

Recycling Carbon Index

England, Wales &
Northern Ireland Local
Authorities 2017/18

Summer 2019

About Eunomia Research & Consulting

Eunomia provides environmental consultancy to waste collection and treatment companies, to investors and to local, national and European government. In all of our work we aim to help our clients understand how the environmental and cost performance of the services and products they provide can be improved. We have modelled the carbon and other environmental impacts of waste collection and treatment services for a large number of clients including:

- European Commission Directorate General of the Environment. We have provided detailed advice on the impacts of changes to waste management across the European Union, informing the EU's circular economy proposals, assisted the EU in understanding member states' compliance with current rules, and are closely involved in developing the EU's guidance on its new waste legislation.
- Devolved administrations in Scotland and Wales. We have helped the devolved governments develop progressive waste management policies, including proposals for a deposit refund scheme in Scotland.
- UK Local Government. Eunomia has carried out waste collection and treatment reviews and assessments for a large number of local authorities in England, Wales, Scotland and Northern Ireland, and assists councils that are trying to reduce their carbon footprint.
- Private companies. We advise businesses, manufacturers, retailers and waste management organisations on how to adopt more circular business models.

Our intention in publishing this work free of charge is to help local authorities and their service providers to think about the environmental performance of the services they provide. An authority's recycling rate is an interesting and important metric, but there are other, equally valuable measures of a service's environmental performance, including the carbon index presented in this report.

What is the Carbon Index?

This is the seventh edition of Eunomia’s Local Authority Recycling Carbon Index. It gives councils an alternative and arguably better measure of the environmental performance of their waste and recycling services than a purely weight-based measure. The Index shows which local authorities’ recycling activities are delivering the greatest carbon benefits. Reading it alongside the recycling rate and other metrics provides a fuller picture of the benefits achieved by waste and recycling services.

This and previous years’ results are available through our interactive website (www.eunomia.co.uk/carbonindex) where authorities can track and compare their performance.

How is it Calculated?

Local authorities’ recycling performance data for 2017/18 is taken from WasteDataFlow¹ and multiplied by the same carbon ‘factors’ used by Zero Waste Scotland to produce the Scottish Carbon Metric.² This process converts tonnage data for each recyclable material into carbon dioxide equivalents (CO₂ eq.). This shows the total embodied carbon³ in the material that authorities are diverting from disposal to recycling. Local authorities that collect more of the materials with a higher embodied carbon for recycling will show greater benefits. We also take account of the emissions impact of source separated and comingled collections.

We have calculated the total carbon savings generated from all the recycling reported by each authority, encompassing their kerbside collections, HWRCs and bring sites. Dividing this figure by the population served yields a carbon saving figure per person, thereby allowing an effective comparison between authorities. The formula for the Index is shown below:

$$\left[\frac{\text{Total Carbon Savings (Kg CO}_2 \text{ eq.)}}{\text{Population served}} \right] = \text{kg CO}_2 \text{ saved per person}$$

The higher the value, the higher carbon savings. Rating authorities in this way demonstrates that a high recycling rate does not necessarily result in the greatest carbon savings.

Small errors in data reporting might significantly affect the ranking of the authorities in the Index tables so the results should be treated as approximate values. For this reason we have created four categories to better reflect the general performance of each authority. These categories are defined as follows:

- **High Flyers** – the top 10%
- **Good Performers** – the next 30%,
- **Mid Performers** – the next 30%, and
- **Low Performers** – the bottom 30%

Key Findings

England’s Carbon Index performance fell by 0.7 points (1.0%) to less than 69 kg CO₂eq per capita, due to a fall in the household recycling rate. That decreased by 0.5 percentage points (1.1%) in 2017/18, to 43.2%. This is due to local authorities recycling 349,000 tonnes less material than in 2016/17, reducing the amount of carbon saved.⁴

Northern Ireland’s performance on the Carbon Index improved by 3.2 points (4.2%) to almost 79 kg CO₂eq, reflecting a 3.8 percentage point (8.4%) increase in the recycling rate to 48.1%.⁵

Wales remains by some distance the country which achieves the greatest carbon saving per capita from local authority recycling. However, its Carbon Index performance suffered a small decrease (of 0.2 points, or 0.2%) in 2017/18, remaining a little over 93 kg CO₂eq per capita. This was due to a drop in the published recycling rate, calculated on a different basis from England and Northern Ireland, which fell by 1.1 percentage points (1.7%).⁶

Kg Collected per Person	2016/17	2017/18	Change
Garden and food waste	18.3	17.8	-2.8%
Waste food only	8.2	9.2	12.7%
Garden waste only	51.0	50.3	-1.5%
Textiles	1.8	1.8	-1.7%
WEEE	4.6	4.4	-3.7%
Paper	29.9	29.1	-2.7%
Card	14.7	14.6	-0.6%
Glass	22.1	22.4	1.4%
Plastic	8.2	8.3	1.7%
Metal	9.6	9.4	-1.9%
Total	168.0	167.3	-0.4%

The table above shows the weight of the key materials collected for recycling per head of population across England, Wales and Northern Ireland in both 2016/17 and 2017/18. Overall captures of these recyclable materials increased by 0.4%.

Yields of most material streams decreased, with the biggest decrease in percentage terms being in waste electronics. The greatest reductions in terms of Kg per capita were in paper, which has been in consistent decline for several years, and in garden waste - perhaps reflecting an increase in charging for such collections. Food waste was the stream whose capture increased most, both in percentage and weight terms.

1. See: www.wastedataflow.org
2. We have used figures from the 2012 and 2013 versions of the **Scottish Carbon Metric** as appropriate.
3. Embodied carbon is defined as the amount of carbon released from material extraction, transport, processing and manufacturing, and all related activities.
4. Source: UK Department for Environment, Food and Rural Affairs (Defra), **Statistics on waste managed by local authorities in England in 2017/18**.
5. Source: Northern Ireland Department for Agriculture, Environment and Rural Affairs (Daera), **Northern Ireland Local Authority Collected Municipal Waste Management Statistics Annual Report 2017/18**.
6. Source: Welsh Government, **Local Authority Municipal Waste Management Report for Wales, 2017-18**.

English Recycling Carbon Index

The Carbon Index results for 2017/18 are shown alongside the 2016/17 figures for ease of comparison and to highlight changes. The relative positions and groupings of councils within the Index are defined by the 2017/18 data to reflect the latest position. Because we include material collected at HWRCs in addition to kerbside collections, we report performance by Waste Disposal Authority area rather than for Waste Collection Authorities. This helps to ensure a fair comparison between two tier councils and unitary authorities. While the Carbon Index method could be applied to Waste Collection Authorities, their performance would be lower due to HWRCs being operated only at the Waste Disposal Authority level.

	16/17	17/18	
High Flyers	Dorset Waste Partnership	104	108 ▲
	Cheshire West and Chester	111	107 ▼
	Gloucestershire	102	107 ▲
	Bexley	109	106 ▼
	North Somerset	105	102 ▼
	Devon	97	102 ▲
	Somerset	103	100 ▼
Good Performers	South Gloucestershire	94	97 ▲
	Buckinghamshire	99	96 ▼
	Bath and North East Somerset	91	96 ▲
	Hampshire	94	96 ▲
	Wigan	87	96 ▲
	Cheltenham	85	93 ▲
	Rutland	89	93 ▲
	East Riding of Yorkshire	92	92 ▼
	Northamptonshire	89	88 ▼
	West Sussex	81	88 ▲
	Oxfordshire	96	87 ▼
	Worcestershire	89	86 ▼
	Cambridgeshire	87	86 ▼
	Wokingham	86	86 ▼
	Milton Keynes	90	85 ▼
	Suffolk	90	85 ▼
	North Yorkshire	89	85 ▼
	North Lincolnshire	87	83 ▼
	Surrey	86	82 ▼
	Torbay	79	82 ▲
	Herefordshire	86	82 ▼
	Essex	82	81 ▼
	Wiltshire	85	81 ▼
	West Berkshire	83	80 ▼
	Swindon	82	80 ▼
	Isle of Wight	84	79 ▼
	Kent	84	79 ▼
	Poole Borough	77	79 ▲
	Cheshire East	80	78 ▼
	Shropshire	80	78 ▼
	Central Bedfordshire	75	77 ▲
	East Sussex	76	76 ▼
Telford and Wrekin	75	76 ▲	
Cumbria	70	76 ▲	
Mid Performers	Bracknell Forest	79	75 ▼
	Darlington	75	75 ▼
	City of London	68	74 ▲
	Richmond upon Thames	74	74 ▼
	Hertfordshire	76	74 ▼
	York	70	74 ▲
	Doncaster	65	74 ▲
	Norfolk	73	73 ▼
	Derbyshire	74	73 ▼
	Lancashire	77	73 ▼
	County Durham	78	72 ▼
	Northumberland	76	72 ▼
	Nottinghamshire	75	72 ▼
	Cornwall	74	72 ▼
	Kingston upon Thames	67	71 ▲
	Bristol	73	70 ▼
	Calderdale	64	70 ▲
	Halton	68	69 ▲
	Leicestershire	75	69 ▼
	Bromley	66	68 ▲
	Staffordshire	70	68 ▼
	Warwickshire	74	68 ▼
	Lincolnshire	71	68 ▼
	Greater Manchester	69	68 ▼
	Merseyside	67	66 ▼
	Warrington	68	66 ▼
	Kingston-upon-Hull	69	65 ▼
	Medway	67	65 ▼
	Peterborough	67	64 ▼
	Plymouth	58	64 ▲
	Windsor and Maidenhead	68	62 ▼
	Wakefield	64	62 ▼
Southend-on-Sea	66	61 ▼	
Bournemouth	63	61 ▼	
Gateshead	73	61 ▼	
Barnsley	66	60 ▼	
Reading	63	60 ▼	
Bedford	60	60 ▼	
Sutton	55	59 ▲	
Merton	60	57 ▼	
Rotherham	60	57 ▼	
Croydon	64	56 ▼	
Southampton	55	56 ▲	
Derby	53	56 ▲	

Units = kg CO₂ eq. saved per person

In 2017/18, just 29% of English authorities improved their Recycling Carbon Index performance, when compared to 2016/17. However, of those with an improved performance, 46% improved by at least 3kg of CO₂e. per person.

Poor Performers

	16/17	17/18	
Waltham Forest	55	55	
Stoke-on-Trent	56	54	▼
Portsmouth	50	54	▲
Ealing	54	53	▼
Sandwell	53	53	
Leeds Council	53	53	
Barnet	49	52	▲
Redcar and Cleveland	58	52	▼
South Tyneside	61	51	▼
Solihull	55	51	▼
Thurrock	51	51	
Barking and Dagenham	50	51	▲
Walsall	50	50	
Havering	52	49	▼
Brighton and Hove	50	49	▼
Luton	52	48	▼
Sheffield	48	48	
Harrow	52	47	▼
Blackburn with Darwen	58	47	▼
Hillingdon	51	47	▼
Hackney	47	46	▼
Wolverhampton	49	46	▼
North Tyneside	54	46	▼
Hartlepool	50	46	▼
Sunderland	44	46	▲
Bradford	34	46	▲
Greenwich	49	45	▼
North East Lincolnshire	43	45	▲
Brent	43	44	▲
Hounslow	58	44	▼
Haringey	47	44	▼
Blackpool	57	44	▼
Leicester	42	44	▲
Dudley	45	43	▼
Middlesbrough	43	43	
Enfield	42	43	▲
Camden	41	42	▼
Stockton-on-Tees	38	41	▲
Kirklees	45	40	▲
Newcastle-upon-Tyne	43	40	▼
Redbridge	41	40	▼
Islington	41	37	▼
Coventry	36	37	▲
Westminster	36	37	▲
Western Riverside	34	34	
Slough	40	33	▼
Tower Hamlets	32	33	▲
Nottingham	34	32	▼
Birmingham	39	30	▼
Newham	32	30	▼
Southwark	29	30	▲
Lewisham	26	25	▼

Municipal Recycling

in England, Wales and N.Ireland



equal to taking **3,222,323** cars off the roads in the UK



from London to Sydney

Results for England Using the ONS 2001 Area Classification

A number of geographic and social factors may influence the recycling performance of local authorities. For this reason, we have also ranked English authorities according to their super group classification in the 2001 National Statistics Area Classification. This allows authorities to compare their indicator score against others with similar geo-demographic characteristics, giving a fairer measure of their performance against that of their peers.



Northern Ireland & Wales Recycling Carbon Index

All local authorities in Wales and Northern Ireland are unitary authorities, with the powers of both a Waste Collection Authority and a Waste Disposal Authority. In the tables below, authorities have been grouped by their relative performance in the Recycling Carbon Index. In both countries, most authorities improved their overall performance in 2017/18, with all but two Northern Irish authorities showing an increase. Antrim and Newtownabbey became the first Northern Irish authority ever to reach the “High Flyer” rank in the Index.

Northern Ireland Authorities Index

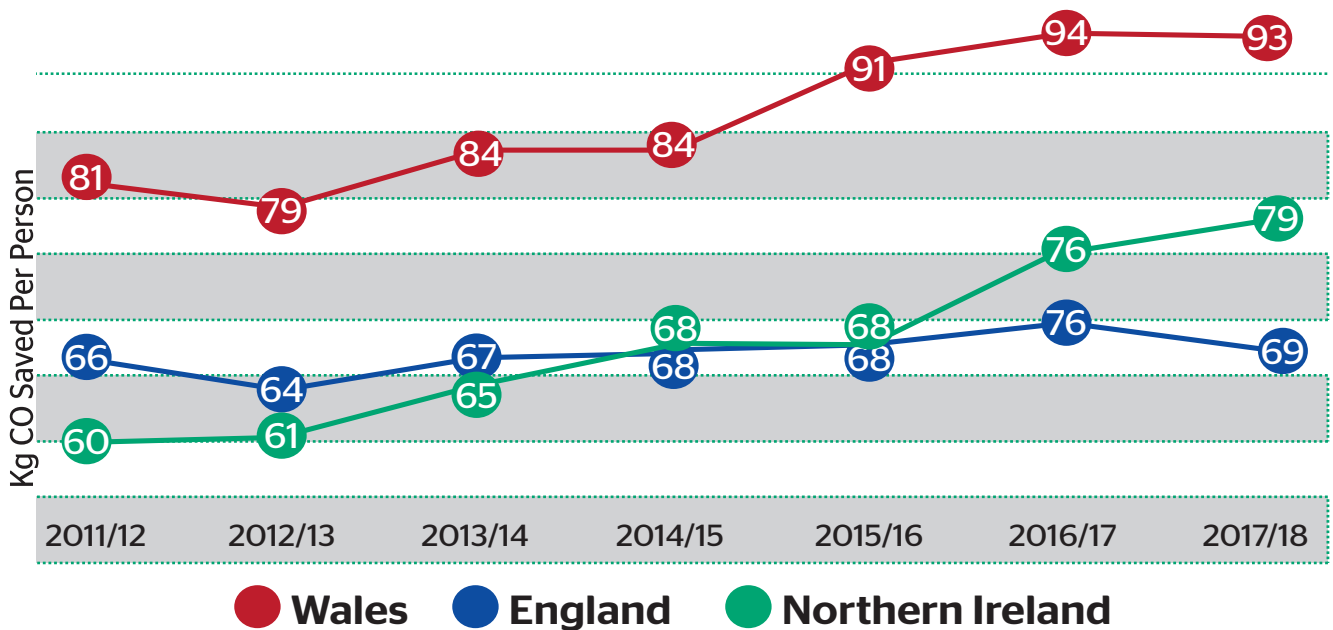
	16/17	17/18	
Antrim and Newtownabbey	93	98	▲
Mid Ulster	83	85	▲
Belfast	80	84	▲
Derry City and Strabane	74	82	▲
Fermanagh and Omagh	83	82	▼
Ards and North Down	83	82	▼
Mid and East Antrim	78	82	▲
Causeway Coast and Glens	73	72	▼
Lisburn & Castlereagh	65	69	▲
Armagh City, Banbridge & Craigavon	62	68	▲
Newry, Mourne and Down	61	66	▲

Wales Authorities Index

	16/17	17/18	
Merthyr Tydfil	104	117	▲
Bridgend	95	114	▲
Isle of Anglesey	108	113	▲
Neath Port Talbot	107	110	▲
Torfaen	109	110	▲
Flintshire	101	104	▲
Conwy	107	102	▼
Carmarthenshire	99	100	▲
Rhondda Cynon Taff	99	98	▼
Ceredigion	104	98	▼
Wrexham	101	98	▼
Newport City	94	97	▲
Denbighshire	100	96	▼
Gwynedd	99	95	▼
Pembrokeshire	96	94	▼
Powys	118	92	▼
Monmouthshire	96	90	▼
Swansea	86	88	▲
Vale of Glamorgan	83	87	▲
Caerphilly	85	85	▲
Blaenau Gwent	73	78	▲
Cardiff	62	61	▼

Welsh and Northern Irish authorities collected very similar amounts of recycling per capita - 200kg and 197kg respectively. However, in Wales, a greater share of this material is dry recycling rather than organics, resulting in considerably greater emissions savings.

Statistical Changes



Further Work

Our intention in publishing this work free of charge is to help local authorities and their service providers to think about the environmental performance of the services they provide.

This report presents a high-level view of the underlying analysis. More detailed outputs can be provided quickly and at low cost for an individual authority or group of authorities.

Our modelling allows us to look at the environmental performance of current and possible future services for both collection and disposal authorities and at the environmental impacts of collection, treatment and disposal.

www.eunomia.co.uk/carbonindex

Want to Know More?

Eunomia Research & Consulting Ltd
37 Queen Square
Bristol
BS1 4QS
E-Mail: simon.hann@eunomia.co.uk