Combined Authority Sustainability Benchmarking

Technical Report – annual analysis of metrics

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Report information

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Disclaimer: This report represents the independent advice commissioned by Sustainability West Midlands and not necessarily that of the funders.

About Sustainability West Midlands
We are the sustainability adviser for the leaders of the West Midlands. We are also the regional sustainability champion body for the West Midlands, as designated by government. We are a not-for-profit company that works with our members in the business, public and voluntary sectors. Our Board is private sector led and has cross-sector representation; they are supported by our team of staff and associates.

Our vision is that by 2020 businesses and communities are thriving in a West Midlands that is environmentally sustainable and socially just.

Our role is to act as a catalyst for change through our advice to leaders, to develop practical solutions with our members and share success through our communications.

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Executive Summary

Sustainability West Midlands (SWM) is the sustainability delivery partner for the West Midlands Combined Authority (WMCA). This report is part of an ongoing support programme to help the WMCA integrate sustainability within its strategy and operations, drawing on good local and national practice.

This report provides an overview and analysis of the annual data used to underpin sustainability performance and monitoring in the WMCA area and how these compare to the eight other CAs areas in England. This is the second year of producing this monitoring report.

The key sustainability metrics we used are taken from the West Midlands 2020 sustainability roadmap: economic productivity, carbon reduction, health inequality, with the additional metric of air quality, applied to the CA area. In this iteration, we have also added four new metrics as per the recommendations set out in last year's report. These are renewable electricity generated, amount of waste recycled, percentage of households classed as being in fuel poverty and sites in positive conservation management and access to local woodlands.

The geographical areas from where the data are used were those that correlated most closely to each combined authority's Strategic Economic Plan or equivalent.

Summary of Results

Environment Progress

- The WMCA has made better than average progress at reducing its overall and per capita emissions in the years 2010 to 2015 but remains the CA region that emits more carbon than any other.
- The West Midlands breached air quality standards on more days than in any other CA region bar one in 2017, but showed a reduction by recording less breached days in 2017 than in any other year since 2010.
- The West Midlands has generated much less electricity from renewables than the CA average, but saw a 17% increase in renewable generation between 2015 and 2016.
- The West Midlands recycles slightly less of its non-household waste than the CA average and recycling rates in the region are decreasing overall.
- West Midland household waste recycling rates have generally declined over time and are lower than the CA average.
- The percentage of sites in positive conservation management has increased in the West Midlands since 2010, but remains low compared to the CA average.
- The percentage of the population within the West Midlands CA with access to a 2+ hectare wood within 500 metres has increased since 2009, but remains low compared to the CA average.

Social Progress

- Health inequality is slightly lower in the WMCA than in other CA areas, but remains high overall. The gap between male and female health inequality is low in the WMCA compared to other CA areas.
- Fuel poverty levels in the West Midlands are worse than the average across all CAs, but the gap is beginning to narrow.

Economic Progress

- The West Midlands is performing well in economic productivity compared to other CA areas and has a about an average performance per head.

The below table provides a summary of the metrics including how they correlate to the relevant targets that the WMCA has in place and the ranking with other CAs.

Metric (Link to Performance Management Framework)	**Latest figure in specified year**	**Ranking out of 9 CAs**	**Rate of change since specified year**	**Ranking out of 9 CAs**	**WMCA target**	**Scale of challenge**
Environment						
Total carbon emissions (PMF E.1)	21,696 $ktCO_2$ (2015)	9	-18.3% (2010)	5	40% reduction from 2010 to 2030	By 2030, emissions should be ≤15,941 $ktCO_2$
Per capita carbon emissions (Context)	5.3 $ktCO_2$ (2015)	4	-20.4% (2010)	6	-	-
Air quality (PMF E.2)	25 days breached (2017)	7	-13 days breached (2010)	4	Reduction to 1 day breached by 2030	24 less days breached per year
Renewable electricity generation (New)	43,700 MWh (2016)	8	+39.4% (2014)	4	-	-
Waste Recycled – Household (New)	41.4% (2016)	6	-0.1% (2010)	7	-	-
Waste Recycled – Non-household (New)	32.9% (2016)	5	-3.5% (2014)	8	-	-

Metric (Link to Performance Management Framework)	Latest figure in specified year	Ranking out of 9 CAs	Rate of change since specified year	Ranking out of 9 CAs	WMCA target	Scale of challenge
Sites in positive conservation management (New)	40.3% (2016)	8	+4.3% (2010)	8	-	-
Access to woodland (New)	19.1% (2016)	7	+1.9% (2009)	8	-	-
Social						
Health inequality (males) (PMF P.14)	8.4 years (2015)	5	-0.7 years (2010)	6	Reduction in average health inequality gap by 5.9 years by 2030	Further reduction of 2.5 years
Health inequality (females) (PMF P.14)	7.2 years (2015)	5	+0.5 years (2010)	7	Reduction in average health inequality gap by 3.9 years by 2030	Further reduction of 3.3 years
Fuel poverty (New)	12.4% (2015)	7	-0.6% (2011)	2=	-	-
Economic						
Total economic productivity (Context)	£79,414m (2016)	1	+29.3% (2010)	1	-	-
Per capita economic productivity (PMF O.1)	£22,721 (2016)	4	+23.0% (2010)	1	£33,604 by 2030	47.9% increase required by 2030

Recommendations for the WMCA

These are discussed in more detail in the main report and include: establishment of more integrated targets, consistency of data and presentation, clear accountability and integrated working, clear annual reporting, resource to drive objectives and reporting of metrics into the WMCA and partners project systems and more action required on air quality, health inequality, fuel poverty, natural environment and recycling.

1 Introduction

Sustainability West Midlands (SWM) is the sustainability delivery partner for the West Midlands Combined Authority (WMCA). This report is part of an ongoing support programme to help the WMCA integrate sustainability within its strategy and operations, drawing on good local and national practice.

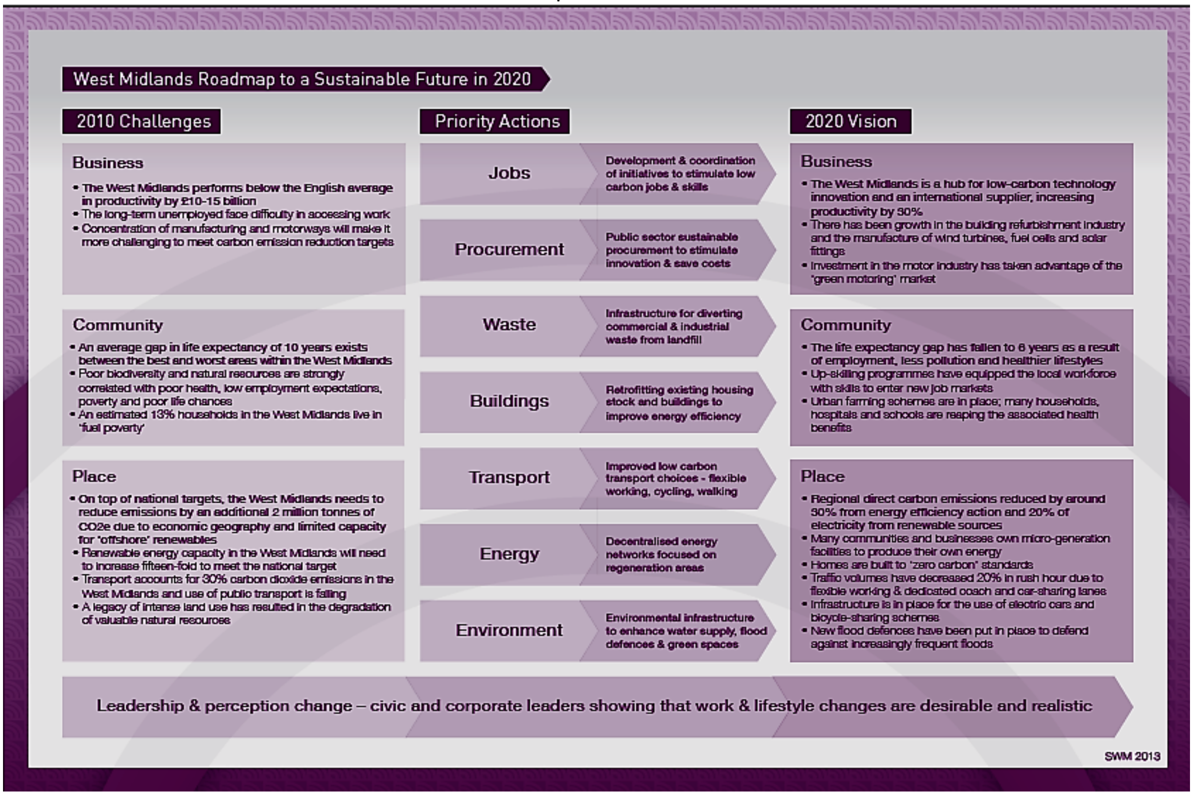
This report provides an overview and analysis of the data used to underpin sustainability performance and monitoring in the WMCA area and how these compare to the eight other CA areas in England. This is the second iteration, following on from last year's first such report, and includes the comparison of five new metrics: renewable energy generation, fuel poverty, recycling, sites in positive conservation management and access to woodland.

Our other annual benchmarking report looks at how the WMCA is performing against the other combined authorities (CAs) in England in terms of reported sustainability activity in leadership, strategy and delivery and will be updated later in 2018.

1.1 Background to developing sustainability metrics for the WMCA

To deliver our mission, we have developed a set of sustainability priority actions for the West Midlands based on collaborative research worth around £1 million and the support of over 200 local leaders and stakeholders in 2010.

West Midlands Roadmap to a Sustainable Future in 2020



Our 'West Midlands Roadmap to a Sustainable Future in 2020[1] identifies the current challenges facing the West Midlands, as well as the priority actions needed to make change happen. Through cross-sector working across local authority boundaries, we look to create a region with more low carbon jobs, reduced levels of carbon and improved life expectancy.

Since 2010 we have been the only region in the UK to have a clear vision, plan, action and annual monitoring[2] to help achieve a more sustainable future. This has been possible due to our independent nature, our evidence based approach and the support of a range of partners.

The roadmap and monitoring is important to help provide certainty and focus for local joint action and demonstrates commitment and credibility for inward investors. We are often requested to provide an independent voice and view on sustainability progress and opportunities within the West Midlands to national and international audiences.

This roadmap was used as the basis for ensuring sustainability was integrated into the WMCA Strategic Economic Plan (SEP) in June 2016. For example:

- All three of the roadmap objectives of economic productivity, carbon reduction and healthy life expectancy formed part of the nine SEP objectives
- There is a carbon reduction target of 40% by 2030 against a 2010 baseline
- Environmental Technologies formed one of the four priority business sectors
- The Performance Management Framework (PMF) contained the roadmap 2020 outcome indicators of economic productivity, carbon reduction and healthy life expectancy and in addition indicators on air quality and waste.

In July 2016, SWM was officially recognised as the sustainability delivery partner for the WMCA. This involves continuing to provide strategic advice, evidence, research and events to support the integration of sustainability within the WMCA and the continued alignment of our members, networks and partners good practice to accelerate the delivery of the SEP to create a better future.[3]

In early 2018, as part of our support programme, we used our annual roadmap monitoring and research to help update the WMCA PMF monitoring and reporting for the second time. An example is overleaf.

[1] Summary of roadmap http://www.sustainabilitywestmidlands.org.uk/priorities/
[2] Latest annual 2016 monitoring report of the Roadmap 2020 priorities and actions http://www.sustainabilitywestmidlands.org.uk/resourcess /swm-2020-roadmap-monitoring-report-2016/
[3]

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Example of WMCA PMF, WMCA AGM July 2017

Black Country Consortium
Economic Intelligence Unit

WEST MIDLANDS COMBINED AUTHORITY
DRAFT PERFORMANCE MANAGEMENT FRAMEWORK

WEST MIDLANDS COMBINED AUTHORITY

Outcomes	Measures of Success	Where we are now	Change over the last year	Direction of Travel Relative to UK average since 2013	Scale of the Challenge
ECONOMIC GROWTH - Improved GVA for the region in line with the UK average	O1. GVA per Head	£21,537	+£442	+7.0% WMCA +5.8% UK	+£4,064 GVA per head
BUSINESS - Improved the productivity of our businesses focussing on our growth sectors FISCAL - Secure better for less from our public services	B1. GVA per employee	£43,706	+£28	+£2,781 +6.8% WMCA +2.4% UK	+£19,832 GVA per employee
	B2. GVA in transformational sectors	£71.3bn	+£2.4bn	+£6.2bn +9.0% WMCA +7.4% UK	£040.7bn GVA
	B3. No. of Business Births	22,430 business births 33 per 10,000 population	+3,485 business births +15.5% WMCA +8.5% UK	+3,625 business births +19.3% WMCA +10.6% UK	39 per 10,000 population +1,458 births per annum
	B4. Jobs in Transformational Sectors	1.27m	+55,000 jobs +4.6%	+82,000 jobs +6.9% WMCA +4.9% UK	+194,400 Jobs
	B5. Total Jobs	2m	+54,200 jobs	+101,000 Jobs +5.0% WMCA +4.9% UK	+400,000 Jobs
	B6. Employment Rate	68.8%	+0.4pp	+1.55pp WMCA +2.7pp UK	73.9% 15.11pp
	F1. Income & Exp. Balance	-£4.5bn	+£0.6bn	+£0.6bn +15.4%	No fiscal gap +£4.5bn
PEOPLE - Improved Life Chances for all	P1 – Reduce % of people in top 10% most deprived areas	20%	0.02pp	0.9pp WMCA +0.05 pp Eng.	10% of people
	P2. – Better employment, health and wider outcomes for people with complex needs	To be developed			
	P3. (i) Average earnings	£27,151	+5.1%	+4.9% WMCA +4.5 UK	+1,062
	(II) % of employees earning above UK living wage	To be developed			
SKILLS - Improved skill levels at all ages so that people have the skills and qualifications to access jobs. Ignite /Retune /Accelerate	P4. % Working Age Population (WAP) with No Qualifications	13% 329,400 people	-1.5 pp -36,200 people	-119,867 people -1.6 pp WMCA -1.3pp UK	+ 4.7 pp + 119,867 people
	P5. % Working Age Population with NVQ1	12 % 302,600 people	+0.1 pp + 3,700 people	-9,200 people - 0.5 pp WMCA -0.9pp UK	Ahead of UK + 1 pp 24,905 people
	P6. % Working Age Population with NVQ2	16.8% 423,300 people	+ 0.2 pp + 5,200 people	- 7,300 people - 0.5 pp WMCA +0.9pp UK	Ahead of UK + 0.9 pp +21,905 people
	P7. % Working Age Population with NVQ3	16.3% 410,400 people	- 0.3pp - 8,700 people	- 25,600 people -1.2 pp WMCA +0.1pp UK	+ 0.8 pp +21,290 people
	P8. % Working Age Population with NVQ4+	30.4% 774,300 people	- 0.03pp - 7,700 people	+86,500 people +2.8 pp WMCA +3.1 pp UK	+7.6 pp +185,010 people
	P9. No. of Apprenticeships starts	42,040	- 1,190 - 2.8%	+ 6,030 +16.7% WMCA +15.9% England	+42,219 per annum
	P10. Schools above national average GCSE pass rate A*-C including Maths and English)	46%	48.5% -2.5pp WM Met -1.5pp England	52.6% -6.6pp WMCA -4.1pp England	+ 7.5% schools
	P11. NEETs aged 16-18	4,420 (4.4%)	-1,450 -24.7%	-1,950 -30.5% WM Met - 19.9% England	4.2% -228 NEETS
HEALTH - Better quality of life for all: improved health (inc. Mental health) and well being	P12. Healthy Life Expectancy (HLE) at Births – Males & Females	Males (M) = 59.3 years	+0.03 years	-0.6 WM Met WM Met -0.2 years England	63.4 years
		Females (F) = 60.9 years	+0.4 years	-0.01 years WM Met -0.2 years England	64.1 years
	P13. Reduced Inequality in HLE for Males & Females	To be developed			
	P14. Health inequality gap by years between most and least deprived areas	M = 7.4 years F = 9 years (WM Met)	M – +1.2 F = -0.9	M = +1.9 F = 1.3	No gap Reduce gap by 7.2 years for males and 9 years for females
	P15. Employment rate gap for those with in contact with secondary mental health services	58.9 %	-0.6pp	+1.5pp WMCA +0.01pp England	Ahead of England + 8.3pp (67.2%)
	P16 – Rates of suicide	10.1	+0.4	1.8 WMCA +2.2 England	No Suicides -410 suicides
	P17 - % Physically Inactive Adults	24.8% WMCA			22% +90,524 participants
CRIME - Reduced offending and re-offending	P18 – No of Offenders	32,008 7.9 offenders per 1,000 population	-1,364 4.1%	-7,170 -7.6%	Below the national average
	P19 - Re-offending rates (per 100,000)	24.9% (2014)	+0.3p	-0.1pp WMCA -0.3pp Eng	Ahead of England – 0.55pp
	P20 - Number of first time entrants to Youth Justice System	454	+3.3%	8.2% WM Met 17.6% Eng.	-85 first time entrants
	P21. Youth Claimants aged 18-24	14,805	+1,515 +11.4%	-11,240 -43.2% WMCA -46.4% UK	-4,781 youth claimants -32%
	P22. Claimant Count (18-64)	67,705	+5,085 +8.1%	-35,755 -34.6% WMCA -37.5% UK	- 16,957 claimants - 27%
PLACE ACCESSIBILITY- Improved the connectivity of people to businesses to jobs and markets	Pl1. Broadband Connectivity	93.7% 1.13m premises	+2.3pp	+2.4pp 7 MET +14pp UK	100% +75,793 premises
	Pl2. % residents able to access 3 or more strategic centres including Birmingham City Centre, accessible by public transport within 45 mins travel time in the am peak	41% (WM Met)	1.3pp	3.2pp	75% +34pp
	Pl3. Journey time reliability	To be developed			
INFRASTRUCTURE - Improved the quantity of high quality readily available development sites	Pl4. Mode Share of all Journeys: i). Mode Share of all journeys by car, public transport, cycling & walking ii). Percentage of car journeys non-single occupancy	Car (64%) Public Transport (11%) Walk (22%) Cycle (1%) Taxi (2%) ii) 82%	i) Car +1% Public Transport (2%) Walk No change Cycle No change Taxi +1% ii) No change		45% car mode share Car (- 19%)
SUSTAINABILITY Resource efficient economy to stimulate new technology and business	Pl5. No./ha available for housing developments	To be developed	)		
	Pl6. No./ha available for employment development sites	To be developed	)		
	Pl7. Land Uplift value	To be developed	)		
	E1. CO_2 emitted within SEP area by transport, businesses and homes	21,564 ktCO_2 (2014)	- 167 ktCO_2 - 0.8%	-1.6% WMCA 6.3% UK	- 7,681 ktCO_2
	E2. No. of days poor air quality per year (rated 4 or higher on the Daily Air Quality Index)	40 days	- 12 days	11 days WMCA 16 days UK	-40 days

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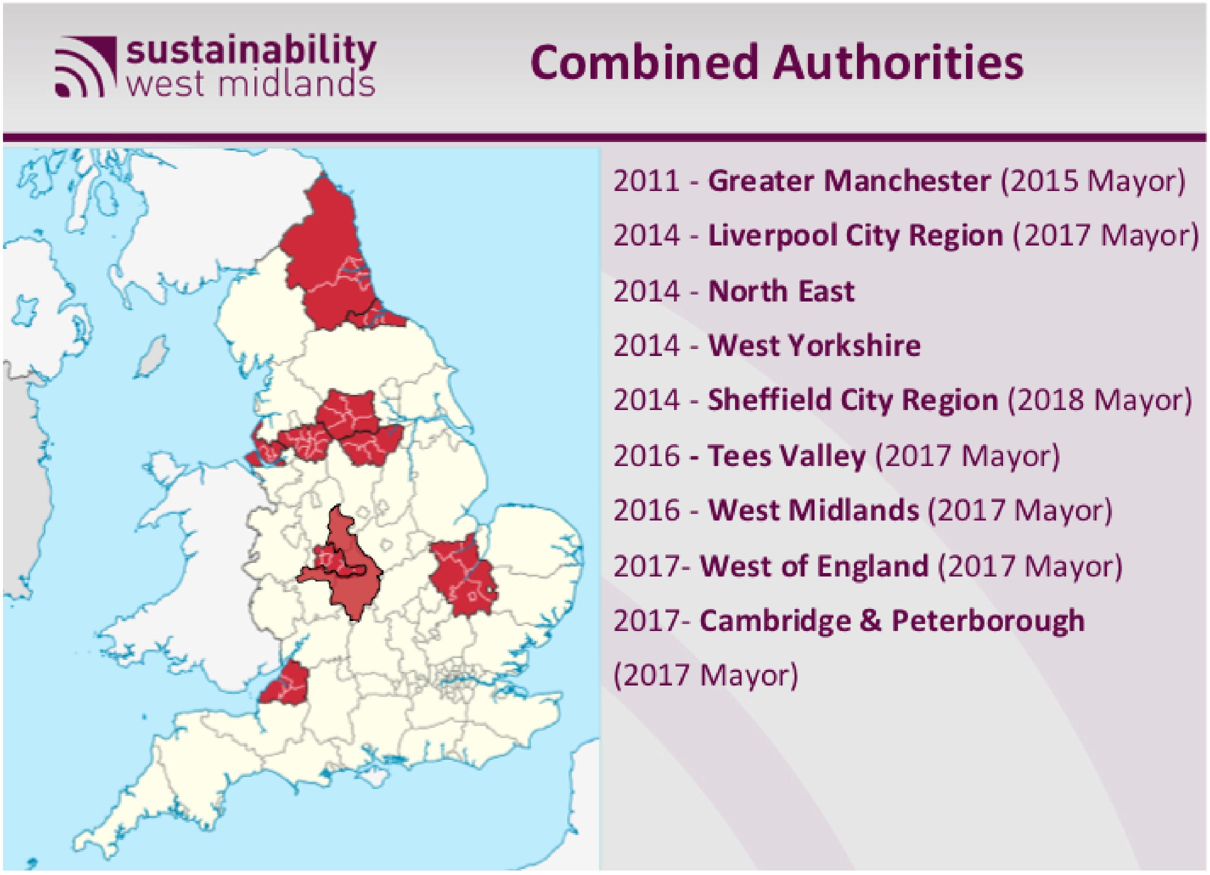
1.2 Background to benchmarking sustainability metrics for the WMCA

As part of our contribution to updating the annual monitoring for the WMCA, we also looked at benchmarking where possible against suitable metrics. These were often UK averages. As a result, we commissioned additional work to look at how the WMCA area was performing compared to the other eight CA areas in England.



1.3 Structure of this report

The WMCA measures four key aspects of sustainability as part of its operations and programmes: carbon emissions, health inequality, air quality and economic productivity across the whole geography. This report analyses data that conveys each of these metrics and provides an indication of the scale of the challenge that the WMCA faces in terms of meeting its targets and what it may need to consider when commissioning and implementing projects and programmes. It complements the WMCA's Performance Management Framework which exists to monitor all the targets the WMCA is measuring.

In addition, in this second iteration we have also analysed five other metrics: renewable energy generated, fuel poverty levels, recycling rates, sites in positive conservation management and people's access to woodland. This addresses part of a recommendation in the last report to include additional metrics that provide a greater indication of each CA's overall progress on sustainability related activity. We are grateful for the advice of the West Midlands Natural Capital group in providing suggestions on natural environment indicators.

The next step, as outlined in the recommendations, will be for the WMCA to formerly recognise these metrics in its PMF and to continuously measure these in the same way that carbon emissions, air quality, health inequality and economic productivity are already measured.

This report also compares the WMCA to eight other CAs in terms of their progress on the above sustainability metrics to provide a picture of progress and to further emphasise the extent of the challenge it faces to meet its sustainability related targets. The rest of this report sets out the results and recommendations for the WMCA and a methodology is included in an annex.

2 Results

This section outlines how each of the nine combined authority areas are performing against the series of key metrics related to sustainability. The WMCA, as advised by SWM, monitors progress against:

- Carbon emissions
- Air pollution
- Health inequality
- Economic productivity

In this second iteration, we have also monitored progress against:

- Renewable energy generated
- Households in fuel poverty
- Household and non-household waste recycled
- Sites in positive conservation management
- Population with access to a 2+ hectare wood within 500 metres

To determine the scale of the challenge that the WMCA must meet to achieve its associated targets and to determine progress to date, SWM has analysed the WMCA's progress against these eight metrics versus the other eight combined authority areas. The following sections summarise the key findings and for each metric we have included a league table that ranks each combined authority in order from first to ninth according to both its absolute value in the latest available year and how much it has progressed between the baseline year and the latest available year. With regards to the latter, green coloured font emphasises a change for the better and red a change for the worse.

It should be noted that in many cases the different geographic scales and industrial and transport network influence the sustainability metrics of the different CA areas which are unlikely to change dramatically. However, in many areas such as recycled non-commercial household waste or carbon emissions per capita there appears to be dramatic differences. Also, the sustainability metrics variation reinforces the need for continued devolution of power to allow more tailored local responses.

2.1 Carbon emissions

Summary: The WMCA has made better than average progress at reducing its overall and per capita emissions in the years 2010 to 2015 but remains the CA region that emits more carbon than any other.

- By 2015, which is the latest available data, areas making up the WMCA geography have reduced their carbon emissions by 18.3% since 2010. This is positively compared to the average reduction in emissions across the nine combined authorities, which stands at 17.9% (figure 1).
- WMCA emissions stood at 21,696 ktCO_2 in 2015, more than double the nine combined authorities' average of 10,714 ktCO_2 (figure 2). However, it is recognised that the WMCA is one of the largest and most urbanised combined authority areas.

- Per capita emissions measure emissions per person which means that factors such as the extent of urbanisation and population density are accounted for; it is therefore a metric that is more comparable region by region than absolute total emissions. Per capita emissions in the West Midlands CA stood at 5.3 ktCO_2 in 2015, significantly lower compared to the nine combined authority area average which was 6.7 ktCO_2 (figure 3). This reflects that the West Midlands CA is performing positively and emits proportionally a lower quantity of emissions when considering its dense population and other factors (such as presence of high-use roads) when compared to other CA areas that may emit similar amounts of CO_2 but with quantifiable reasoning.
- Between 2010 and 2015, per capita emissions in the West Midlands CA have decreased by 1.4 ktCO_2, compared to the average 1.2 ktCO_2 decrease (figure 4).

Figure 1: % change in carbon emissions in Combined Authority areas

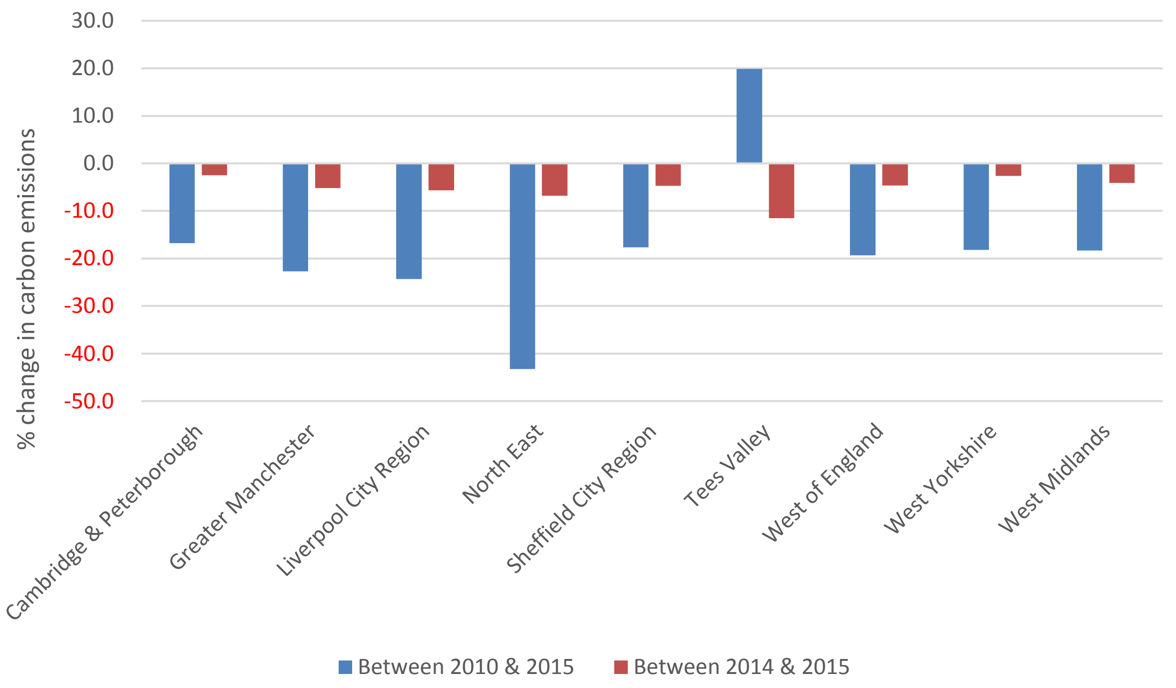
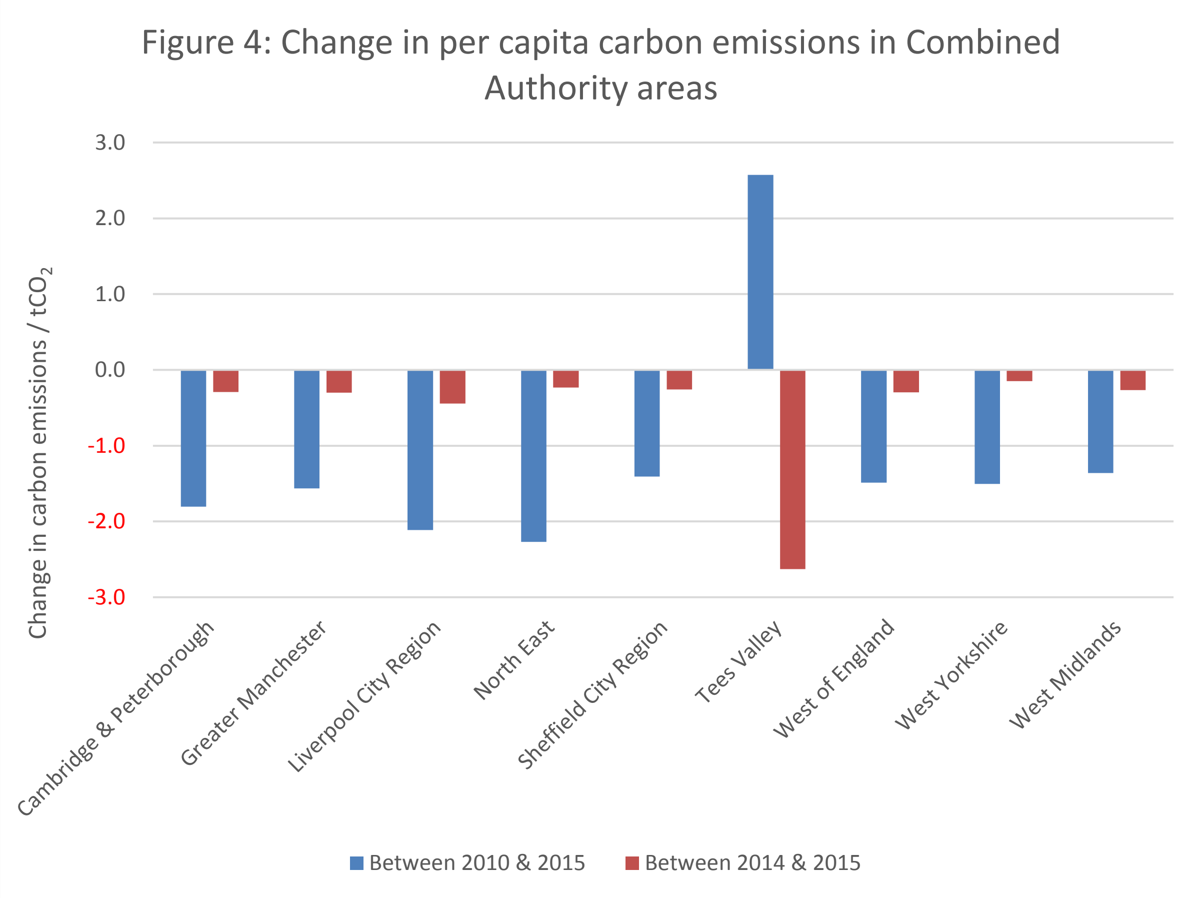


Figure 2: Total carbon emissions in West Midlands CA compared to the average for all nine combined authorities

Figure 3: Per capita carbon emissions in West Midlands CA compared to the average for all nine combined authorities



CA Carbon Emissions League Tables

Performance in most recent available year

Rank	CA	$ktCO_2$ (2015)
1	West of England	3,727
2	Cambridge & Peterborough	6,473
3	North East	5,911
4	Liverpool City Region	9,502
5	Sheffield City Region	11,093
6	Tees Valley	12,048
7	Greater Manchester	12,653
8	West Yorkshire	15,185
9	West Midlands	21,696

Progress between baseline and latest available year

Rank	CA	$ktCO_2$ % (2010-2015)
1	North East	-43.3
2	Liverpool City Region	-24.3
3	Greater Manchester	-22.7
4	West of England	-19.3
5	West Midlands	-18.3
6	West Yorkshire	-18.2
7	Sheffield City Region	-17.7
8	Cambridge & Peterborough	-16.8
9	Tees Valley	+19.9

CA Per Capita Carbon Emissions League Tables

Performance in most recent available year

Rank	CA	tCO_2 (2015)
1	North East	3.1
2	Greater Manchester	4.7
3	West of England	4.9
4	West Midlands	5.3
5	Liverpool City Region	5.5
6	West Yorkshire	6.2
7=	Cambridge & Peterborough Sheffield City Region	7.0
9	Tees Valley	16.9

Progress between baseline and latest available year

Rank	CA	tCO_2 % (2010-2015)
1	North East	-42.0
2	Liverpool City Region	-27.7
3	Greater Manchester	-25.5
4	West of England	-23.3
5	Cambridge & Peterborough	-20.6
6	West Midlands	-20.4
7	West Yorkshire	-19.4
8	Sheffield City Region	-16.7
9	Tees Valley	+17.9

2.2 Health inequality

Summary: Health inequality is slightly lower in the WMCA than in other CA areas, but remains high overall. The gap between male and female health inequality is low in the WMCA compared to other CA areas.

- The health inequality gap, life expectancy in the wealthiest compared to the poorest areas of a given locality, is lower in the West Midlands CA when compared to the average across all combined authorities. In 2015, the gap was 8.4 years for males and 7.2 for females, compared to the combined authority area average of 9.0 years for males and 7.3 for females (figures 5 and 6).
- Since 2010, male health inequality in the WMCA region has decreased by 0.7 years, slightly worse than the average of a 0.8 year decrease. However, female health inequality in the WMCA has increased by 0.5 years, compared to the average of no change (figure 7).
- It is also concerning that between 2014 and 2015, the health inequality gap for males has increased by 0.3 years and by 0.1 years for females. This is greater than the average of negligible change.
- In all combined authority areas, male health inequality is greater than female health inequality. On average, the difference in health inequality between men and women is 1.7 years in 2015, although this gap has been narrowing since 2010, where it stood at 2.5 years. The gap in the West Midlands CA area is smaller between male and female health inequality than in any other CA area apart from Sheffield City Region, standing at 1.2 years in 2015. It was even narrower in 2013, at 0.7 years, and had the narrowest gap overall between 2012 and 2014 (figure 8).

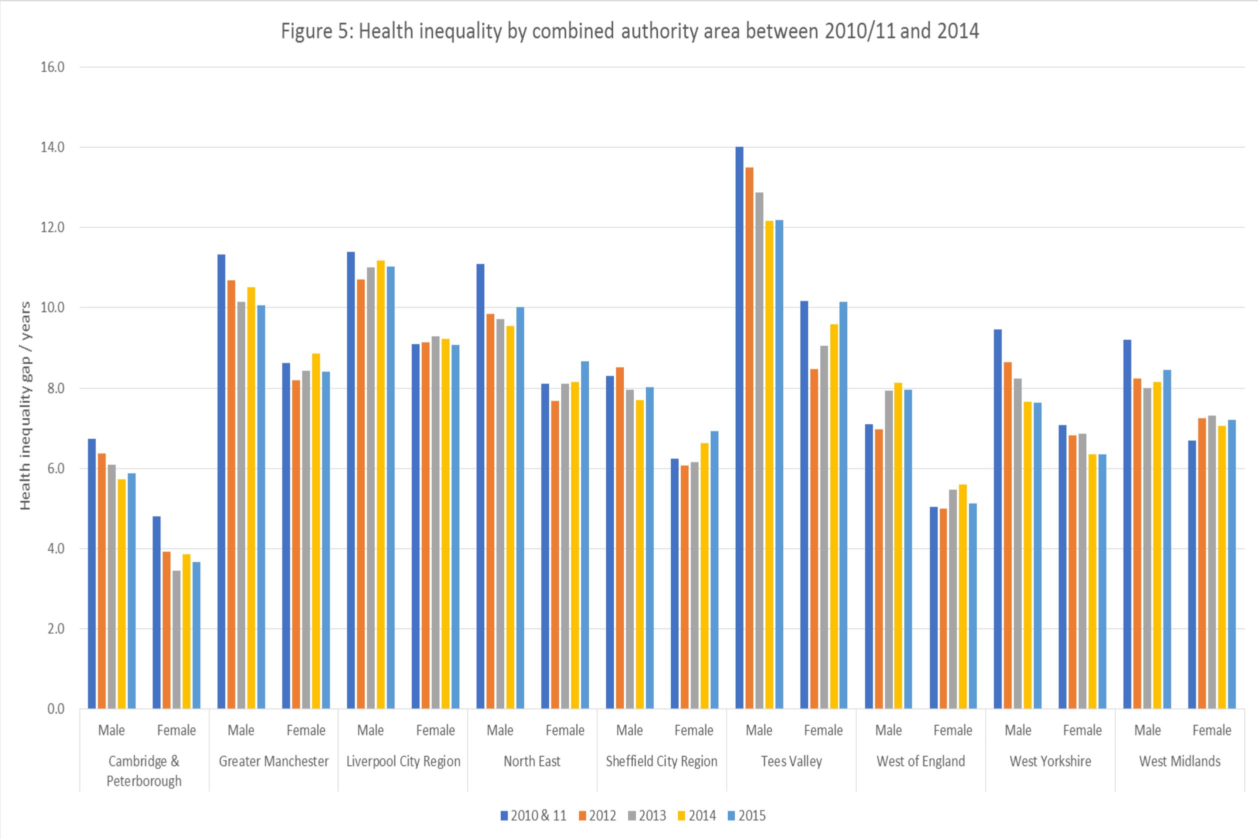


Figure 5: Health inequality by combined authority area between 2010/11 and 2014
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Health inequality gap / years
Male
Female
Cambridge & Peterborough
Greater Manchester
Liverpool City Region
North East
Sheffield City Region
Tees Valley
West of England
West Yorkshire
West Midlands
2010 & 11
2012
2013
2014
2015

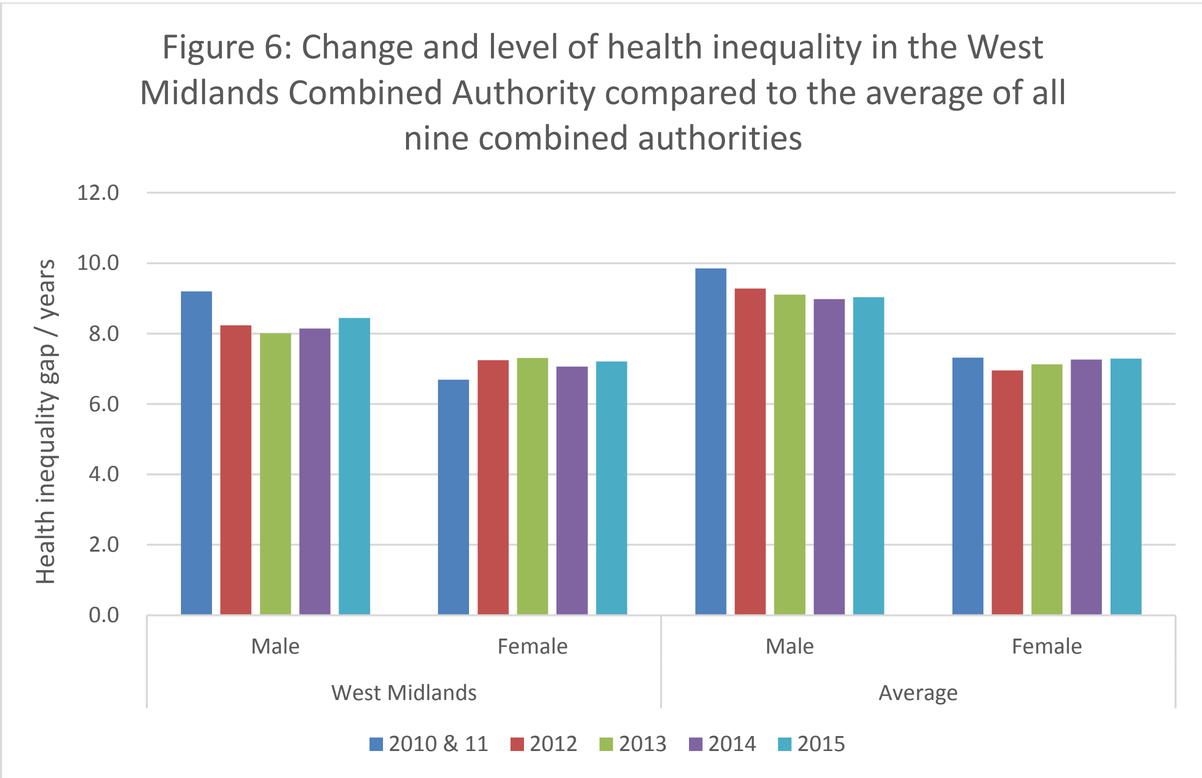


Figure 6: Change and level of health inequality in the West Midlands Combined Authority compared to the average of all nine combined authorities
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Health inequality gap / years
Male
Female
West Midlands
Average
2010 & 11
2012
2013
2014
2015

Figure 7: Change in extent of health inequality in combined authority areas between two different timeframes

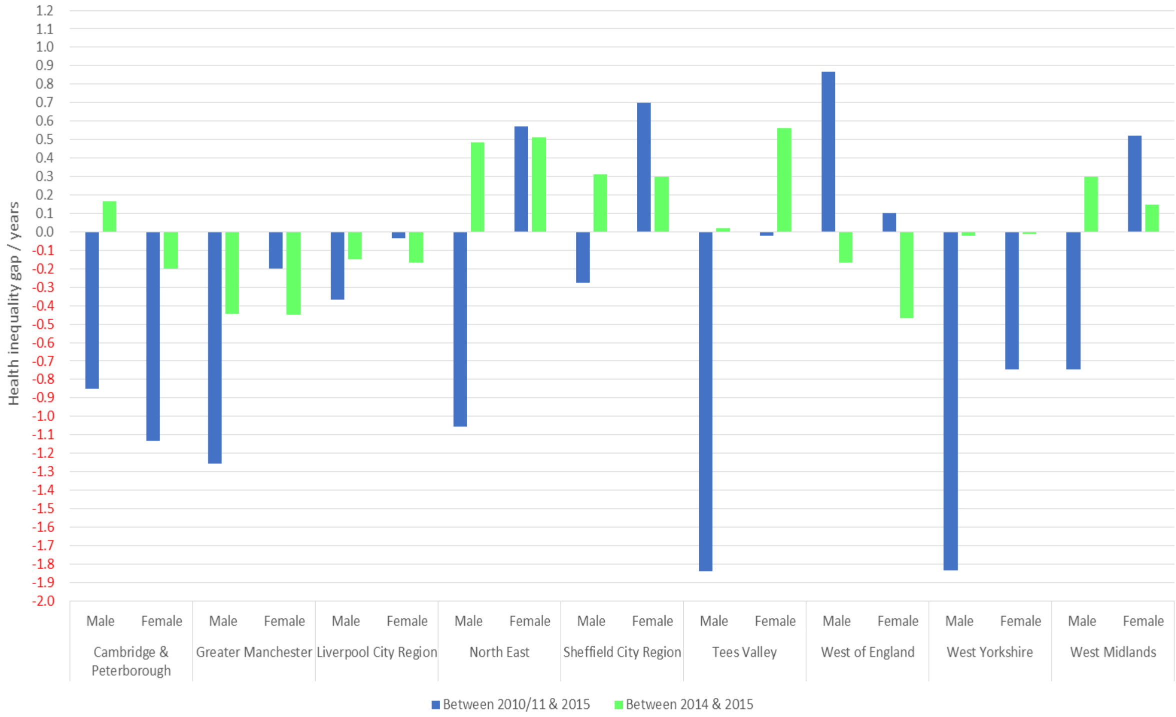
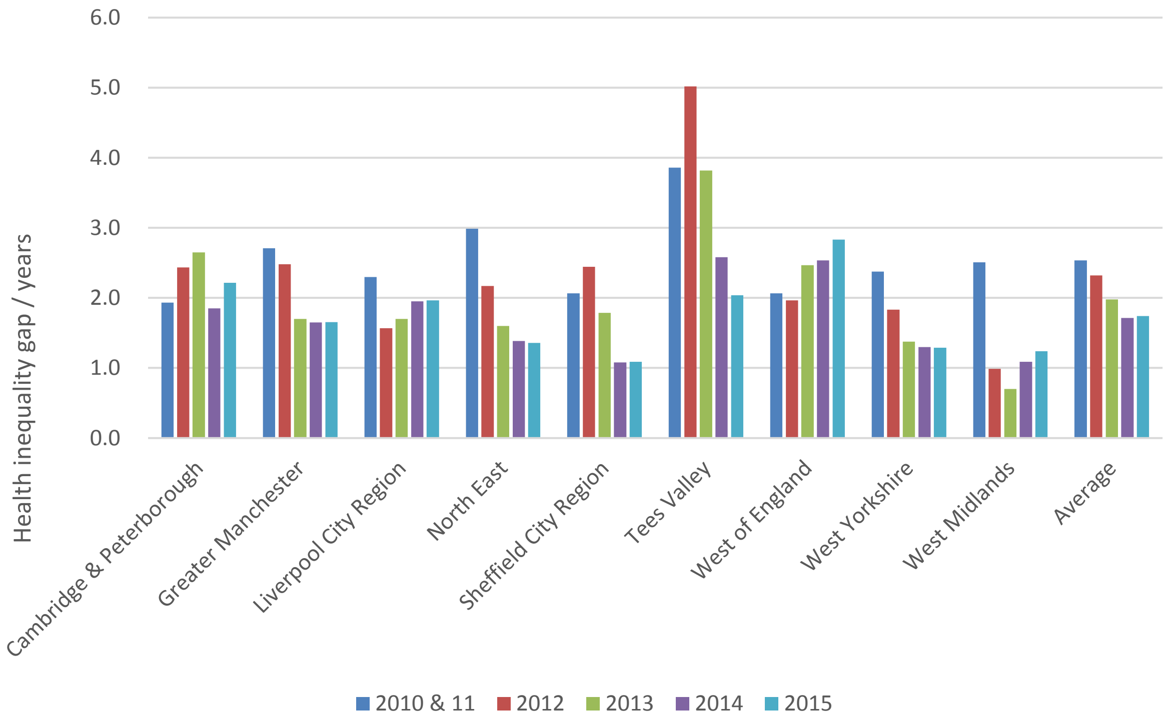


Figure 8: Difference in health inequality gap between males and females



CA Female Health Inequality Gap League Tables

Performance in most recent available year

Rank	CA	Years (2015)
1	Cambridge & Peterborough	3.7
2	West of England	5.1
3	West Yorkshire	6.3
4	Sheffield City Region	6.9
5	West Midlands	7.2
6	Greater Manchester	8.4
7	North East	8.7
8	Liverpool City Region	9.1
9	Tees Valley	10.1

Progress between baseline and latest available year

Rank	CA	Years (2010/11-2015)
1	Cambridge & Peterborough	-1.1
2	West Yorkshire	-0.7
3	Greater Manchester	-0.2
4=	Liverpool City Region Tees Valley	0.0
6	West of England	+0.1
7	West Midlands	+0.5
8	North East	+0.6
9	Sheffield City Region	+0.7

CA Male Health Inequality Gap League Tables

Performance in most recent available year

Rank	CA	Years (2015)
1	Cambridge & Peterborough	5.9
2	West Yorkshire	7.6
3=	Sheffield City Region West of England	8.0
5	West Midlands	8.4
6	North East	10.0
7	Greater Manchester	10.1
8	Liverpool City Region	11.0
9	Tees Valley	12.2

Progress between baseline and latest available year

Rank	CA	Years (2010/11-2015)
1=	Tees Valley West Yorkshire	-1.8
3	Greater Manchester	-1.3
4	North East	-1.1
5	Cambridge & Peterborough	-0.9
6	West Midlands	-0.7
7	Liverpool City Region	-0.4
8	Sheffield City Region	-0.3
9	West of England	+0.9

2.3 Air quality

Summary: The West Midlands breached air quality standards on more days than in any other CA region bar one in 2017, but recorded less breached days in 2017 than in any other year since 2010.

- When analysing how many days each combined authority area has breached good air quality standards (measuring a '4' or higher on the Defra Air Quality Index), the West Midlands area breached standards five days more than the average across all nine combined authority areas in 2017; 25 as opposed to the average of 20.
- However, this is a significant improvement compared to 2016, when it breached standards on 18 days more than the average.

- The West Midlands area has breached standards on a number of days above the average in every year since 2010, ranging from five days more (2010, 2014 and 2017) to 23 days more (2013) (figure 9).
- There is a noticeable change in the number of breached days between 2010 (38) and 2017 (25); the trend suggests an overall general decline in breached days, but overall more breached days occurred in 2017 in the West Midlands than in any other combined authority area with the exception of Cambridge and Peterborough CA (figure 10).
- However, it must be noted that the geography in which the Defra data are presented does not make a comparison between different CA areas particularly useful (see annex).

Figure 9: No. days air quality levels have breached EU standards in West Midlands versus average of all nine combined authorities

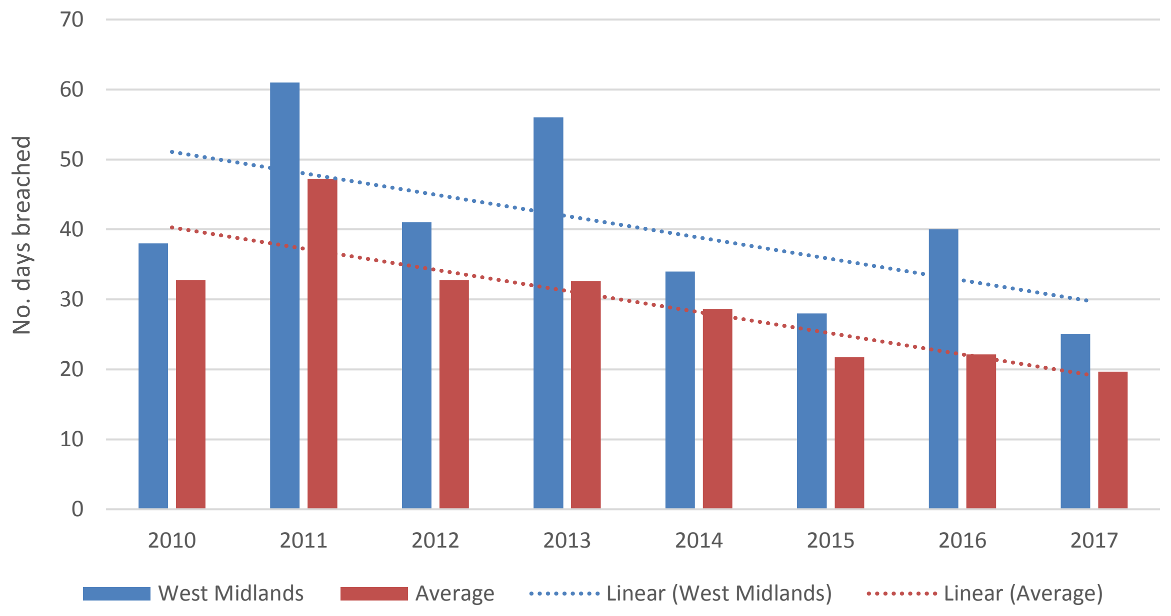
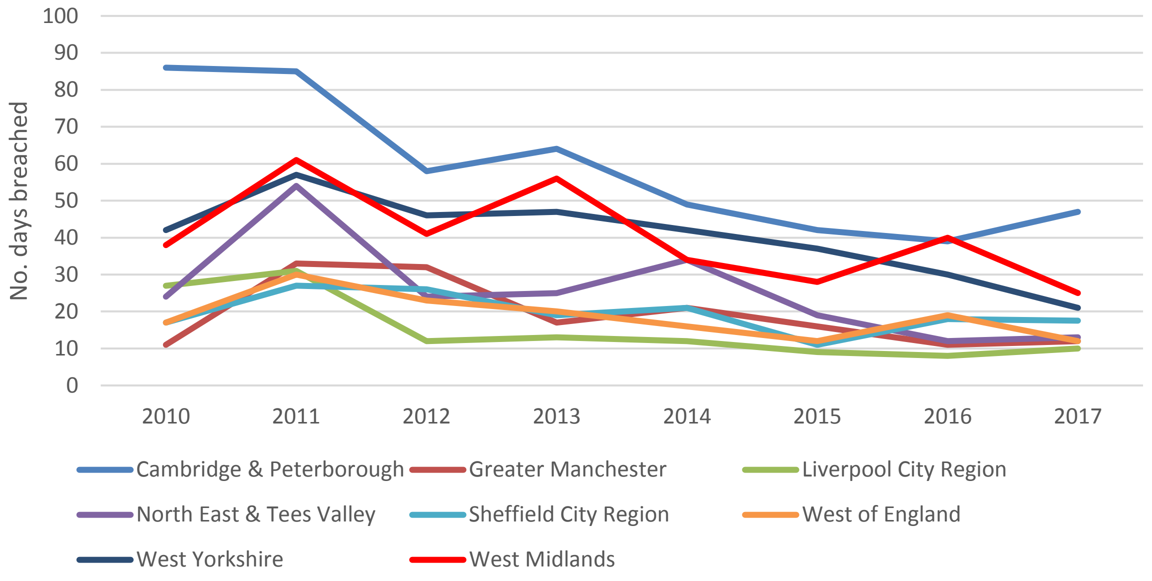


Figure 10: Change in the number of times CA areas have exceeded a '4' of the Defra Air Quality Index



CA Air Quality League Tables

Performance in most recent available year

Rank	**CA**	**No. breached days (2017)**
1	Liverpool City Region	10
2=	West of England Greater Manchester	12
4	North East & Tees Valley	13
5	Sheffield City Region	18
6	West Yorkshire	21
7	West Midlands	25
8	Cambridge & Peterborough	47

Progress between baseline and latest available year

Rank	**CA**	**No. breached days (2010-2017)**
1	Cambridge & Peterborough	-39
2	West Yorkshire	-21
3	Liverpool City Region	-17
4	West Midlands	-13
5	North East & Tees Valley	-11
6	West of England	-5
7=	Sheffield City Region Greater Manchester	+1

Note – only eight CAs ranked due to use of same data for North East and Tees Valley CAs (see annex).

2.4 Economic productivity

Summary: The West Midlands is performing well in economic productivity compared to other CA areas and has about an average performance per head.

- Economic productivity is measured in Gross Value Added (GVA) and GVA per head for each NUTS region in the UK (see annex). This allowed for a fairly accurate portrayal of economic productivity across each CA region.
- Overall the West Midlands region performs well relative to the nine combined authority average when analysing its overall GVA. In 2016, GVA was significantly higher in the West Midlands than any other CA area and when compared to the average (figure 11). Its GVA was £79,414 million compared to an average of £41,036 million showing a difference of £38,378 million.
- The West Midlands is fourth out of nine when factoring in population (per head) on productivity and is slightly higher than the average (figure 12).
- The overall GVA in the West Midlands has increased by 29% between 2010 and 2016; none of the other CA areas have increased by a greater amount (figure 13). It has increased by 23% per head since 2010, also the highest on average (figure 14).
- The change in overall and per head GVA in the West Midlands between 2015 and 2016 was above average, increasing by 4.3% and 3.1% respectively.

Figure 11: Economic productivity in the West Midlands compared to the average for all nine combined authorities

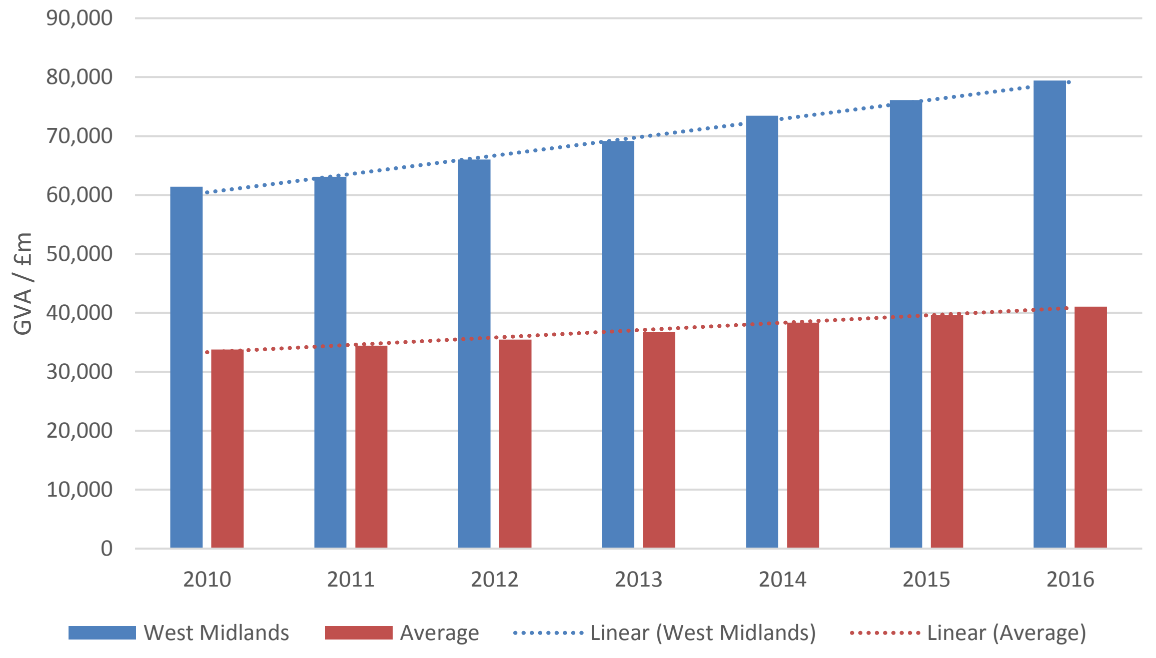


Figure 12: Economic productivity per head in the West Midlands compared to the average for all nine combined authorities

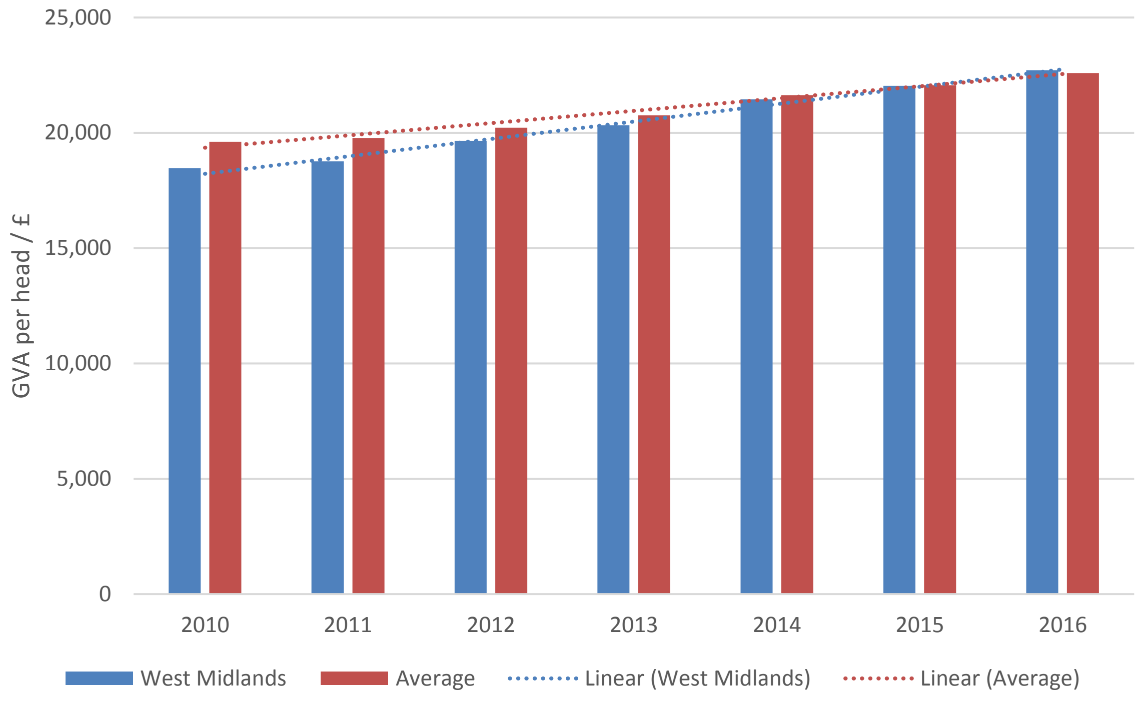


Figure 13: % change in economic productivity in combined authority areas

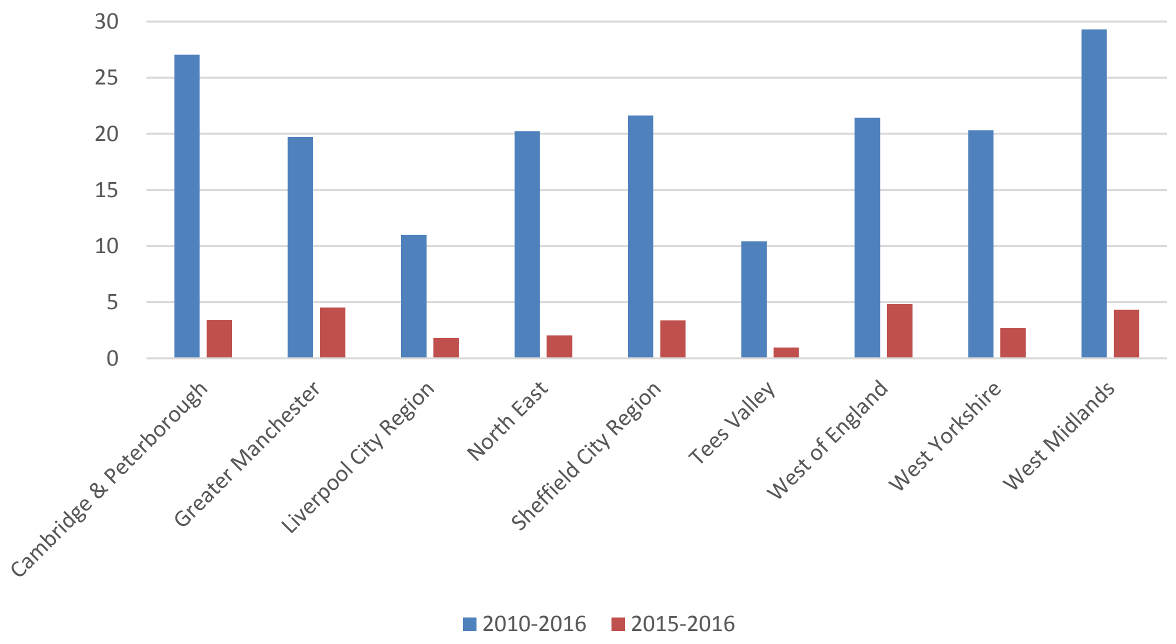
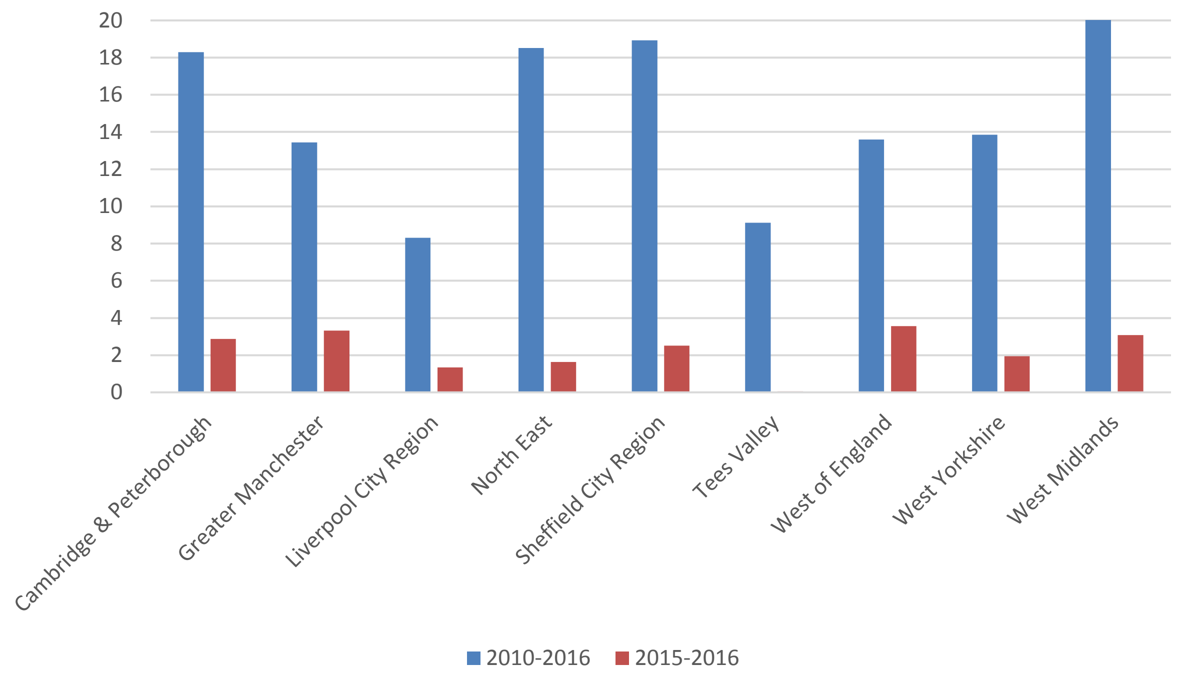


Figure 14: % change in economic productivity per head in combined authority areas



CA Economic Productivity League Tables

Performance in most recent available year

Rank	CA	GVA £m (2016)
1	West Midlands	79,414
2	Greater Manchester	62,839
3	West Yorkshire	56,621
4	North East	38,665
5	West of England	32,830
6	Sheffield City Region	31,214
7	Liverpool City Region	30,359
8	Cambridge & Peterborough	24,522
9	Tees Valley	12,862

Progress between baseline and latest available year

Rank	CA	GVA £m % (2010-2016)
1	West Midlands	+29.3
2	Cambridge & Peterborough	+27.1
3	Sheffield City Region	+21.6
4	West of England	+21.4
5	West Yorkshire	+20.3
6	North East	+20.2
7	Greater Manchester	+19.7
8	Liverpool City Region	+11.0
9	Tees Valley	+10.4

CA Per Capita Economic Productivity League Tables

Performance in most recent available year

Rank	CA	GVA £ (2016)
1	West of England	29,349
2	Cambridge & Peterborough	28,764
3	Greater Manchester	23,026
4	West Midlands	22,721
5	West Yorkshire	22,240
6	Tees Valley	20,200
7	North East	19,104
8	Liverpool City Region	18,974
9	Sheffield City Region	18,936

Progress between baseline and latest available year

Rank	CA	GVA £ % (2010-2016)
1	West Midlands	+23.0
2	Sheffield City Region	+18.9
3	North East	+18.5
4	Cambridge & Peterborough	+18.3
5	West Yorkshire	+13.8
6	West of England	+13.6
7	Greater Manchester	+13.4
8	Tees Valley	+9.1
9	Liverpool City Region	+8.3

2.5 Renewable electricity generation

Summary: The West Midlands has generated much less electricity from renewables than the CA average, but saw a 17% increase in renewable generation between 2015 and 2016

- The comparison between CAs varies considerably depending on whether one includes plant biomass energy generated from the Drax power plant in Selby, West Yorkshire CA (see annex).
- The amount of renewable electricity generated (MWh) in each CA also varies significantly based on a number of geographical and practical factors. The comparably low figure in the West Midlands CA is understandable due to the area's lack of coastline for offshore wind, or space for large scale renewable projects (such as onshore wind).
- Overall the West Midlands generated 43,700 MWh of electricity from renewable sources in 2016 (figures 16/18); this is a 12,345 MWh (39.4%) increase since 2014 (figures 15/17).
- The West Midlands saw the biggest percentage increase in renewable electricity generated between 2015 and 2016, at 17.1%.
- For comparison, we analysed the amount of electricity generated from solar PV. The West Midlands is fifth out of nine CA's on this scale in 2016, generating 154 MWh electricity from PV.
- Overall, the amount generated by solar PV has increased by 150% since 2014 (figure 19). This is the third highest increase behind Sheffield and Cambridge and Peterborough, the latter of which may have implemented a solar farm due to a large increase between 2014 and 2015.
- Overall, in 2016 the West Midlands generated a high proportion of its renewable electricity from landfill and sewage gas, more so in proportion than in other parts of the country. This shows it is using alternative means of renewable electricity generation when other sources, such as offshore wind, are unavailable.

Figure 15: Change in average total renewable energy generation (**not including** Drax plant in Selby, West Yorks CA)

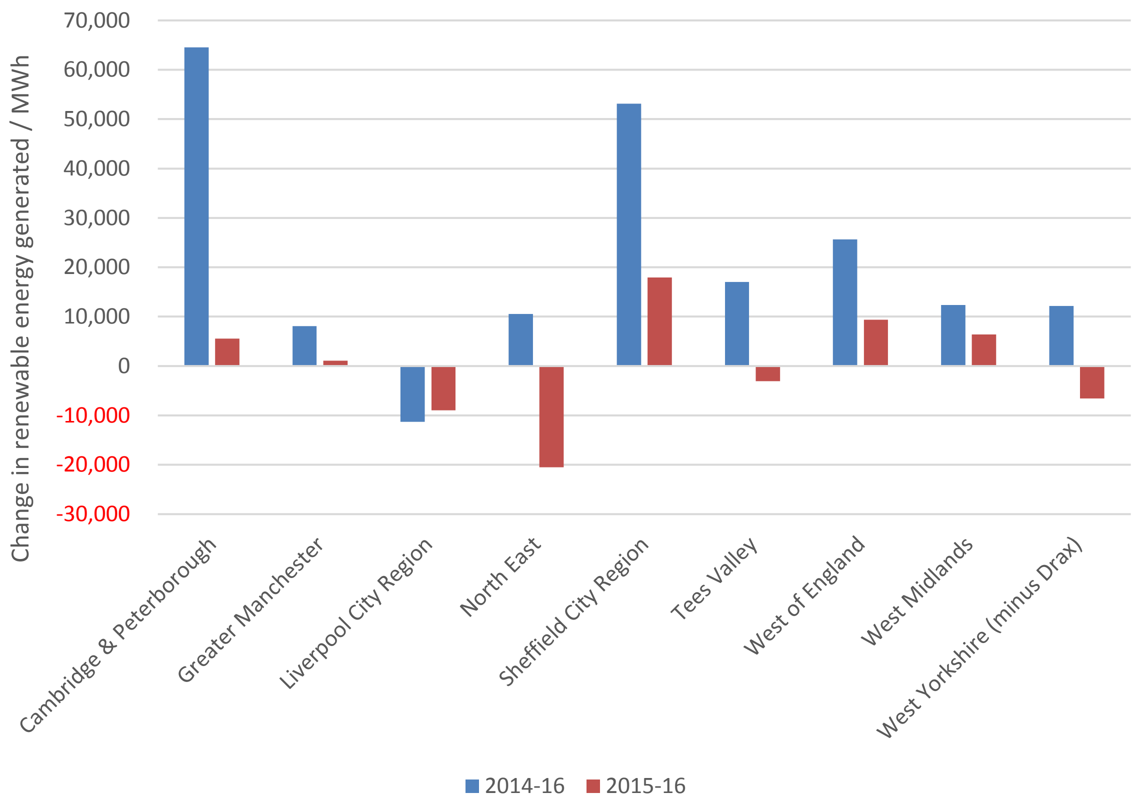
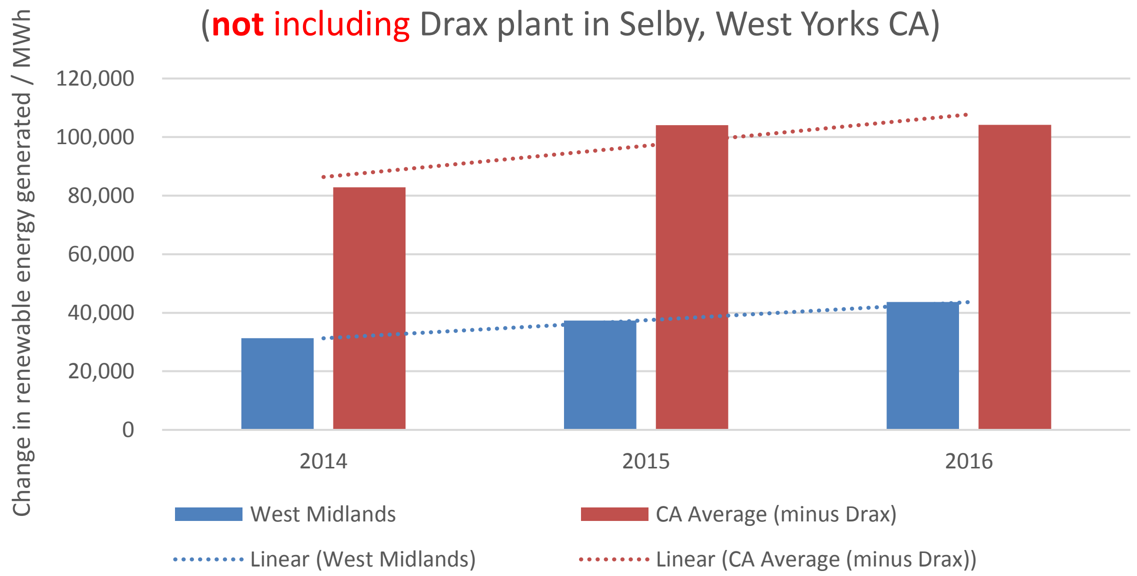


Figure 16: Change in average total renewable energy generation in West Midlands CA compared to CA average (**not including** Drax plant in Selby, West Yorks CA)



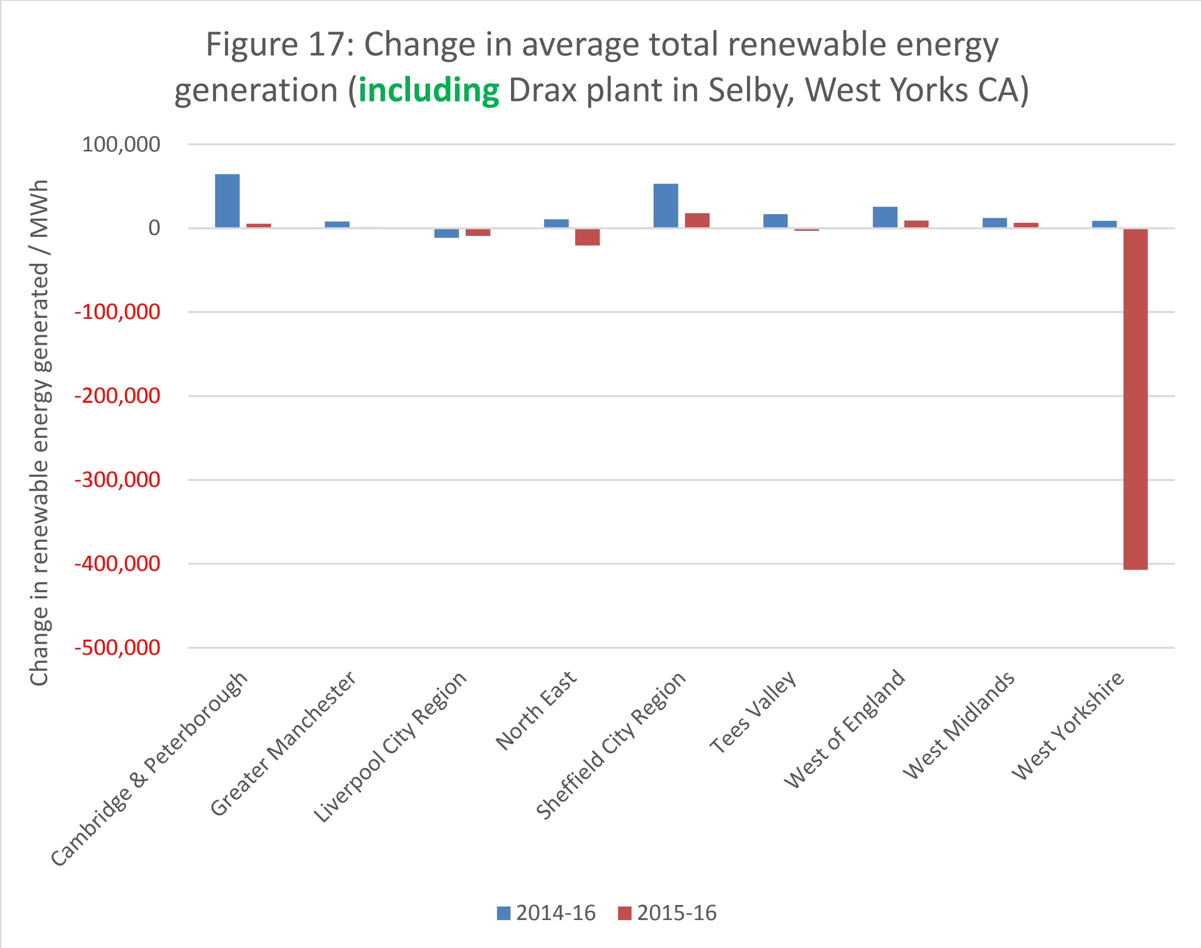


Figure 17: Change in average total renewable energy generation (including Drax plant in Selby, West Yorks CA)
100,000
0
-100,000
-200,000
-300,000
-400,000
-500,000
Change in renewable energy generated / MWh
Cambridge & Peterborough
Greater Manchester
Liverpool City Region
North East
Sheffield City Region
Tees Valley
West of England
West Midlands
West Yorkshire
2014-16
2015-16

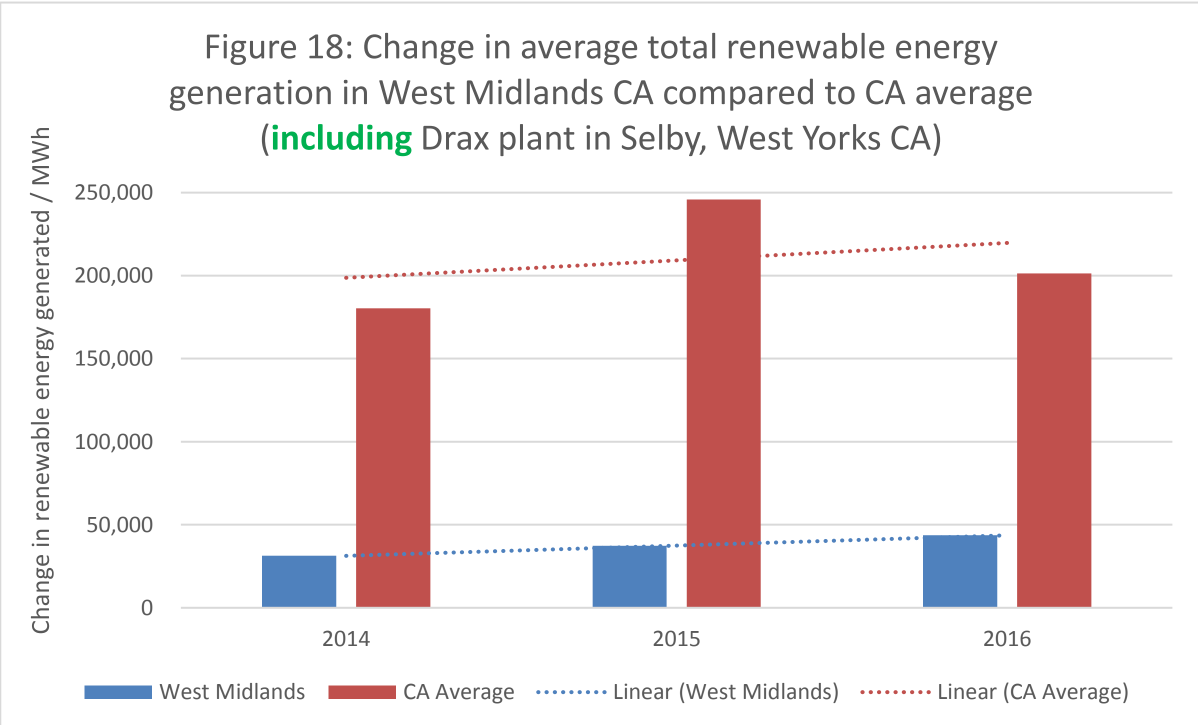
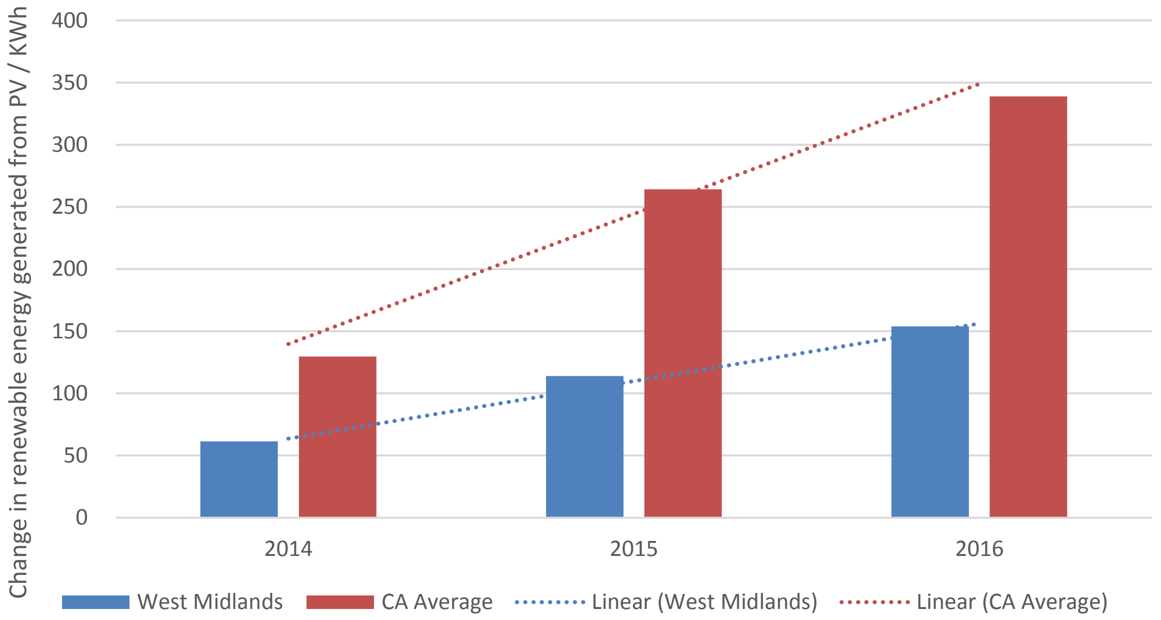


Figure 18: Change in average total renewable energy generation in West Midlands CA compared to CA average (including Drax plant in Selby, West Yorks CA)
250,000
200,000
150,000
100,000
50,000
0
Change in renewable energy generated / MWh
2014
2015
2016
West Midlands
CA Average
Linear (West Midlands)
Linear (CA Average)

Figure 19: Change in average renewable energy generated by photovoltaics in West Midlands CA compared to CA average



CA Renewable Electricity Generation League Tables – not including Drax

Performance in most recent available year

Rank	CA	MWh (2016)
1	Cambridge & Peterborough	224,697
2	North East	169,805
3	Sheffield City Region	128,236
4	Tees Valley	107,181
5	West of England	88,748
6	Liverpool City Region	74,241
7	West Yorkshire	65,086
8	West Midlands	43,700
9	Greater Manchester	36,143

Progress between baseline and latest available year

Rank	CA	MWh % (2014-2016)
1	Sheffield City Region	+70.8
2	West of England	+40.7
3	Cambridge & Peterborough	+40.3
4	West Midlands	+39.4
5	Greater Manchester	+28.9
6	West Yorkshire	+23.0
7	Tees Valley	+18.9
8	North East	+6.6
9	Liverpool City Region	-13.2

CA Renewable Electricity Generation League Tables – including Drax

Performance in most recent available year

Rank	CA	MWh (2016)
1	West Yorkshire	940,007
2	Cambridge & Peterborough	224,697
3	North East	169,805
4	Sheffield City Region	128,236
5	Tees Valley	107,181
6	West of England	88,748
7	Liverpool City Region	74,241
8	West Midlands	43,700
9	Greater Manchester	36,143

Progress between baseline and latest available year

Rank	CA	MWh % (2014-2016)
1	Sheffield City Region	+70.8
2	West of England	+40.7
3	Cambridge & Peterborough	+40.3
4	West Midlands	+39.4
5	Greater Manchester	+28.9
6	Tees Valley	+18.9
7	North East	+6.6
8	West Yorkshire	+1.0
9	Liverpool City Region	-13.2

2.6 Fuel poverty

Summary: Fuel poverty levels in the West Midlands are worse than the average across all CAs, but the gap is beginning to narrow.

- In 2015, 12.4% of households in the West Midlands are classed as being in fuel poverty. This is higher than the CA average of 11.7% (figure 21).
- Overall, the West Midlands contained the third worst proportion of households in fuel poverty in 2015; only Tees Valley (13.5%) and North East (13%) CAs had a greater proportion of individuals in fuel poverty in this year.
- However, the West Midlands' performance has improved when compared to 2011 (figure 20), when 13% of households were in fuel poverty, relative to the CA average which was still 11.7% (figure 21). Overall, fuel poverty across the CA's has flatlined, whereas the West Midlands has shown a small decrease.
- However, the number of households in fuel poverty has increased in the West Midlands between 2014 (11%) and 2015 (12.4%). This is the largest increase of all CAs.

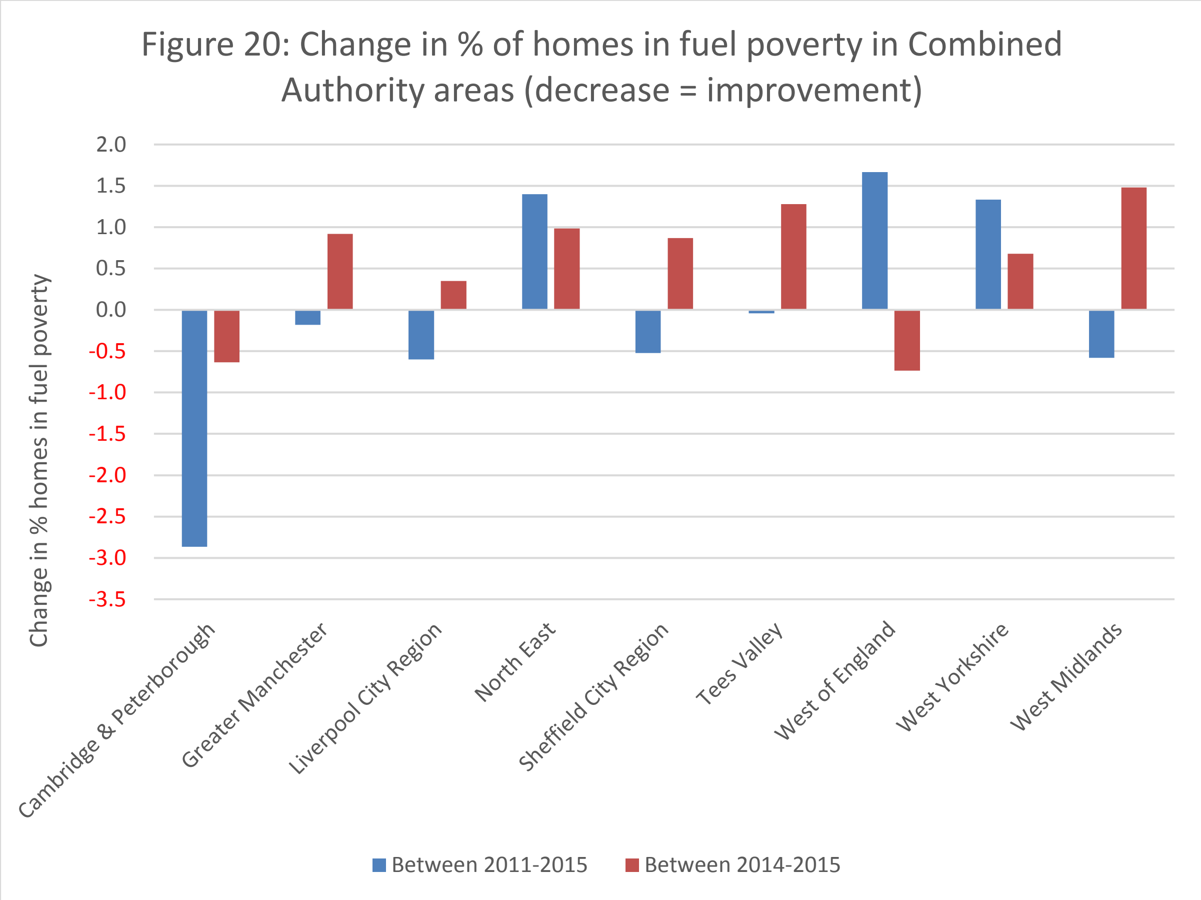


Figure 20: Change in % of homes in fuel poverty in Combined Authority areas (decrease = improvement)
Change in % homes in fuel poverty
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
Cambridge & Peterborough
Greater Manchester
Liverpool City Region
North East
Sheffield City Region
Tees Valley
West of England
West Yorkshire
West Midlands
Between 2011-2015
Between 2014-2015

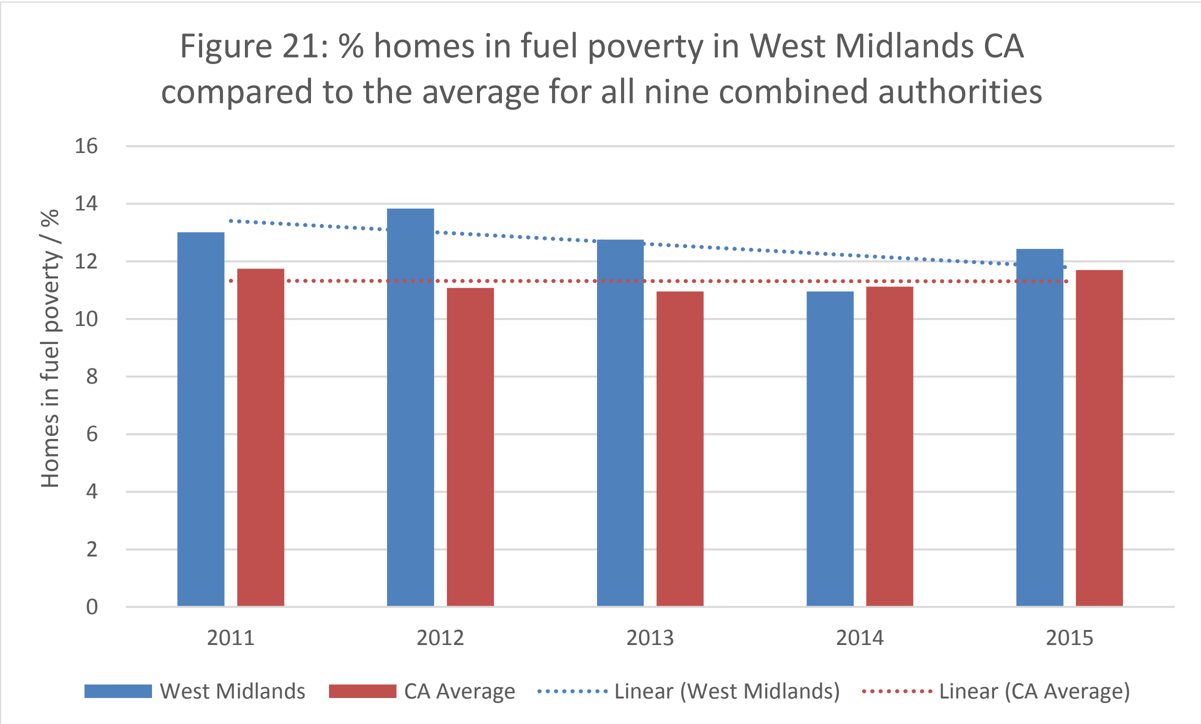


Figure 21: % homes in fuel poverty in West Midlands CA compared to the average for all nine combined authorities
Homes in fuel poverty / %
16
14
12
10
8
6
4
2
0
2011
2012
2013
2014
2015
West Midlands
CA Average
Linear (West Midlands)
Linear (CA Average)

CA Households in Fuel Poverty League Tables

Performance in most recent available year

Rank	CA	% (2015)
1	Cambridge & Peterborough	7.7
2	West of England	11.4
3	Liverpool City Region	11.5
4	Sheffield City Region	11.6
5	Greater Manchester	11.8
6	West Yorkshire	12.3
7	West Midlands	12.4
8	North East	13.0
9	Tees Valley	13.5

Progress between baseline and latest available year

Rank	CA	% (2011-2015)
1	Cambridge & Peterborough	-2.9
2=	Liverpool City Region West Midlands	-0.6
4	Sheffield City Region	-0.5
5	Greater Manchester	-0.2
6	Tees Valley	0.0
7	West Yorkshire	+1.3
8	North East	+1.4
9	West of England	+1.7

2.7 Recycling

Non-household waste

Summary: The West Midlands recycles slightly less of its non-household waste than the CA average and recycling rates in the region are decreasing overall.

- As the annex of this report will convey, the non-household waste data needs to be treated with caution due to a few uncertainties around calculations.
- However, overall figures show that the West Midlands recycled 32.9% of its non-household waste in 2016, compared to the CA average of 36% (figure 23).
- Both West Midlands and the overall CA average recycling rates have decrease since 2014 (36.4% non-household waste recycled in West Midlands and 37.1% average across all CAs) (figure 23).
- Overall the West Midlands is fifth out of nine CAs for the percentage of non-household waste it recycled in 2016 (figure 22).

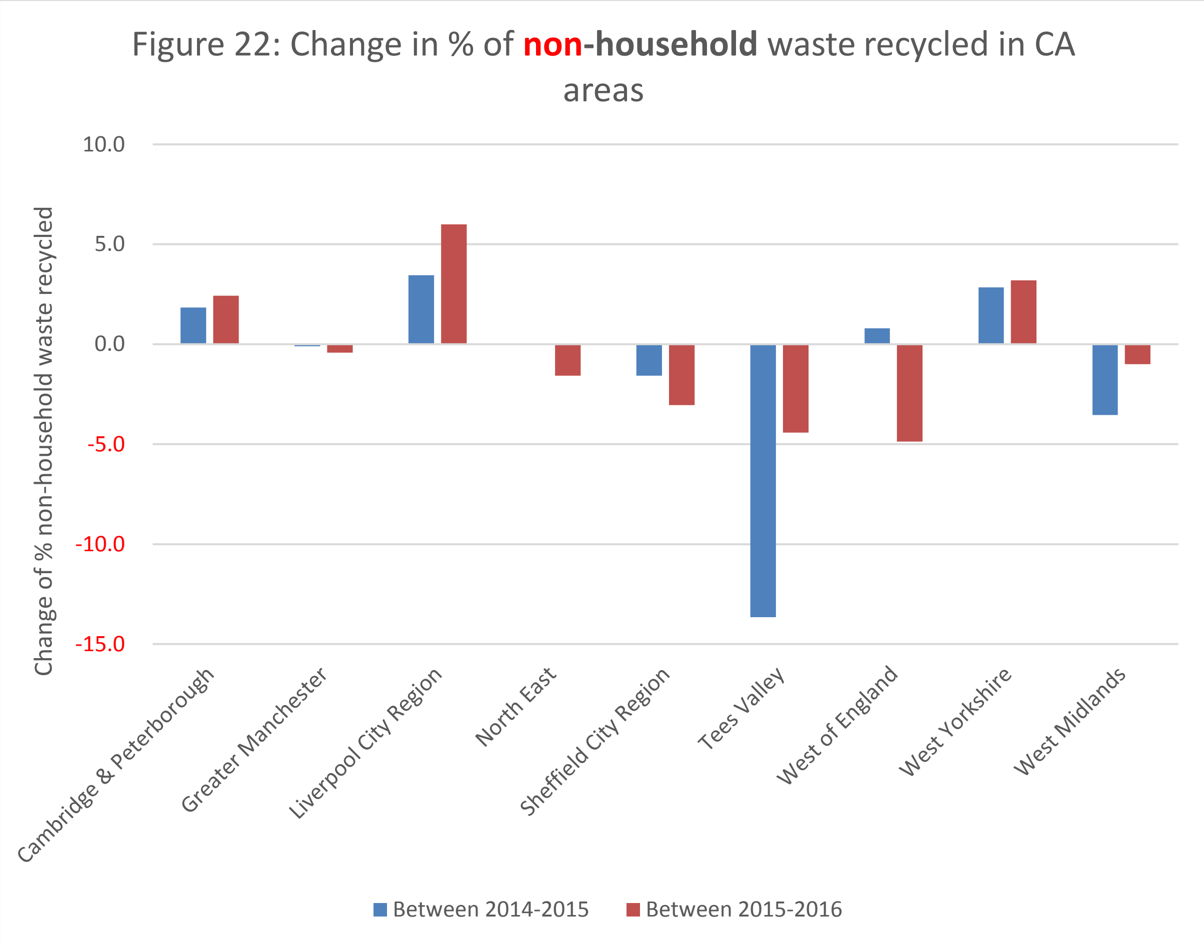


Figure 22: Change in % of non-household waste recycled in CA areas
10.0
5.0
0.0
-5.0
-10.0
-15.0
Change of % non-household waste recycled
Cambridge & Peterborough
Greater Manchester
Liverpool City Region
North East
Sheffield City Region
Tees Valley
West of England
West Yorkshire
West Midlands
Between 2014-2015
Between 2015-2016

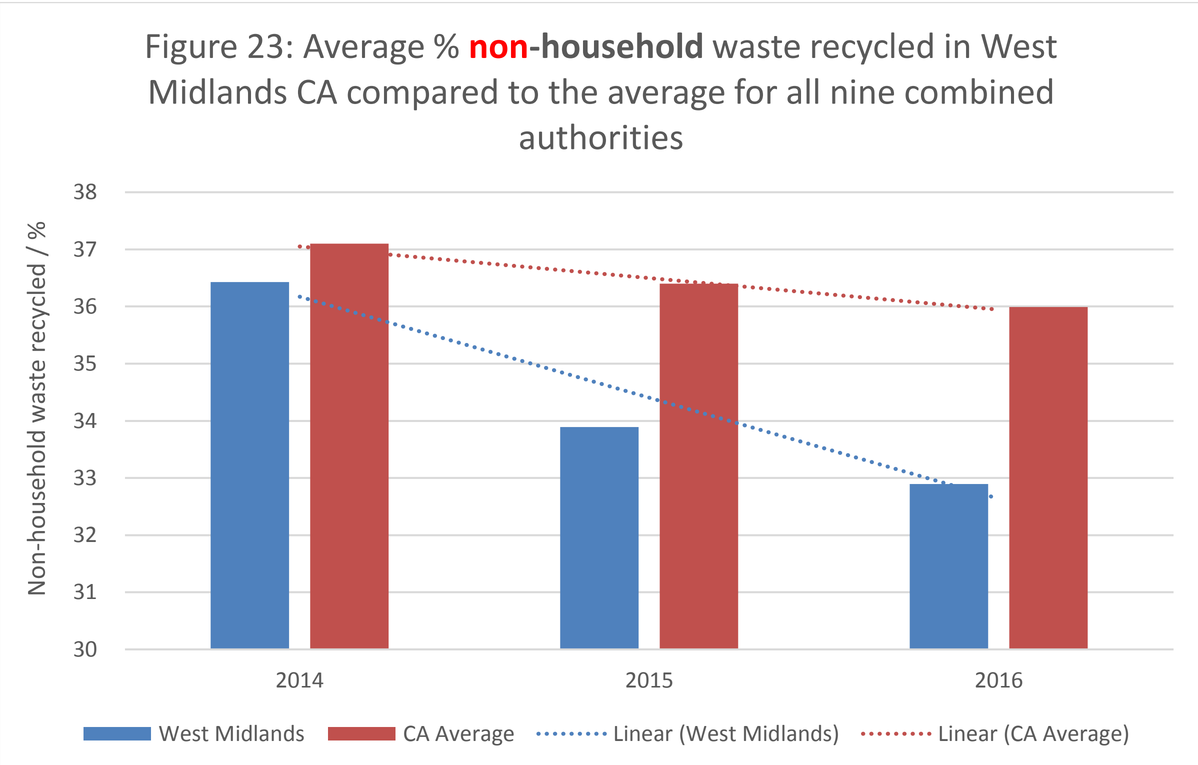


Figure 23: Average % non-household waste recycled in West Midlands CA compared to the average for all nine combined authorities
38
37
36
35
34
33
32
31
30
Non-household waste recycled / %
2014
2015
2016
West Midlands
CA Average
Linear (West Midlands)
Linear (CA Average)

CA Non-Household Waste Recycled League Tables

Performance in most recent available year

Rank	CA	% (2016)
1	West of England	78.9
2	North East	43.4
3	Tees Valley	39.7
4	Liverpool City Region	37.7
5	West Midlands	32.9
6	West Yorkshire	30.5
7	Cambridge & Peterborough	23.6
8	Sheffield City Region	22.5
9	Greater Manchester	14.7

Progress between baseline and latest available year

Rank	CA	% (2014-2016)
1	Liverpool City Region	+3.5
2	West Yorkshire	+2.8
3	Cambridge & Peterborough	+1.8
4	West of England	+0.8
5	North East	0.0
6	Greater Manchester	-0.1
7	Sheffield City Region	-1.6
8	West Midlands	-3.5
9	Tees Valley	-13.7

Household waste

Summary: West Midland household waste recycling rates have generally declined over time and are lower than the CA average.

- Household recycling rates across the West Midlands CA have been at their lowest in the two most recent years' worth of data, 2015 and 2016. In 2012, rates peaked at 43.9%, compared to 41.4% in 2016.
- The West Midlands (41.5%) was above the overall CA average (38.8%) of household waste recycled in 2010, but is now below (41.4% compared to 42%) (figure 25).
- The West Midlands is one of only three CA areas to have a lower recycling rate in 2016 compared to 2010 (the other two are Cambridge and Peterborough and Tees Valley) (figure 24).
- The best performer is West of England, which recycles 48.9% of its household waste. The biggest improvement has been seen in Manchester (14.3% increase since 2010). The West Midlands falls well below these (figure 24).
- Overall, in 2016 it was ranked sixth out of nine CAs for recycling its household waste.

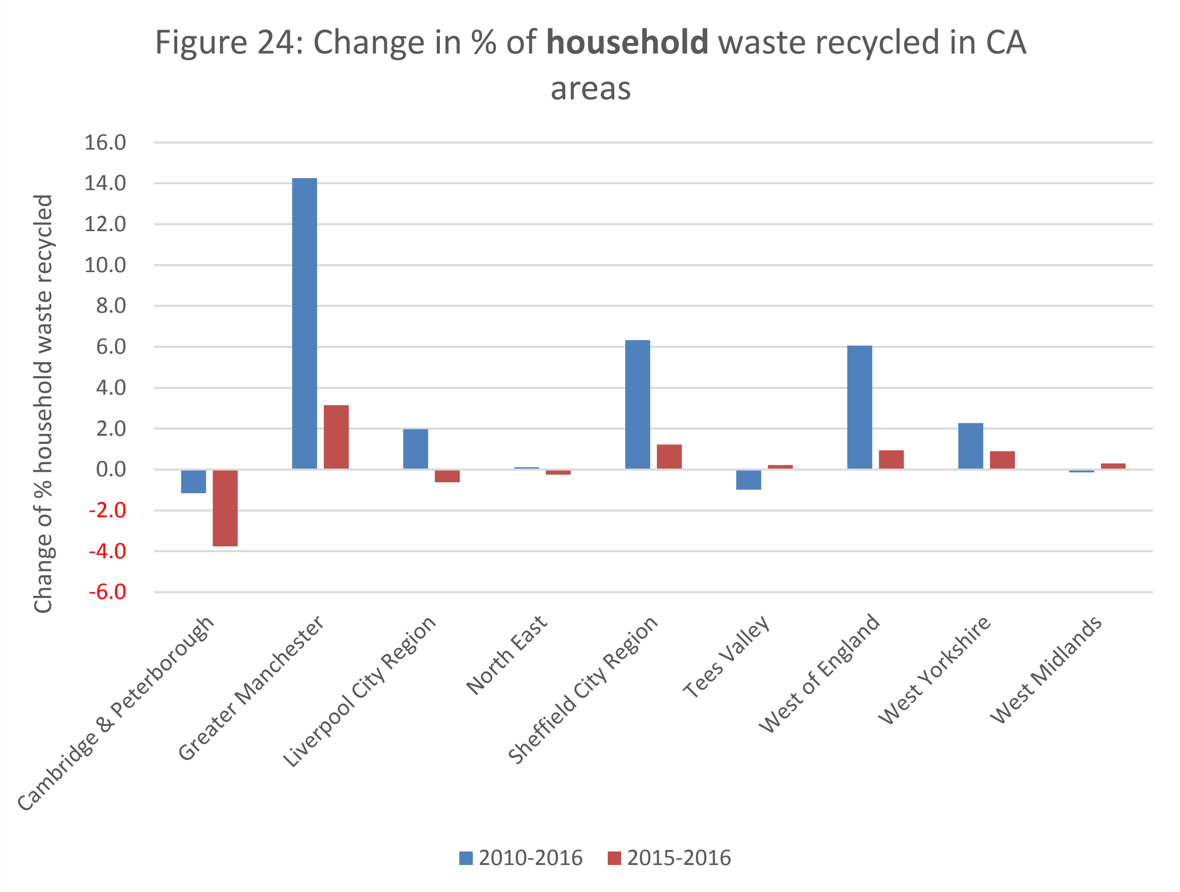


Figure 24: Change in % of household waste recycled in CA areas
Change of % household waste recycled
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
Cambridge & Peterborough
Greater Manchester
Liverpool City Region
North East
Sheffield City Region
Tees Valley
West of England
West Yorkshire
West Midlands
2010-2016
2015-2016

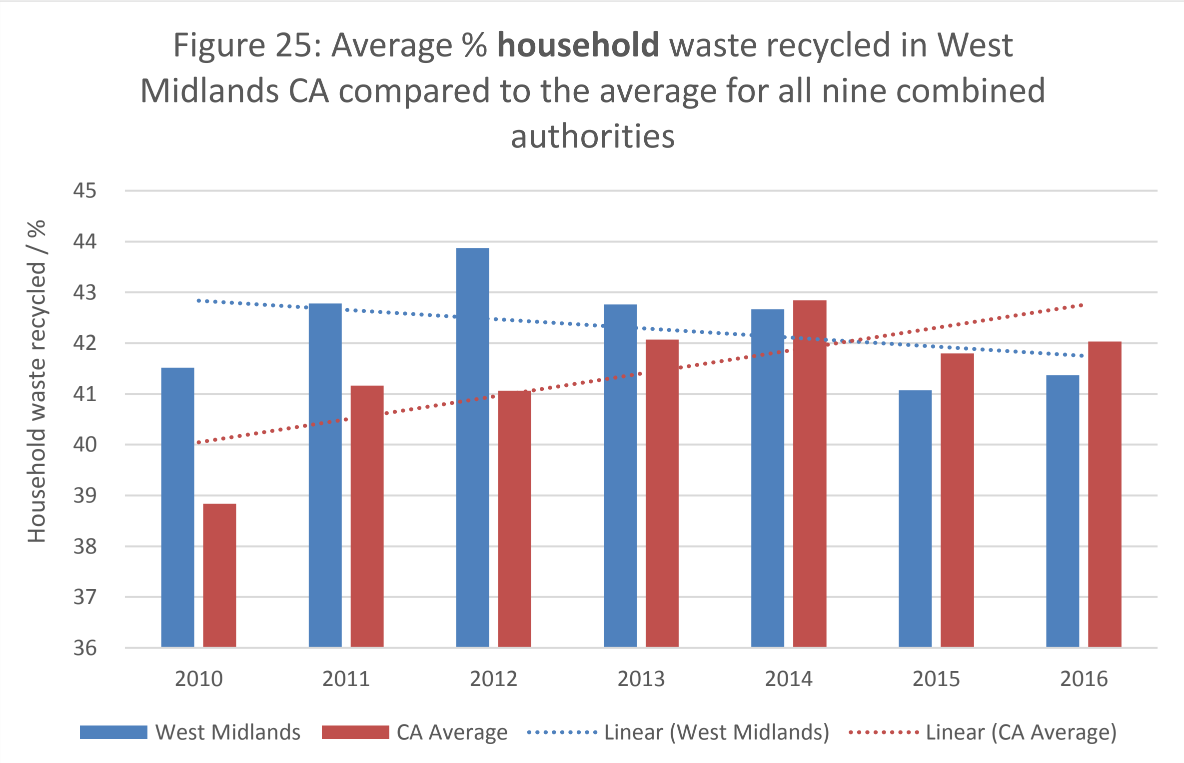


Figure 25: Average % household waste recycled in West Midlands CA compared to the average for all nine combined authorities
Household waste recycled / %
45
44
43
42
41
40
39
38
37
36
2010
2011
2012
2013
2014
2015
2016
West Midlands
CA Average
Linear (West Midlands)
Linear (CA Average)

CA Household Waste Recycled League Tables

Performance in most recent available year

Rank	CA	% (2016)
1	West of England	48.9
2	Cambridge & Peterborough	48.2
3	Greater Manchester	48.0
4	Sheffield City Region	43.1
5	West Yorkshire	41.6
6	West Midlands	41.4
7	Liverpool City Region	36.9
8	North East	35.7
9	Tees Valley	34.5

Progress between baseline and latest available year

Rank	CA	% (2010-2016)
1	Greater Manchester	+14.3
2	Sheffield City Region	+6.3
3	West of England	+6.1
4	West Yorkshire	+2.3
5	Liverpool City Region	+2.0
6	North East	+0.1
7	West Midlands	-0.1
8	Tees Valley	-1.0
9	Cambridge & Peterborough	-1.2

2.8 Sites in positive conservation management

Summary: The percentage of sites in positive conservation management has increased in the West Midlands since 2010, but remains low compared to the CA average.

- The gaps in the data must be considered when analysing this metric (see annex); nevertheless, fairly clear patterns of sites in positive conservation management (i.e. sites whose nature conservation interest (geology or wildlife) are preserved) can still be determined.
- The percentage of sites in positive management has increased by an average of 4.3% in the West Midlands since 2010 to 2016. However, this rate of increase is almost half the CA average (figure 27) and much lower than the CA with the highest rate of change; Tees Valley, with a 14.2% increase (figure 26).
- The average percentage of sites in positive management in 2016 was 40.3%; this is the second lowest out of all CA areas; only Sheffield CR CA is lower (33%) (figure 26).
- Overall, the gap between the West Midlands percentage of sites in positive conservation management and the overall CA average has widened over time, from 4.2% less in 2010 to 7.9% less in 2016 (figure 27).

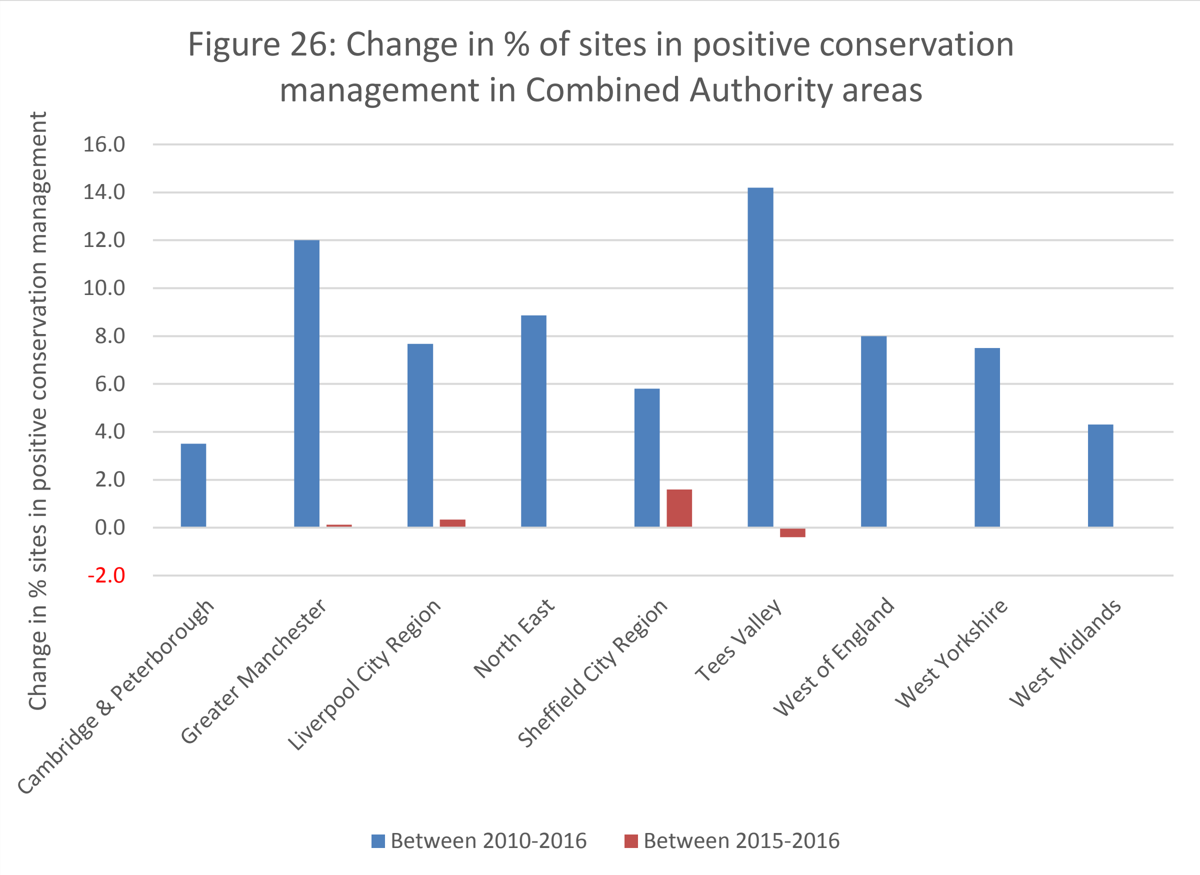


Figure 26: Change in % of sites in positive conservation management in Combined Authority areas
Change in % sites in positive conservation management
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
Cambridge & Peterborough
Greater Manchester
Liverpool City Region
North East
Sheffield City Region
Tees Valley
West of England
West Yorkshire
West Midlands
Between 2010-2016
Between 2015-2016

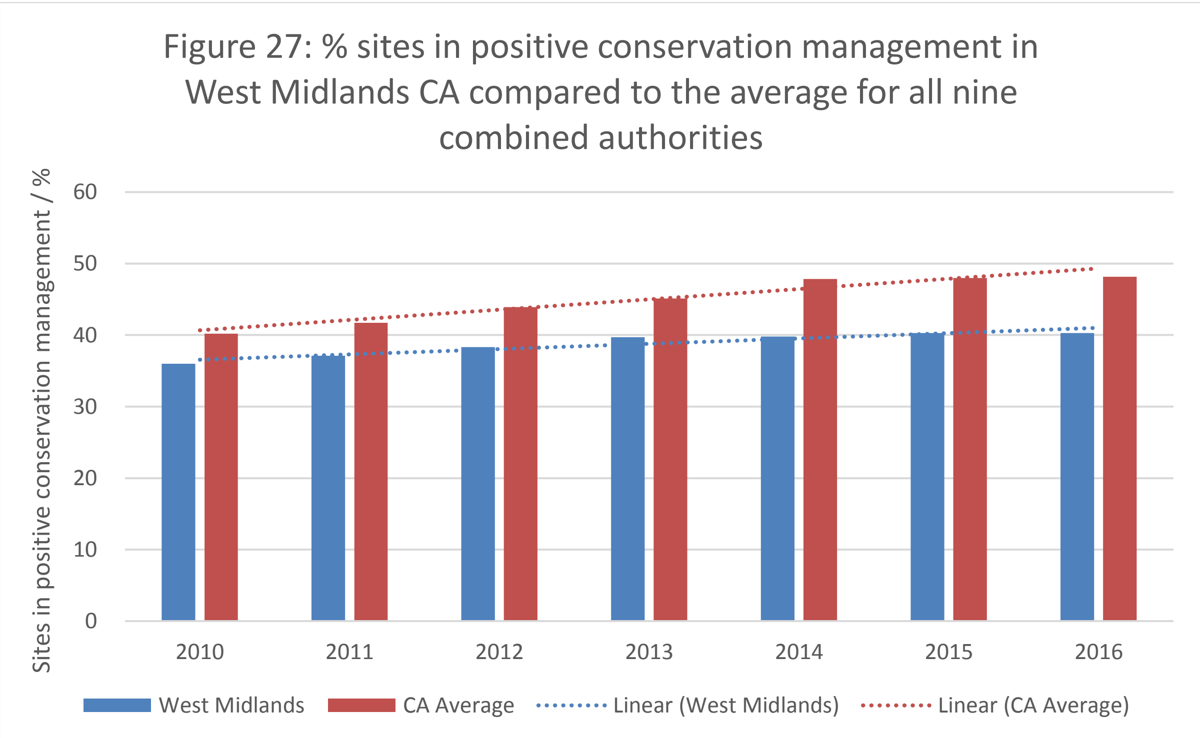


Figure 27: % sites in positive conservation management in West Midlands CA compared to the average for all nine combined authorities
Sites in positive conservation management / %
60
50
40
30
20
10
0
2010
2011
2012
2013
2014
2015
2016
West Midlands
CA Average
Linear (West Midlands)
Linear (CA Average)

CA Sites in Positive Conservation Management League Tables

Performance in most recent available year

Rank	CA	% (2016)
1	Cambridge & Peterborough	69.0
2	West Yorkshire	55.0
3	West of England	50.7
4	Tees Valley	50.2
5	North East	48.3
6	Greater Manchester	44.5
7	Liverpool City Region	42.7
8	West Midlands	40.3
9	Sheffield City Region	33.0

Progress between baseline and latest available year

Rank	CA	% (2010-2016)
1	Tees Valley	+14.2
2	Greater Manchester	+12.0
3	North East	+8.9
4	West of England	+8.0
5	Liverpool City Region	+7.7
6	West Yorkshire	+7.5
7	Sheffield City Region	+5.8
8	West Midlands	+4.3
9	Cambridge & Peterborough	+3.5

2.9 Access to woodland

Summary: The percentage of the population within the West Midlands CA with access to a 2+ hectare wood within 500 metres has increased since 2009, but remains low compared to the CA average.

- The percentage of the population in the West Midlands with access to a two or greater hectare wood that is within 500 metres of their home has increased from 17.2% in 2009 to 19.1% in 2016 (figure 28).
- However, this rate of increase is lower than the CA average (3.5% as opposed to 1.9%) (figure 29).
- The West Midlands was seventh out of nine CAs in 2016 in terms of people having access to a two or greater hectare wood that is within 500 metres of their home; 19.1% compared to the average of 22.7%. The highest proportion is in Manchester, where 36.6% of people have access to a 2+ hectare wood within 500 metres (figure 28).
- Overall, the gap between the West Midlands percentage of the population with access to a 2+ hectare wood within 500 metres and the overall CA average has widened over time, from 2% less in 2009 to 3.6% less in 2016 (figure 29).

Figure 28: Change in % of population with access to a 2+ hectare wood within 500 metres in each combined authority

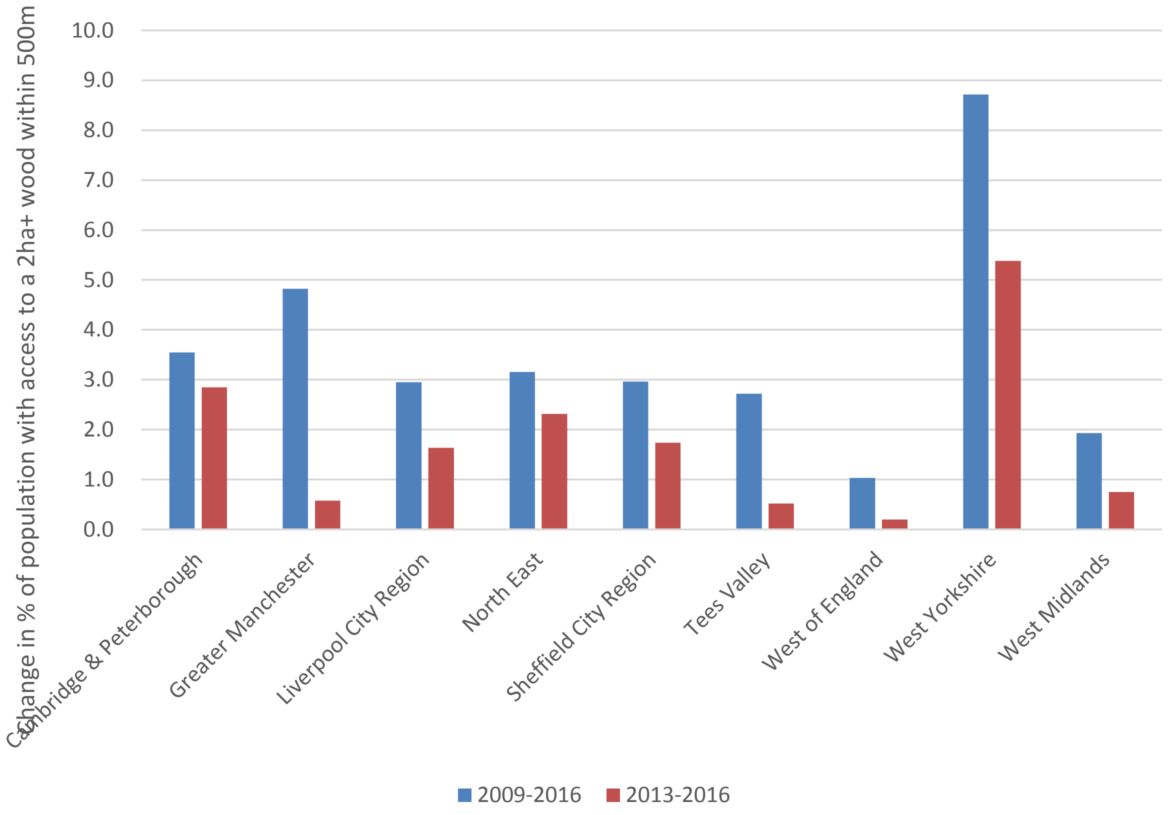
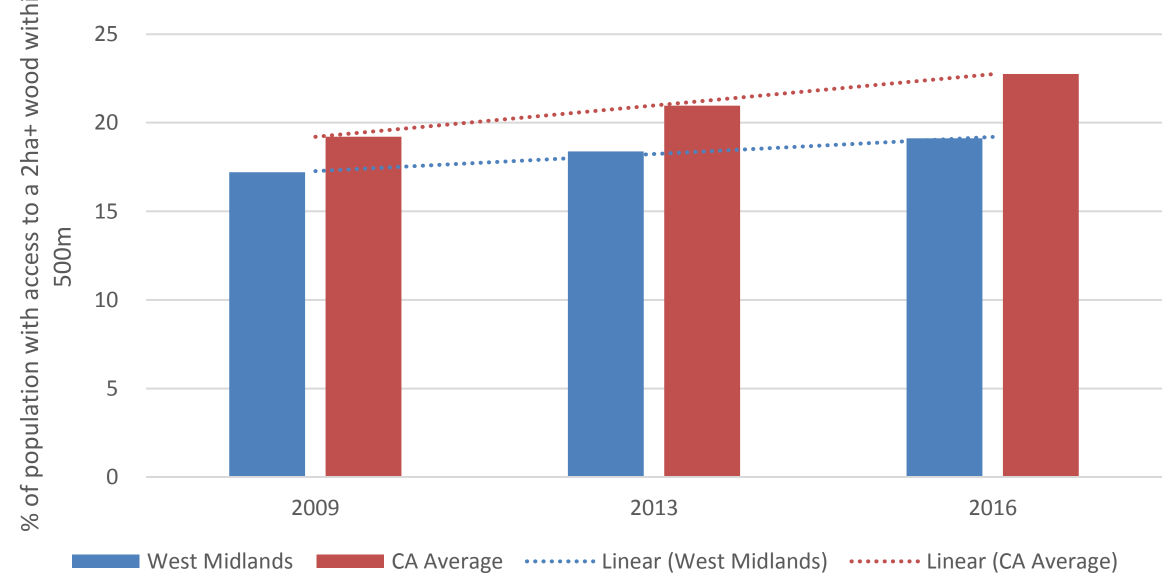


Figure 29: % of population with access to a 2+ hectare wood within 500 metres in West Midlands CA compared to the average for all nine combined authorities



CA Population with Access to a 2+ Hectare Wood within 500 metres League Tables

Performance in most recent available year

Rank	CA	% (2016)
1	Greater Manchester	36.6
2	Liverpool City Region	29.9
3	Sheffield City Region	25.7
4	West of England	22.8
5=	Tees Valley West Yorkshire	22.0
7	West Midlands	19.1
8	North East	16.8
9	Cambridge & Peterborough	9.8

Progress between baseline and latest available year

Rank	CA	% (2009-2016)
1	West Yorkshire	+8.7
2	Greater Manchester	+4.8
3	Cambridge & Peterborough	+3.6
4	North East	+3.2
5=	Liverpool City Region Sheffield City Region	+3.0
7	Tees Valley	+2.7
8	West Midlands	+1.9
9	West of England	+1.0

2.10 WMCA summary of key findings

The below table provides a summary of the metrics including how they correlate to the relevant targets that the WMCA has in place.

Metric (Link to Performance Management Framework)	Latest figure in specified year	Ranking out of 9 CAs	Rate of change since specified year	Ranking out of 9 CAs	WMCA target	Scale of challenge
Environment						
Total carbon emissions (PMF E.1)	21,696 $ktCO_2$ (2015)	9	-18.3% (2010)	5	40% reduction from 2010 to 2030	By 2030, emissions should be ≤15,941 $ktCO_2$
Per capita carbon emissions (Context)	5.3 $ktCO_2$ (2015)	4	-20.4% (2010)	6	-	-
Air quality (PMF E.2)	25 days breached (2017)	7	-13 days breached (2010)	4	Reduction to 1 day breached by 2030	24 less days breached per year
Renewable electricity generation (New)	43,700 MWh (2016)	8	+39.4% (2014)	4*	-	-
Waste Recycled – Household (New)	41.4% (2016)	6	-0.1% (2010)	7	-	-

Metric (Link to Performance Management Framework)	Latest figure in specified year	Ranking out of 9 CAs	Rate of change since specified year	Ranking out of 9 CAs	WMCA target	Scale of challenge
Waste Recycled – Non-household (New)	32.9% (2016)	5	-3.5% (2014)	8	-	-
Sites in positive conservation management (New)	40.3% (2016)	8	+4.3% (2010)	8	-	-
Access to woodland (New)	19.1% (2016)	7	+1.9% (2009)	8	-	-
Social						
Health inequality (males) (PMF P.14)	8.4 years (2015)	5	-0.7 years (2010)	6	Reduction in average health inequality gap by 5.9 years by 2030	Further reduction of 2.5 years
Health inequality (females) (PMF P.14)	7.2 years (2015)	5	+0.5 years (2010)	7	Reduction in average health inequality gap by 3.9 years by 2030	Further reduction of 3.3 years
Fuel poverty (New)	12.4% (2015)	7	-0.6% (2011)	2=	-	-
Economic						
Total economic productivity (Context)	£79,414m (2016)	1	+29.3% (2010)	1	-	-
Per capita economic productivity (PMF O.1)	£22,721 (2016)	4	+23.0% (2010)	1	£33,604 by 2030	47.9% increase required by 2030

*West Midlands ranks in these positions whether the Drax power plant in West Yorkshire CA is included or not.

2.11 Overall sustainability league tables of all combined authorities

The below league tables represent the ranking of all combined authorities based on their rankings given in the league tables reflecting each metric in sections 2.1 to 2.9. The first is the snapshot of their sustainability achievement in the latest available year (2015-2017 depending on data source) and the second is a snapshot of their progress since the baseline data (2009-2014 depending on data source). They begin to paint a useful picture of which authorities are doing well and in what areas, and which areas need further support.

sustainability west midlands

Overall league table reflecting CA sustainability achievement in the latest available year (2015-2017 depending on data source)

		Rank for each metric													
Rank	**CA**	**CO_2**	**CO_2 per cap**	**Health Inequal (F)**	**Health Inequal (M)**	**Air quality**	**Econ product**	**Econ product per cap**	**Renew Electric (-Drax)**	**Fuel poverty**	**Recycle Non-house**	**Recycle House**	**Positive Cons. Mgt**	**Access to woods**	**Total**
1	**West of England**	1	3	2	3	2	5	1	5	2	1	1	3	4	**33**
2	**Cambridge & Peterborough**	2	7	1	1	8	8	2	1	1	7	2	1	9	**50**
3	**Greater Manchester**	7	2	6	7	2	2	3	9	5	9	3	6	1	**62**
4	**West Yorkshire**	8	6	3	2	6	3	5	7	6	6	5	2	5	**64**
5	**North East**	3	1	7	6	4	4	7	2	8	2	8	5	8	**65**
6=	**Sheffield City Region**	5	7	4	3	5	6	9	3	4	8	4	9	3	**70**
	Liverpool City Region	4	5	8	8	1	7	8	6	3	4	7	7	2	**70**
8	**West Midlands**	9	4	5	5	7	1	4	8	7	5	6	8	7	**76**
9	**Tees Valley**	6	9	9	9	4	9	6	4	9	3	9	4	5	**86**

Note – where Drax power plant data under renewable electricity are included, overall rank becomes West of England (34, 1st), Cambridge & Peterborough (51, 2nd), West Yorkshire (58, 3rd), Greater Manchester (62, 4th), North East (66, 5th), Sheffield City Region, Liverpool City Region (71, 6th=), West Midlands (76, 8th=), Tees Valley (87, 9th).

Overall league table reflecting CA sustainability progress since the baseline year (2009-2014 depending on data source) up to latest available data

		Rank for each metric													
Rank	CA	CO_2	CO_2 per cap	Health Inequal (F)	Health Inequal (M)	Air quality	Econ product	Econ product per cap	Renew Electric (-Drax)	Fuel poverty	Recycle Non-house	Recycle House	Positive Cons. Mgt	Access to woods	Total
1=	Cambridge & Peterborough	8	5	1	5	1	2	4	3	1	3	9	9	3	54
	Greater Manchester	3	3	3	3	7	7	7	5	5	6	1	2	2	54
	West Yorkshire	6	7	2	1	2	5	5	6	7	2	4	6	1	54
4=	Liverpool City Region	2	2	4	7	3	8	9	9	2	1	5	5	5	62
	North East	1	1	8	4	5	6	3	8	8	5	6	3	4	62
6	West Midlands	5	6	7	6	4	1	1	4	2	8	7	8	8	67
7=	West of England	4	4	6	9	6	4	6	2	9	4	3	4	9	70
	Sheffield City Region	7	8	9	8	7	3	2	1	4	7	2	7	5	70
9	Tees Valley	9	9	4	1	5	9	8	7	6	9	8	1	7	83

Note – where Drax power plant data under renewable electricity are included, overall rank becomes Cambridge & Peterborough, Greater Manchester (54, 1st=), West Yorkshire (56, 3rd), North East (61, 4th), Liverpool City Region (62, 5th) West Midlands (67, 6th), West of England, Sheffield City Region (70, 7th=), Tees Valley (82, 9th).

3 Recommendations for the West Midlands Combined Authority

3.1 New metrics should be embedded into its reporting mechanisms

At present, the new metrics of recycling, fuel poverty, sites in positive conservation management, access to woodland and renewable electricity generation are not reported on by the WMCA. The data underpinning all these metrics show significant room for improvement when compared to other CA areas – the West Midlands is ranked no higher than fifth on any of them in the latest available year of data – and so to ensure the WMCA becomes 'best in class' in overall sustainability, these metrics should be monitored to ensure that actions can be taken to improve them. All these metrics should, therefore, be embedded into the Performance Management Framework (PMF).

3.2 Targets should be set for all new metrics

In line with the above, the WMCA currently does not have targets related to any of the new metrics included in this report. These should be established to make monitoring easier and to ensure actions are delivered to address them. They should fit with the existing targets around carbon emissions, economic productivity and air quality, for example by setting the same baseline and timeframes where possible. Again, these should then be embedded into the PMF.

3.3 Natural environment metrics need to be established/improved

At present, data reflecting progress around the state of the natural environment and natural capital are very difficult to come by and are currently inadequate. To be best in class, the WMCA should work with the newly established WMCA Environment Board to implement a target that can help to monitor where improvements in the natural environment are required and how natural capital can be embedded across the WMCA to help achieve sustainability outcomes. At the very least, one of the natural environment based metrics used in this report, sites in positive conservation management, should be made mandatory at the local level and reported on by all local authorities in the WMCA area each year and supplemented with the access to woodland data.

3.4 Investigate improvements to air quality data

It is currently very difficult to compare air quality data between one CA and another due to the way the data provided by Defra is geographically divided. It is also difficult to know where within the WMCA area the worst areas for air pollution are using this data. As such, the WMCA should investigate with Defra whether data are available at a more granular level. Alternatively, the WMCA should liaise with local universities who have, in some cases, implemented air quality monitoring stations across the CA area which may reflect more accurate, local data. This could then be used to supplement the Defra data.

3.5 Investigate establishing a Low Carbon Business Growth metric

One remaining gap in the metrics analysed is that of low carbon business growth and the strengths of the Low Carbon and Environmental Goods and Services (LCEGS) sector in the region. It transpires that data reflecting the strengths of the LCEGS sector used to be collated nationally but this ceased a few years ago. Analysing this metric could help to strengthen the area's economy by aligning activities to improve economic growth whilst at the same time reducing carbon emissions – both of which contribute to existing WMCA targets. The WMCA should investigate whether it can monitor LCEGS locally.

3.6 Establish comparison to the national average for all metrics

The national average of the four metrics that are already embedded in the WMCA's Strategic Economic Plan are used to compare progress regionally; this is not currently completed for the new metrics included in this report. Next year, it would be useful to do this to ensure consistency and to check regional progress against national progress for all combined authorities against all metrics.

3.7 Consistency of data and presentation

Some of the data used to form targets in the WMCA SEP and PMF and the recent WMCA AGM update of the PMF are not consistent, due to updates in data, baselines and boundary changes over the last three years. Our research for this report is based on the most recent available data. Therefore, clarity should be sought to help improve the consistency of data used and presented in the PMF and proposed annual and quarterly updates for the WMCA board and partners.

3.8 Clear accountability and integrated working

The Mayor and WMCA Board, although collectively responsible for the performance of the WMCA, should be clearly responsible for specific PMF objectives and indicators that closely align to their delegated areas of responsibility. There is currently work underway to develop a 'dashboard' of metrics for each WMCA Portfolio holder on the WMCA Board. Portfolio holders should have ownership of the targets and liaise with each other to check that projects that are being commissioned under their portfolio theme address some or all the metrics/targets.

3.9 Clear annual reporting

At the time of writing the WMCA 2017/18 annual review and forward plan had been published, but only contained selective PMF indicators. In the future to help accountability and transparency, a consistent full set of PMF indicators should be published annually with commentary and links to the relevant WMCA portfolio holder.

3.10 Resource to drive reporting of metrics into the WMCA project systems

Once the consistency and accountability issues around the PMF are resolved, then there should be a member of staff within the WMCA that is commissioned to monitor these targets and to ensure all the headline metrics included in this report are being considered by all WMCA-commissioned projects. SWM is currently providing this interim function as the WMCA develops internal capacity and resources. The WMCA should work with its key partners and stakeholders to ensure that they are aware of the key sustainability metrics and targets and to outline ways that they can help to achieve these targets.

3.11 More action required on many metrics

Projects are already underway that deal with specific aspects of air quality and health inequality, such as the WMCA's Mental Health Commission[4] and the Low Emissions Bus Strategy[5] respectively. Recent success in some of these issues have been achieved, such as Transport for West Midlands and Coventry City Council who have both received funding from the government to implement low emission buses into their fleets.[6]

However, given that the West Midlands performs below average on fuel poverty, recycling, natural environment, renewable electricity generation and health inequality, further activities still need to be undertaken to ensure that an improvement in these metrics can be realised.

Future improvements

If you have any comments and suggestions for future improvements, please send them to enquiries@swm.org.uk before April 2019. Then, resources permitting, we will seek to review them and incorporate any improvements and clarifications into the third annual monitoring report.

[4] https://www.wmca.org.uk/what-we-do/mental-health-commission/
[5] http://bit.ly/2tuKfVo
[6] http://www.sustainabilitywestmidlands.org.uk/news/improving-air-quality-within-the-bus-industry/

Annex – Methodology

This annex outlines in detail the methodology used by SWM to generate the results conveyed in the main body of this report.

The WMCA measures its sustainability progress against four key metrics: carbon emissions, health inequality (difference in life expectancy between the richest and poorest areas), air quality and economic productivity. We have also included four new metrics (renewable energy generation, fuel poverty, recycling and sites in positive conservation management) in this second iteration of this report. In order to ascertain how it is performing against these metrics, it is useful to compare trends with the eight other combined authority areas in formation. It may then be possible to ascertain reasons why the WMCA region is performing well or poorly in comparison to other CA areas and whether its targets and projects to address these metrics need to be more ambitious.

Much of the data that reflects the below metrics are broken down into local authority area. It was therefore necessary to ascertain which local authorities each combined authority area encompasses, as determined by searching the relevant combined authority website. They are as follows:

Combined authority	**Local authority area**
Cambridge & Peterborough	Cambridge
	East Cambridgeshire
	Fenland
	Huntingdonshire
	Peterborough
	South Cambridgeshire
Greater Manchester	Bolton
	Bury
	Manchester
	Oldham
	Rochdale
	Salford
	Stockport
	Tameside
	Trafford
	Wigan
Liverpool City Region	Halton
	Knowsley
	Liverpool
	Sefton
	St Helens
	Wirral

North East	County Durham
	Gateshead
	Newcastle
	North Tyneside
	Northumberland
	South Tyneside
	Sunderland
Sheffield City Region	Barnsley
	Bassetlaw
	Bolsover
	Chesterfield
	Derbyshire Dales
	Doncaster
	North East Derbyshire
	Rotherham
	Sheffield
Tees Valley	Darlington
	Hartlepool
	Middlesbrough
	Redcar & Cleveland
	Stockton
West of England	Bath & North East Somerset
	Bristol
	South Gloucestershire
West Yorkshire	Bradford
	Calderdale
	Craven
	Harrogate
	Kirklees
	Leeds
	Selby
	Wakefield
	York
West Midlands	Birmingham
	Bromsgrove
	Cannock Chase
	Coventry
	Dudley
	East Staffordshire
	Lichfield
	Redditch
	Sandwell

	Solihull
	Tamworth
	Walsall
	Warwickshire
	Wolverhampton
	Wyre Forest

WMCA monitored metric 1: Carbon emissions

WMCA target: Reduce carbon emissions region-wide by 40% by 2030 from a 2010 baseline.

The central government Department for Business, Energy and Industrial Strategy (BEIS) publishes nationwide carbon emissions for each local authority area every year, two and a half years in arrears.[7] Data is given in kilotons of CO_2. Given that the WMCA uses a 2010 baseline when setting its target, the emissions data from 2010 to 2015 (the latest available data at the time of analysis) was interrogated to determine levels of carbon emissions in all nine combined authority areas dating back to the same year.

Carbon emissions data are given by local authority, therefore data for each of the 70 local authority areas that make up the nine combined authorities was analysed between 2010 and 2015 inclusive to determine the actual change in emissions and to draw comparisons between each combined authority. To gain insight into annual changes, the change between 2014 and 2015 (latest available) was calculated for all 70 local authority areas. This was represented as a percentage change using the formula =((2015-2010)/2010)*100 (substitute 2010 with 2014 for annual change).

Per capita emissions, also provided by BEIS, measure emissions per person in a given local authority, to factor in population density. One would expect that the higher the population the higher the emissions, which is why comparing absolute emissions between one densely populated area and one sparsely populated area would not be too helpful. It was deemed relevant, therefore, to also analyse per capita emissions to determine which areas are emitting more or less emissions per person than would be expected. This figure is a more credible one to use when comparing combined authority emissions as it factors out this population issue.

WMCA monitored metric 2: Health inequality

WMCA target: Reduction in average health inequality gap by 5.9 years for men and 3.9 years for women by 2030.

[7] https://bit.ly/2sjTYRQ

Health inequality is also given by local authority area as presented in the data collated by Public Health England (PHE).[8] Their health profile reports each provide a health inequality figure, the gap in life expectancy between the poorest and richest areas in a local authority area, for both males and females. The larger the gap, the greater the inequality.

For consistency with the WMCA and SWM targets for both health related and other metrics, a 2010 baseline was used, however, given the way the PHE health profiles are presented meant that a few assumptions needed to be worked out initially.

- Each report's health inequality data is given in bandings. For example, the latest publications from 2017 show health inequality data for 2013-2015. This means that an average figure across these three years has been calculated.
- The 2016 reports show data for 2012-2014, the 2015 reports show data for 2011-2013 and the 2014 reports show data for 2010-2012.
- In each of these cases, we have taken the average of the banding as representative of our year of analysis for the upper year of the banding, in other words, 2013-2015 = 2015, 2012-2014 = 2014, 2011-2013 = 2013 and 2010-2012 = 2012. This is mainly for consistency, as other metrics' data also end in 2015.
- The banding length, however, changes in the 2013 reports and earlier. The banding average health inequality figures given in the 2013 reports are 2006-10, i.e. five years not three. As such, the banding average given in the 2012 reports is also 2006-10 and therefore the health inequality figures are the same for both 2011 and 2010.
- We have taken the latter as the baseline (and labelled it '2010/11' to reflect that the figures are the same in both years) and then used the subsequent three years' worth of reports to project forward to 2015.

All figures are given for both males and females and as with carbon emissions an actual and percentage change has been calculated between both 2010/11 and 2015 and 2014 and 2015 for each combined authority area. The actual difference between male and female inequality for each area was also calculated to determine any useful patterns.

WMCA monitored metric 3: Air quality

WMCA target: Reduce the number of days of high air pollution to only one day per year by 2030.

To determine levels of air quality in a given area, the Daily Air Quality Index (DAQI) produced by Defra was analysed.[9] This measures the severity of air pollution each day in the UK on a 1-10 scale, whereby 1 is very low and 10 is very high. The scale includes five different types of pollutant, rather than just one type.[10] When levels reach four (moderate) or higher, this is deemed as breaching various air quality related standards. It is also the point where Defra suggests that people may start being affected by the effects of air

[8] https://fingertips.phe.org.uk/profile/health-profiles
[9] https://uk-air.defra.gov.uk/data/DAQI-regional-data
[10] https://uk-air.defra.gov.uk/air-pollution/daqi?view=more-info

pollution, e.g. people with lung conditions start experiencing symptoms.[11] As such, we have analysed the number of times each area has registered a four or higher on the DAQI scale.

The main challenge, in terms of obtaining useful information, is the way that the DAQI data is measured geographically when compared to the combined authority boundaries. Defra measures DAQ by region and also in some 'agglomeration zones.' These are usually heavily urbanised zones where air quality is likely to be / has been higher. In the West Midlands, for example, data are available for the West Midlands region as a whole, but also for the West Midlands Urban Area which includes specific local authorities deemed to be at greater risk of high air pollution levels, such as Birmingham City, City of Wolverhampton and Walsall Borough Councils. There is a similar agglomeration zone in The Potteries (Stoke-on-Trent and surrounds) and Coventry and Bedworth.

The data are measured such the West Midlands region-wide data will include breaches from **any part** of the West Midlands. In other words, if one small area of Birmingham registered a six for air pollution on a given day, whereas nowhere else exceeded a three, the overall West Midlands figure would read 'six' for that day. The West Midlands Urban Area agglomeration zone would also read a 'six,' as Birmingham falls within it, but The Potteries and Coventry and Bedworth zones would read a 'three.' This means that the regional data will always be higher, or as high, as the agglomeration zones that they encompass. This is an important point when looking at how the geographical areas have been determined, as shown below.

Another important point is that DAQI data is not available for all agglomeration zones. For example, one cannot view data for the Coventry and Bedworth or The Potteries zones, but can for the West Midlands Urban Area zone. This reduces further the flexibility of use of the data for this analysis.

In light of this, the DAQI geographical boundaries used to determine air quality levels in combined authority areas are as follows (AZ = Agglomeration Zone):

Combined authority	DAQI area used	Justification
Cambridge & Peterborough	East of England region	There is no smaller AZ in the Cambridge or Peterborough area
Greater Manchester	Greater Manchester Urban Area AZ	The AZ covers all districts in the CA area
Liverpool City Region	Liverpool Urban Area AZ	The AZ covers all but one district in the CA area; using the North West region data would be too large and would also include Greater Manchester
North East	North East region – joined with Tees Valley CA	Tyneside AZ does not cover all districts in CA

[11] https://uk-air.defra.gov.uk/air-pollution/daqi

Sheffield City Region	Takes an average score across the Sheffield Urban Area AZ and the East Midlands region	Parts of Derbyshire and Nottinghamshire are included in the Sheffield City Region CA and should be considered in the data, and the CA boundaries cross over two regions
Tees Valley	North East region – joined with North East CA	Teesside AZ does not cover all districts in CA
West of England	Bristol Urban Area AZ	The AZ covers all districts in the CA area
West Yorkshire	Yorkshire & Humberside region	West Yorkshire Urban Area AZ does not cover all districts in CA
West Midlands	West Midlands region	West Midlands Urban Area AZ does not cover all districts in CA

The consequence of these groupings is that some regions are unlikely to portray the reality of air pollution levels in the CA areas. The Cambridge & Peterborough combined authority conveys the most significant example of this, as by the requirement of using the data for the whole of the East of England means that few of the specified days where air pollution was recorded on the DAQI scale as four or higher are likely to have been recorded within the much smaller CA area. However, the data still provides a good indication of air pollution levels, especially in the more urbanised combined authority areas.

These air quality data are updated daily, therefore we analysed data from 1 January 2010 and up to the end of December 2017 to a) commence from the consistent 2010 baseline and b) to obtain the latest full years' worth of data as possible.

WMCA monitored metric 4: Economic productivity

WMCA target: Increase GVA per head to £33,604 by 2030.

Economic productivity is measured by looking at Gross Value Added data, which reflects the measure of the value of goods and services produced in an area. This data is compiled by the Office for National Statistics[12] and is broken down geographically into the third level of nomenclature of territorial units for statistics (NUTS3) territories.[13] Initially, one was required to determine which local authorities fit into which NUTS3 territory[14] to work out whether to include its associated GVA data in the overall combined authority economic productivity data. The breakdown is included in the table below.

Combined authority	NUTS3 area	Local authorities covered	Justification
Cambridge & Peterborough	Cambridge CC	Cambridge East Cambridgeshire Fenland Huntingdonshire	Covers all districts in the CA area

[12] http://bit.ly/2oj8aVn
[13] http://bit.ly/2s45643
[14] http://ons.maps.arcgis.com/home/item.html?id=8f4bc9ea646544b2af1103450eb4d99d

Combined authority	NUTS3 area	Local authorities covered	Justification
		South Cambridgeshire	
	Peterborough	Peterborough	
Greater Manchester	Greater Manchester South West	Salford Trafford	Covers all districts in the CA area
	Greater Manchester South East	Stockport Tameside	
	Greater Manchester North West	Bolton Wigan	
	Greater Manchester North East	Bury Oldham Rochdale	
Liverpool City Region	East Merseyside	Knowsley St. Helens Halton	Covers all districts in the CA area
	Liverpool	Liverpool	
	Sefton	Sefton	
	Wirral	Wirral	
North East	Durham	Durham	Covers all districts in the CA area
	Northumberland	Northumberland	
	Tyneside	Gateshead Newcastle upon Tyne North Tyneside South Tyneside	
	Sunderland	Sunderland	
Sheffield City Region	Barnsley, Doncaster and Rotherham	Barnsley Doncaster Rotherham	CA data used does not include Bassetlaw (which makes up just one district out of five in North Nottinghamshire NUTS3 territory) or Derbyshire Dales (which makes up just one district out of five in SW Derbyshire NUTS3 territory)
	Sheffield	Sheffield	
	East Derbyshire	Bolsover Chesterfield North East Derbyshire	
Tees Valley	Hartlepool and Stockton-on-Tees	Hartlepool Stockton-on-Tees	Covers all districts in the CA area
	South Teesside	Middlesbrough Redcar and Cleveland	
	Darlington	Darlington	
West of England	Bristol, City of	Bristol, City of	Covers all districts in the CA area along with North Somerset; omitting this NUTS3 area from the CA data analysis would paint an incomplete picture for the sake of not including one extra local authority
	Bath & NE Somerset, N Somerset & S Gloucestershire	Bath and North East Somerset North Somerset South Gloucestershire	

Combined authority	NUTS3 area	Local authorities covered	Justification
West Yorkshire	York	York	CA data used does not include Craven, Harrogate and Selby (which make up just three out of seven districts in North Yorkshire CC NUTS3 territory)
	Bradford	Bradford	
	Leeds	Leeds	
	Calderdale and Kirklees	Calderdale Kirklees	
	Wakefield	Wakefield	
West Midlands	Birmingham	Birmingham	CA data used does not include Cannock Chase, East Staffordshire, Lichfield or Tamworth (which make up just half of Staffordshire CC NUTS3 territory) or Bromsgrove, Redditch and Wyre Forest (which make up just half of Worcestershire CC NUTS3 territory)
	Solihull	Solihull	
	Coventry	Coventry	
	Dudley	Dudley	
	Sandwell	Sandwell	
	Walsall	Walsall	
	Wolverhampton	Wolverhampton	
	Warwickshire	North Warwickshire Nuneaton and Bedworth Rugby Stratford-on-Avon Warwick	

As with all other metrics, we have used 2010 as a baseline and used the latest available annual figures which are from 2016. Also, as with other datasets, we analysed the difference between the 2010 and 2016 figures and 2015 and 2016 figures to gauge trends.

As with carbon emissions, GVA is also measured per head of population (in £), which we have again analysed along with actual GVA figures (in £ million) to give a more comparable picture of where GVA is peaking regardless of demographic circumstances or population density. GVA per head is also the metric the WMCA uses to benchmark its progress on economic productivity as given in its Strategic Economic Plan.

New metric: Renewable electricity generation

The following five metrics are new additions for 2018, addressing part of a recommendation in the previous iteration of this report that suggested that measuring additional metrics would be beneficial in developing a clearer picture for each CA in terms of its overall progress on sustainability. The first of these is renewable electricity generation.

There are several data sources that analyse renewable electricity, namely focusing on installed capacity, number of sites and amount of energy generated. This report focuses on the latter, as this provides a more useful picture of how much of the overall energy consumed was actually renewable, rather than the potential generation from renewable sources. Data is broken down by local authority and by renewable energy type (e.g. solar photovoltaic, onshore wind, anaerobic digestion etc.) but only includes electricity generated by renewables and not heat, which is not available at such a detailed level. The data are collated and published by the Department for Business, Energy and Industrial Strategy (BEIS).[15]

The data only go as far back in time as 2014 and is available approximately six months in arrears; 2016 was the latest available data for this report. Whilst the baseline for most of the above metrics is 2010, this is not possible for renewable generation but also less important, as at present the WMCA does not measure renewable generation and, therefore, does not have its own baseline in place. Renewable electricity generation data is measured in megawatt hours (MWh) and as with other datasets, we analysed the difference between the earliest (2014) and latest (2016) figures and the two most recent years' figures (2015 and 2016) to gauge trends.

An overall average total for renewable electricity generated was calculated for each combined authority. It is recognised that some combined authorities have access to a greater variety of renewable sources; for example, coastal CAs will have access to offshore wind and tidal and rural areas are likely to have more land on which to install onshore wind turbines or use farming processes to viably install anaerobic digesters. Therefore, these total results should be treated with caution as it is recognised that certain areas, inland CAs in particular, are unlikely to be able to compete with others in terms of generating more of their electricity by renewable sources.

As such, we have also analysed the amount of renewable electricity generated by solar photovoltaics in each CA area. Solar PV is the one renewable source that can be implemented anywhere, so it was felt that this is a more useful and comparative metric to analyse. However, it is recognised that even energy generated from PV is dependent upon numerous factors; some parts of the country receive more sunshine than others, for example, and others may have more rural land capacity to install larger-scale solar farms. However, overall solar PV is the most uniform type of renewable energy source that gives an indication of the appetite of renewable electricity uptake.

Finally, the data for the West Yorkshire Combined Authority was hugely skewed due to the Drax Power Plant located in the local authority of Selby, which has transitioned from coal to biomass in recent years. As such, Selby generated nearly eight million MWh renewable electricity in 2016 (with the vast majority of this attributed to 'plant biomass' from the Drax plant), compared to the next highest value in any local authority of 570,000. It can be seen from this how much the Drax plant skews the data significantly. Therefore, we calculated the total renewable electricity generated in Selby both with and without the 'plant biomass' data, the latter of which provides a more useful comparison across CAs. The average MWh generated across all combined authorities differs by a factor of just less than 100,000 (in 2016) depending on whether the generation data from Drax is included or not. Figures 15-18 in section 2.5 of this report show the difference in renewable generation figures depending on whether the Drax plant is included in the data or not.

[15] https://www.gov.uk/government/statistics/regional-renewable-statistics - see bottom link on this page.

New metric: Fuel poverty

The second new dataset that we have analysed is the percentage of homes in fuel poverty. This is available by local authority and is provided by BEIS.[16]

In 2013, the government changed the officially recognised definition of what is meant by fuel poverty to a definition known as 'low income, high costs.' Analysing the available fuel poverty data shows that there is a sudden decline in fuel poverty levels from 2011 onwards, when compared to 2010 data. SWM has found no evidence to confirm this, but we have assumed that the 'low income, high costs' methodology was back-dated to data from 2011. The spreadsheets reflecting the data from 2011 to 2015 (the latest available date) inclusive state on the front page that the data are 'low income, high costs' defined, whereas the cover on the 2010 spreadsheet does not. On this basis, we have taken 2011 as a baseline as the 2010 data do not appear to be directly comparable to the rest.

The fuel poverty data are broken down into local authority area and, as outlined above, go back to 2011. The latest available data reflect 2015. As with other metrics, we have compared the latest and oldest years' data with each other and the two most recent years' data with each other.

New metric: Recycling

Another new dataset that has been used to paint a more accurate picture of overall sustainability within combined authority areas is that of recycling rates. Both household and non-household recycling rates were analysed using data provided by the Department for Environment, Food and Rural Affairs (Defra).[17]

The waste data reflect that collected by local authorities and is geographically sub-divided as such. In the case of household recycling, this means that it 'contains materials sent for recycling, composting or reuse by local authorities as well as those collected from household sources by 'private/ voluntary' organisations.' In the case of non-household recycling, this 'includes municipally collected materials for recycling from commercial sources. It excludes material which was collected for recycling from non-household sources but actually rejected at collection or at the gate of a recycling reprocessor.' For both, we have used a percentage of the total amount of waste generated that has been recycled. For household waste, a percentage of total household waste recycled is already provided within the data. For non-household waste, a total percentage recycled was calculated by using the total non-household waste sent for recycling divided by the total amount of non-household waste generated and multiplied by 100.

Data is provided in financial years, e.g. 2010/11. For ease of comparison between this and other metrics, we have taken 2010/11 to be 2010, 2011/12 to be 2011, and so on. Nine

[16] https://www.gov.uk/government/collections/fuel-poverty-sub-regional-statistics
[17] https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables

months of the previous calendar year are also included in each financial year, so it is more sensible to convert backwards than forwards (i.e. 2010/11 becomes 2010 and not 2011). Non-household recycling data is available from 2014 to 2016 and household data is available from 2010 to 2016 and it is these ranges we have used. As with the other datasets, we have compared the oldest and most recent years' data with each other for both non- and household waste, as well as compared the second-most recent and most recent years' data.

There is some uncertainty about a few of the non-household data which on occasion show that an authority recycled more waste than it generated in total; for example, in 2014, Solihull in the West Midlands recycled 146.8% of its non-household waste. It is assumed, but not clarified, that this means it recycled much of its own but also other local authority areas' household waste. In this case, it could be neighbouring Warwick, for example, which according to the data did not generate any non-household waste in 2014. Whilst the number of local authorities that show a data skew of this nature are few, it is still an aspect of this report that needs to be analysed with caution and further investigation needs to take place as to why this is the case.

Another key factor to consider is that some of the local authorities are waste collection authorities, some are waste disposal and others are unitary, i.e. they do both. In general, where a two-tier local authority system is in place, the lower tier authority collects waste and the upper-tier authority disposes of it. We deemed it important to determine how much waste collected and disposed of was recycled and therefore we analysed both. In some cases, a waste disposal authority only covers part of a combined authority area. For example, the West Midlands Combined Authority includes four out of eight districts in Staffordshire, therefore meaning that waste disposal data reflecting Staffordshire County Council only applies to half of this part of the CA. However, we have included the data for Staffordshire County Council in the overall average because it still provides a useful indication of its recycling effort. The only caveat is that it is unknown whether there is a significant discrepancy in the amount of disposed waste that is recycled from the four districts the CA covers compared to the four it does not, but overall, we assume that this difference is unlikely to be huge. The top-tier waste disposal authorities where this applies are Staffordshire (West Midlands CA), Worcestershire (West Midlands CA), Derbyshire (Sheffield City Region CA), Merseyside Recycling and Waste Authority (Liverpool City Region CA) and North Yorkshire (West Yorkshire CA). The other top-tier disposal authorities (Cambridgeshire and Greater Manchester) are fully enclosed within the CA boundary.

The final factor for consideration is that in 2016, the district collection authorities of Cambridge and South Cambridgeshire (part of Cambridge and Peterborough CA) began to report their waste jointly. We have therefore used the same percentage figure for both districts in this year.

New metric: Sites in positive conservation management

Another new metric that has been used to paint a more complete picture of each CA's progress with sustainability is data showing sites in positive conservation management, to help reflect activity and progress of managing the natural environment. There are few metrics that provide a measurement of this sort of activity, especially that are broken down into a geography that allows for comparison between CA's, but data outlining the percentage of sites in positive conservation management is the most useful in this respect.

In the case of this dataset, local 'sites' refers to areas designated locally for their substantive nature conservation importance, either for wildlife or geology. These sites are managed so as to preserve their nature conservation interest (i.e. are in "positive conservation management"). The data allows assessment of the percentage of the total number of local sites in England where positive conservation management is being or has been implemented. Assessing the extent of positive management can help to identify sites where such management is lacking. This will help to concentrate the efforts of local site partnerships in ensuring the sites are managed appropriately, and their nature conservation value is maintained or enhanced.[18]

This data is collected by local authorities and collated by Defra.[19] Only county and unitary authorities collect the data, therefore data at district level is not available. This is similar to the NUTS classification, outlined in section 2.4 of this report in relation to economic productivity. However, for the purposes of this metric, we have used slightly different authorities' data to gain as complete a picture as possible of sites in positive conservation management. In short, where a county council authority covers half or more of the districts included in a CA, we have included its data. The table below describes this.

Combined authority	**Geographical area dataset reflects C = County | U = Unitary**	**Justification for inclusion of authorities**
Cambridge & Peterborough	Cambridge C Peterborough U	Covers all districts in the CA area
Greater Manchester	Bolton U Bury U Manchester U Oldham U Rochdale U Salford U Stockport U Tameside U Trafford U Wigan U	Covers all authorities in the CA area
Liverpool City Region	Halton U Knowsley U Liverpool U Sefton U St Helens U Wirral U	Covers all authorities in the CA area

[18] https://www.gov.uk/government/statistics/local-sites-in-positive-conservation-management--2
[19] https://www.gov.uk/government/statistical-data-sets/env10-local-sites-in-positive-conservation-management

Combined authority	Geographical area dataset reflects C = County | U = Unitary	Justification for inclusion of authorities
North East	County Durham U Gateshead U Newcastle U North Tyneside U Northumberland U South Tyneside U Sunderland U	Covers all authorities in the CA area
Sheffield City Region	Barnsley U Derbyshire C Doncaster U Rotherham U Sheffield U	Includes all districts and authorities within CA area except Bassetlaw, which is in Nottinghamshire. Nottinghamshire C not included, as Bassetlaw is only one out of seven districts. Derbyshire C is included, as four out of eight districts (i.e. half) in this CA are covered by Derbyshire C (Derbyshire Dales, North East Derbyshire, Chesterfield and Bolsover), therefore it is reasonable to include it.
Tees Valley	Darlington U Hartlepool U Middlesbrough U Redcar & Cleveland U Stockton U	Covers all authorities in the CA area
West of England	Bath & North East Somerset U Bristol U South Gloucestershire U	Covers all authorities in the CA area
West Yorkshire	Bradford U Calderdale U Kirklees U Leeds U Wakefield U York U	Does not include Craven, Harrogate and Selby districts as they only make up three out of seven districts in North Yorkshire C (i.e. less than half of the county council area).
West Midlands	Birmingham U Coventry U Dudley U Sandwell U Solihull U Staffordshire C Walsall U Warwickshire C Wolverhampton U Worcestershire C	Includes Staffordshire C as this county covers four out of eight (i.e. half) of the districts within the CA area (East Staffordshire, Lichfield, Tamworth and Cannock Chase). Includes Worcestershire C as this county covers three out of six (i.e. half) of the districts within the CA area (Bromsgrove, Redditch and Wyre Forest). Includes Warwickshire C as this covers all districts in CA.

Naturally, some of the manipulation of geographical boundaries above will result in the affected CA areas returning less accurate data than others, but on most occasions the discrepancy is only likely to be small.

It used to be mandatory for local authorities to report on this metric, up until the abolishment of National Indicators in 2010. Since then, reporting is optional and therefore there are an increasing number of gaps in the data where local authorities have not reported. For example, in 2016, only 46% of authorities we have included above reported on this metric. The figure in 2010, the baseline year we have used, stood at 93%. To help fill in these gaps, we took the figure from when the authority last reported and assumed it was the same in any subsequent years where it did not report. For example, if an authority reported a figure of 70% of sites in positive conservation management in 2010, then 65% in 2011, then nothing in 2012 or 2013, then 75% in 2014, then nothing in 2015 or 2016, we manipulated the data so that it read thus…

2010	2011	2012	2013	2014	2015	2016
70	65	65	65	75	75	75

...whereby red font indicates estimated readings, based on the most recent actual recorded figure. The table below shows which authorities have reported when and which figures have been used in each year. Red shading indicates no data and the arrows indicate from which year the null returns have been estimated. Blank cells mean the data is recorded accurately by the LA.

CA	LA	2010	2011	2012	2013	2014	2015	2016
Cambridge & Peterborough	Cambridgeshire CC							
	Peterborough							
Greater Manchester	Bolton							
	Bury							
	Manchester							
	Oldham							
	Rochdale							
	Salford							
	Stockport							
	Tameside							
	Trafford							
	Wigan							
Liverpool City Region	Halton							
	Knowsley							
	Liverpool							
	Sefton							
	St Helens							
	Wirral							
North East	County Durham							
	Gateshead							
	Newcastle							

CA	LA	2010	2011	2012	2013	2014	2015	2016
	North Tyneside							
	Northumberland							
	South Tyneside							
	Sunderland							
Sheffield City Region	Barnsley							
	Derbyshire CC							
	Doncaster							
	Rotherham							
	Sheffield							
Tees Valley	Darlington							
	Hartlepool							
	Middlesbrough							
	Redcar & Cleveland							
	Stockton							
West of England	Bath & North East Somerset							
	Bristol							
	South Gloucestershire							
West Yorkshire	Bradford							
	Calderdale							
	Kirklees							
	Leeds							
	Wakefield							
	York							
West Midlands	Birmingham							
	Coventry							
	Dudley							
	Sandwell							
	Solihull							
	Staffordshire CC							
	Walsall							
	Warwickshire							
	Wolverhampton							
	Worcestershire CC							

The table clearly shows that much of the data is missing and therefore the estimated data we have used from previous years may be inaccurate. However, it was deemed a more complete picture to use the data from the previous years' return(s) rather than remove it entirely, as this would render comparisons between each CA very difficult. The exception to this principle is in the authorities of Tameside and Trafford, both in Greater Manchester CA, which have never recorded their percentage sites in positive conservation management since and including 2010, therefore these authorities' data have not been included in the Greater Manchester CA overall average.

Finally, data for this metric is provided in financial years, e.g. 2010/11. For ease of comparison between this and other metrics, we have taken 2010/11 to be 2010, 2011/12 to be 2011, and so on. Nine months of the previous calendar year are also included in each financial year, so it is more sensible to convert backwards than forwards (i.e. 2010/11 becomes 2010 and not 2011). As with the other datasets, we have compared the oldest and most recent years' data with each other, as well as compared the second-most recent and most recent years' data.

New metric: Access to woodland

The final new metric that we have analysed to determine sustainability progress is people's access to woodland. This is useful in that is links the natural environment with social benefits; it is one of the few natural environment based metrics measured at local authority level and it supplements health inequality data by reflecting some element of available green space in a given area, which studies have shown[20] have multiple benefits to both physical and mental health.

The latest data reflecting access to woodland is shown in the Woodland Trust's report Space for People[21] published in 2017. Page 9 of the report onwards shows tables reflecting the following:

1. % of population with access to a 2ha+ wood within 500m
2. % of population with access to a 20ha+ wood within 4km
3. % extra population with access to a 2ha+ wood within 500m if existing woods opened
4. % extra population with access to a 20ha+ wood within 4km if existing woods opened
5. % population requiring new woodland to be able to access a 2ha+ wood within 500m
6. % population requiring new woodland to be able to access a 20ha+ wood within 4km

For the purposes of this report, we have analysed the first of these metrics. This is because we felt that:

- The importance of number 1, particularly those who are perhaps of poor mobility or unable to travel far for any reason, is greater than number 2 from a social perspective. Although two hectares is small, even woodland of this size can have significant benefits to local people.
- Numbers 3 and 4 are similar to the renewable energy generation vs capacity issue. Capacity is what could possibly be generated if all renewable energy installations were utilised fully, but does not reflect the reality (generation). In this case, opening currently inaccessible woodlands shows how many more people could benefit from local woodland (capacity) but unlike number 1 does not reflect the reality (generation).
- Numbers 5 and 6 are currently aspirational and there is no indication that these woodlands will be open and the population benefitted. Again, it is not the reality which is what we are most interested in.

[20] e.g. https://publichealthmatters.blog.gov.uk/2016/11/09/green-space-mental-wellbeing-and-sustainable-communities/

[21] https://www.woodlandtrust.org.uk/publications/2017/06/space-for-people-2017/

SWM liaised with the Woodland Trust to try and obtain the data in a user-friendly format (Excel) and for prior periods of time, as the report referenced above only provides data reflecting 2016. Gratefully, the Trust was able to provide data for all the above metrics including the one we ended up analysing, number 1, reflecting three years – 2009, 2013 and 2016. The means that for this metric, the baseline is 2009 (one year earlier than the default 2010 baseline) and the latest available data is 2016. Despite only obtaining three years' worth of data within the eight year period, they still provide a useful overview of progression in terms of access to woodland during this period.

The data for 2016 was broken down at district level, in a similar way to the carbon emissions and fuel poverty data used in this report. However, the two other datasets reflecting 2009 and 2013 were only broken down into county and unitary authorities so for comparability we have also only looked at data at this level for 2016. This breakdown is the same as the data reflecting sites in positive conservation management and we have used the same boundaries for the purposes of analysing this metric (see pages 58/59 for full explanation). Naturally, some of the manipulation of geographical boundaries will result in the affected CA areas returning less accurate data than others, but on most occasions the discrepancy is only likely to be small.

As with all other datasets, we have compared the oldest and most recent years' data with each other, as well as compared the second-most recent and most recent years' data. In this case, the latter represents a comparison between 2013 and 2016 as opposed to two adjacent years.

-END-