progression by experienced workers into higher-level opportunities (**UK5**)
  - The use of experienced workers as trainers and assessors (**UK7**)

Commitment 4: Adopt technology responsibly to increase safe delivery capacity

8.3.16 Digital technologies, automation, artificial intelligence, computer vision, robotic sorting, digital waste-tracking systems and advanced monitoring systems are expected to change tasks, skills and working practices across the waste and recycling industry. Many technologies have the potential to improve sorting accuracy, material recovery, operational performance, environmental outcomes, compliance and workforce productivity. However, technology should augment workforce capability rather than be viewed solely as a substitute for labour.

8.3.17 Employers should adopt AI, automation and digital technologies where they can demonstrably improve delivery. Implementation should be governed by:

- Task-level assessment of safety, competence and operational risk
- Workforce involvement in workflow and job redesign
- Clear human accountability for safety-critical and regulatory decisions
- Validation and assurance of data, models and automated outputs
- Structured reskilling and redeployment
- Measurement of productivity, quality, safety and service outcomes.

8.3.18 Where technology releases capacity, employers should seek to redirect it towards higher-value, safety-critical or shortage-constrained work. Adoption should respond to clearly defined operational needs rather than an assumption that technology automatically substitutes for labour.

8.3.19 Primary ownership sits with:

- **Employers** should select appropriate use cases, manage risk, redesign work and reskill affected workers
- **Regulators** should establish clear and proportionate expectations for assurance, accountability and evidence
- **Education and skills providers** should embed relevant digital and AI capabilities within technical and professional learning
- **The Energy & Utility Skills Partnership** should gather evidence, share effective practice and identify common implications for occupations, standards and workforce planning

8.3.20 Alignment with the 2025-2030 Skills Strategy and EUSP CEO Council 2026/27 priorities:

- This commitment principally supports the **Develop** pillar because it addresses new capabilities, occupational competence, reskilling and the redesign of work.

  It also supports **Research**, through evidence and workforce intelligence, and **Retain**, where reskilling and redeployment allow people to continue contributing within the sector.
- The commitment also advances the Skills Strategy's cross-cutting themes of **AI and Technology** and **Productivity**. These are cross-cutting themes rather than additional strategic pillars.
- No single 2026/27 priority corresponds directly and comprehensively to responsible AI and automation adoption. The commitment nevertheless supports the priorities covering:
  - Research and evidence needed to identify emerging workforce challenges (**G3**)
  - Occupational profiles and occupational mapping (**G6**)
  - Continuous improvement in standards and workforce competence (**G7**)
  - Workforce and skills decisions based on employer-informed evidence (**P1**)
  - Investment in skills and improved productivity (**P8**)
  - Protection of competence and safety as skills provision changes (**UK2**)
- This supporting alignment should not be interpreted as making any one of these priorities a standalone AI or automation priority

Commitment 5: Champion the people delivering the UK's future

8.3.21 Workforce growth will depend not only on creating opportunities but also on making those opportunities visible, credible and attractive. The industry and its partners should champion, amplify and celebrate the people and teams who collect, transport, sort, process, treat, recover and manage the UK's waste and resources.

8.3.22 This should include:

- Creating a shared, evidence-led account of the contribution made by the waste and recycling workforce
- Using authentic stories from employees, apprentices, career changers, trainers, mentors and supply-chain teams
- Showcasing the breadth of technical, professional, operational and support careers available across the UK
- Recognising employers and partnerships that widen access, uphold competence and improve workforce experience
- Connecting communications to genuine jobs, training, work experience and progression opportunities
- Making careers information accessible to young people, educators, careers advisers, jobseekers and workers in transition
- Measuring whether activity improves awareness, engagement and entry into the industry, rather than reporting communications reach alone.

8.3.23 This is more than a communications commitment. It supports attraction by showing people where opportunities exist, development by making pathways and competence requirements clear, and retention by recognising the contribution of the existing workforce and demonstrating that the industry offers meaningful, long-term careers.

8.3.24 Primary ownership sits with:

- **Employers and supply-chain organisations** should provide authentic workforce stories, career information and examples of effective practice
- **Trade unions, employee networks and workforce representatives** should help ensure that communications accurately reflect the work and the workforce experience
- **Education, careers and employment partners** should bring these messages to schools, colleges, universities, jobseekers and local communities
- **The Energy & Utility Skills Partnership** and sector communications networks should coordinate and amplify a consistent industry narrative

8.3.25 Alignment with the 2025-2030 Skills Strategy and EUSP CEO Council 2026/27 priorities:

- This commitment principally supports the **Attract** pillar

  It also supports **Retain**, through recognition and an authentic employee proposition, and **Develop**, by explaining career pathways, progression and competence requirements
- It directly aligns with the priorities to:
  - Align communications and marketing with the agreed CEO Council priorities (**G10**)
  - Deliver coordinated sector attraction and recruitment activity through Destination Energy (**P5**)

- It also supports the priorities to:
  - Deepen partnerships and clarify engagement routes (**G4**)
  - Support worker transitions through the North Sea Worker service (**G5**)
  - Use occupational profiles to make careers and pathways clearer (**G6**)
  - Retain candidates and skilled people within the sector talent pool (**G9**)
  - Provide access to careers, routes, tools and insight through the sector platform (**P4**)
  - Promote inclusive workforce practice and recommendations (**P9**)
  - Make transition pathways visible to workers in adjacent industries (**P10**)
  - Strengthen entry routes and progression from economic inactivity or unemployment into skilled work (**UK3**)

Summary of strategic alignment

8.3.26 The following table distinguishes between:

- **Direct alignment:** the commitment would materially contribute to delivery of the priority
- **Supporting alignment:** the commitment contributes to the priority but would not deliver it by itself

Commitment	2025-2030 Skills Strategy alignment	EUSP CEO Council 2026/27 priority alignment (Direct)	EUSP CEO Council 2026/27 priority alignment (Supporting)
1. Plan and invest against evidenced workforce demand	**Primary:** Research. **Supporting:** Develop and Retain.	G2, P1, UK1	G3, P2
2. Expand safe routes to competence	**Primary:** Develop. **Supporting:** Attract and Retain.	G6, G7, P6, P7, UK2, UK5, UK6, UK7	G8, P8, UK3, UK4, P10
3. Retain experience and widen access to opportunity	**Primary:** Retain and Attract. **Supporting:** Develop.	G9, P9, P10, UK3	G8, P4, P5, UK5, UK7
4. Adopt technology responsibly to increase safe delivery capacity	**Primary:** Develop. **Supporting:** Research and Retain. **Cross-cutting:** AI and Technology; Productivity.	No single priority directly covers the full commitment	G3, G6, G7, P1, P8, UK2
5. Champion the people delivering the UK's future	**Primary:** Attract. **Supporting:** Retain and Develop.	G10, P5	G4, G5, G6, G9, P4, P9, P10, UK3

8.3.27 The mapping identifies the priorities to which each commitment makes the clearest direct or supporting contribution. It does not imply that a commitment is solely responsible for delivering those priorities. The four pillars are interconnected, and action under one commitment may contribute to outcomes across more than one pillar.

8.4 The immediate commitment

8.4.1 The workforce requirement is not a distant 2032 issue. There are significant, immediate workforce requirements, while many technical and professional pathways can take years to produce an occupationally competent worker.

8.4.2 The industry and its partners should therefore commit now to:

1. **Produce funded workforce and supply-chain plans** for critical occupations, regions and delivery programmes
2. **Expand training, supervision, mentoring and assessment capacity** ahead of demand
3. **Scale entry, progression and transition routes** without weakening competence or safety standards
4. **Retain experienced workers and protect critical knowledge** through succession planning, progression and mentoring
5. **Adopt AI, automation and digital technologies responsibly**, with clear human accountability
6. **Champion the people and opportunities behind waste collection, recycling and resource recovery**, connecting communications to genuine jobs, training and careers
7. **Report progress collectively**, using shared workforce outcomes and escalating barriers that individual organisations cannot resolve

8.4.3 By their next workforce-planning cycle, major employers and participating supply-chain organisations should be able to demonstrate how their plans:

- Respond to evidenced occupational demand
- Increase routes to competence
- Protect safety
- Expand delivery capacity
- Support retention

8.4.4 The industry's infrastructure programme will move only as quickly as the workforce behind it. Investment in people must therefore be planned, funded and governed with the same urgency as investment in the network itself.

Annex 1 – Occupations and example job titles

Skill Level	Standard Occupational Classification	Occupational Group	Example job titles
RQF 7-8 SCQF 11-12	**11 - Corporate Managers and Directors**	Managerial	Chief Executive Officer; Managing Director; Operations Director; Other Directors
	12 - Other Managers and Proprietors	Managerial	Waste Services Manager; Recycling Plant Manager; MRF Manager; HWRC Manager; Transfer Station Manager; AD Plant/Site Manager; Depot Manager; Operations Manager
RQF 6 SCQF 9-10	**21 - Science, Research, Engineering and Technology Professionals**	Technical Professional	Process Engineer; Mechanical/Electrical Engineer; Environmental Consultant; Waste Chemist; Biogas Process Scientist; Data Scientist; Sorting-Technology Application Engineer
	22 - Health Professionals	Other	Occupational Health Adviser; Site Paramedic
	23 - Teaching and Other Educational Professionals	Other	Apprenticeship Trainer/Lecturer; Education Manager
	24 - Business, Media and Public Service Professionals	Business Support	Chartered Accountant; Commercial Manager; Programme/Project Manager; Quantity Surveyor; Waste Policy Adviser; Procurement Manager; Regulatory/Compliance Manager; Circular Economy Consultant
RQF 4-5 SCQF 7-8	**31 - Science, Engineering and Technology Associate Professionals**	Technical Professional	Laboratory Technician; Engineering Technician; Commissioning Technician; CAD Technician; Quality Technician; IT Support Technician; Field-Service Technician; Process Technician
	32 - Health and Social Care Associate Professionals	Other	Occupational Health Technician; Workplace Health Trainer; Community Development Officer – Reuse/Waste Prevention; Community Project Worker
	33 - Protective Service Occupations	Business Support	Security Manager; Fire Safety Officer
	34 - Culture, Media and Sports Occupations	Business Support	Technical Author; Copywriter; Translator; Corporate Videographer; Aerial/Drone Photographer; Technical Illustrator
	35 - Business and Public Service Associate Professionals	Business Support	Waste & Recycling Officer; Recycling Engagement Officer; Environmental Enforcement Support Officer; H&S Adviser; Buyer; Estimator; Data Analyst; Project Support Officer; Transport Planner
RQF 3 SCQF 6	**41 - Administrative Occupations**	Business Support	Waste Services Administrator; HR/Office Administrator; Finance Officer; Payroll Administrator; Purchase Ledger Clerk; Stock Controller; Logistics Coordinator; Weighbridge Administrator/Operator
	42 - Secretarial and Related Occupations	Business Support	Executive Assistant; Personal Assistant; Legal Secretary; Receptionist
	51 - Skilled Agricultural and Related Trades	Front Line Technical	Landscape Gardener; Grounds Maintenance Operative; Arborist/Tree Surgeon; Horticultural Operative; Landfill Restoration Operative; AD Feedstock Agricultural Operator
	52 - Skilled Metal, Electrical and Electronic Trades	Front Line Technical	Maintenance Electrician; Mechanical Fitter; EC&I Craftsperson; Welder/Fabricator; HGV Technician; Plant Mechanic; Electrical Maintenance Technician; Instrument Technician
	53 - Skilled Construction and Building Trades	Front Line Technical	Site Carpenter/Joiner; Bricklayer; Plumber; Pipe Installer; Steel Erector; Construction Supervisor; Building Services Installer
	54 - Textiles, Printing and Other Skilled Trades	Other	Furniture Repair Technician; Upholsterer; Sewing Machinist/Repairer; Textile Repair Technician; Furniture Maker; Reuse Workshop Craftsperson
	61 - Caring Personal Service Occupations	Other	Pest Control Technician; Pest Control Officer; Bird Control Technician; Animal Control Officer
	62 - Leisure, Travel and Related Personal Service Occupations	Other	Site Caretaker; Premises Officer; Housekeeping Supervisor; Cleaning Supervisor; Visitor-Facility Supervisor
	63 - Community and Civil Enforcement Occupations	Other	Waste Enforcement Officer; Environmental Enforcement Officer; Fly-Tipping Enforcement Officer; Civil Enforcement Officer; Community Warden

Skill Level	Standard Occupational Classification	Occupational Group	Example job titles
RQF 2 SCQF 5	**71 - Sales Occupations**	Business Support	Telesales Executive; Inside Sales Executive; Reuse Shop Assistant; Reuse Shop Supervisor; Retail Sales Assistant – Reclaimed Materials; Parts Sales Adviser
	72 - Customer Service Occupations	Business Support	Customer Service Adviser; Waste Collections Contact-Centre Adviser; Customer Support Agent; Complaints Adviser; Service Helpdesk Adviser; Customer Service Supervisor
RQF 1 SCQF 4	**81 - Process, Plant and Machine Operatives**	Front Line Technical	EfW Shift Operations Technician; Control-Room Operator; Plant Operator; AD Process Operator; Recycling Machine Operator; MRF Plant Operative; Weighing/Grading/Sorting Operative
	82 - Transport and Mobile Machine Drivers and Operatives	Front Line Technical	HGV Class 2 Driver/Loader; RORO/Skip Driver; ADR Hazardous-Waste Driver; Tanker Driver; Loading-Shovel Operator; Crane/Grab Operator; Forklift Driver; Mobile Plant Operative
	91 - Elementary Trades and Related Occupations	Front Line Technical	Groundworker; Construction Labourer; Demolition Labourer; Industrial Cleaner – Process Plant; Drainage Labourer; Site Maintenance Labourer
	92 - Elementary Administration and Service Occupations	Front Line Technical	Refuse Loader; Waste Collection Operative; Recycling Operative – Manual Sorting; Street Cleansing Operative; Litter Picker; HWRC/Site Operative; Warehouse Operative; Security Officer

Annex 2 – Methodology

A2.1 Current workforce estimates and future employment forecasts

A2.1.1 The estimates and forecasts contained in this report are based on data taken from the Lightcast labour market information system. Total workforce estimates for the period 2011 to 2025 were extrapolated out to 2032 for the following Standard Industrial Classification codes.

Standard Industrial Classification
Waste collection
3811 – Collection of non-hazardous waste
3812 – Collection of hazardous waste
Waste treatment and disposal
3821 – Treatment and disposal of non-hazardous waste
3822 – Treatment and disposal of hazardous waste
Materials recovery
3831 – Dismantling of wrecks
3832 – Recovery of sorted materials
Remediation activities and other waste management services
3900 – Remediation activities and other waste management services

A2.1.2 Current workforce estimates use the latest available baseline for each sub-industry. Most estimates relate to 2025, although some use 2024 data where that is the latest available source. Forecasts are presented for 2032 and represent the best estimate based on information available at the time of publication, including known policy, investment and project plans. As with all forecasts, uncertainty increases over time and future workforce requirements may differ if assumptions, investment decisions, delivery timescales or economic conditions change.

A2.1.3 Estimates are rounded to the nearest 100. As a result, the sum of sub-industries and tables may not equal published totals. Users should exercise caution when interpreting small differences between estimates and forecasts or changes over time, as these may reflect the effects of rounding rather than underlying variation.

A2.1.4 This analysis includes forecast workforce growth in the 2026 calendar year, through to the end of 2032 – seven full years.

A2.2 Retirement and staff turnover assumptions

A2.2.1 Retirement forecasts have been calculated on the assumption that the proportion of the current workforce in each occupation who are aged 55+ will retire over the next ten years – therefore, we have taken one-tenth of that percentage as the annual retirement rate (see the table opposite).

A2.2.2 Staff turnover, although not an element of the core requirement for people, is based on the assumption that a small proportion of the workforce will leave the industry each year to take up employment in other sectors. Leavers through staff turnover that remain in the energy & utilities sector are not reported in this analysis (as they do not need to be replaced).

Standard Occupational Classification	Annual Retirement Rate	Annual Staff Turnover Rate
11 - Corporate Managers and Directors	2.3%	2%
12 - Other Managers and Proprietors	2.3%	2%
21 - Science, Research, Engineering and Technology Professionals	1.2%	2%
22 - Health Professionals	1.8%	2%
23 - Teaching and Other Educational Professionals	1.7%	2%
24 - Business, Media and Public Service Professionals	1.6%	2%

Standard Occupational Classification	Annual Retirement Rate	Annual Staff Turnover Rate
31 - Science, Engineering and Technology Associate Professionals	1.5%	2%
32 - Health and Social Care Associate Professionals	2.0%	2%
33 - Protective Service Occupations	1.0%	2%
34 - Culture, Media and Sports Occupations	1.2%	2%
35 - Business and Public Service Associate Professionals	1.4%	2%
41 - Administrative Occupations	2.1%	5%
42 - Secretarial and Related Occupations	3.0%	5%
51 - Skilled Agricultural and Related Trades	3.8%	2%
52 - Skilled Metal, Electrical and Electronic Trades	1.9%	2%
53 - Skilled Construction and Building Trades	2.0%	2%
54 - Textiles, Printing and Other Skilled Trades	1.9%	2%
61 - Caring Personal Service Occupations	2.1%	5%
62 - Leisure, Travel and Related Personal Service Occupations	2.1%	5%
63 - Community and Civil Enforcement Occupations	1.9%	5%
71 - Sales Occupations	1.8%	5%
72 - Customer Service Occupations	1.3%	5%
81 - Process, Plant and Machine Operatives	2.4%	2%
82 - Transport and Mobile Machine Drivers and Operatives	3.3%	2%
91 - Elementary Trades and Related Occupations	2.2%	2%
92 - Elementary Administration and Service Occupations	2.0%	2%

A2.3 Estimating occupational criticality

A2.3.1 Our approach to assessing the absolute and relative criticality of each occupational group (2-digit SOCs) and detailed occupation (4-digit SOCs) is based on the weighted average of each occupations scores against the following 11 criteria.

Criterion	Description
Occupational relevance to the industry	Importance of occupation to the industry
Infrastructure delivery criticality	Importance of occupation to infrastructure delivery
Workforce shortage severity	Current or forecast workforce shortage level
Training lead time	Time required to reach competency
Replacement demand risk	Exposure to retirement and attrition
Regional concentration risk	Geographic availability constraints
Supply chain dependency	Reliance on contractors/subcontractors
Scalability of workforce	Ability to rapidly increase workforce numbers
Technology substitution potential	Potential for AI, robotics or automation to reduce workforce requirement
Regulatory / safety criticality	Importance to safety-critical or regulated activities
Future system relevance	Importance to future digital, DSO and whole-system requirements

A2.3.2 Each occupation is given a rating out of five against each criterion set our above and each score is multiplied by a weighting. The overall weighted average is then calculated and assigned to a level of criticality:

Score	Level of criticality	Suggested response
4.0 - 5.0	Critical priority	Immediate intervention required
3.0 - 3.9	High priority	Active monitoring and targeted interventions
2.0 - 2.9	Medium priority	Longer-term workforce planning
<2.0	Lower priority	Monitor only

A2.4 AI and automation adoption framework

A2.4.1 Our approach to assessing the impact of AI and automation on the future workforce is based on three adoption scenarios (low, medium and high adoption) assessed across seven dimensions of AI and automation adoption, as set out in the table below.

Dimension	Low Adoption	Medium Adoption	High Adoption
1. Investment and pace	Selective, cautious and uneven; scaling remains slow	Sustained investment in proven cases; adoption accelerates	Strong strategic investment; rapid scaling is prioritised
2. Technology maturity and autonomy	Established, low-risk tools; mainly assistive or rule-based	Mature predictive, generative and workflow tools; bounded autonomy	Agentic AI, machine vision, robotics and autonomous systems expand
3. Breadth of deployment	Selected teams, support functions and isolated operational uses	Multiple core and support functions; adoption still varies by organisation	Most feasible functions, supply-chain areas and lifecycle stages
4. Depth and operating-model integration	Tools sit alongside existing processes; pilots and local solutions dominate	Tools enter business-as-usual workflows, data platforms and governance	Processes are designed around AI; systems coordinate across workflows
5. Task automation and augmentation	Assists workers, removes discrete routine tasks and improves information access	Automates task clusters while augmenting judgement and decisions	Automates substantial sequences or selected end-to-end processes
6. Job redesign and skills	Local working-practice changes and basic AI literacy; little formal redesign	Material role redesign, structured upskilling and some redeployment	Widespread redesign, substantial reskilling and new oversight roles
7. Productivity ambition	Incremental gains in efficiency, quality, safety or service	Material productivity and capacity gains pursued across functions	Transformational gains; higher output, faster delivery or lower labour intensity

A2.4.2 Potential workforce effects are assessed separately and are not a defining characteristic of AI and automation adoption. Workforce impacts may vary between occupations operating under the same adoption scenario.

A2.4.3 The distinction between Significantly Impacted and Augmented occupations is important. Occupations classified as Significantly Impacted are expected to experience substantial changes to role content, responsibilities, skills and workflows, resulting in meaningful job redesign. Occupations classified as Augmented may also experience significant AI and automation adoption, but technology primarily enhances productivity, decision-making and performance while the core nature of the role remains broadly unchanged.

Risk Category	Definition
At Risk of Reduction	Fewer workers may be required because AI and automation increase productivity and automate routine tasks.
Significantly Impacted	Workforce demand remains broadly stable, but roles undergo substantial redesign as tasks, skills, responsibilities and workflows change significantly.
Augmented	AI and automation significantly improve productivity, decision-making and performance, but primarily enhance rather than redesign core roles, and demand for workers remains strong.
Limited Impact	Little expected effect on workforce demand because activities continue to depend heavily on physical intervention, human interaction or site-based work.

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