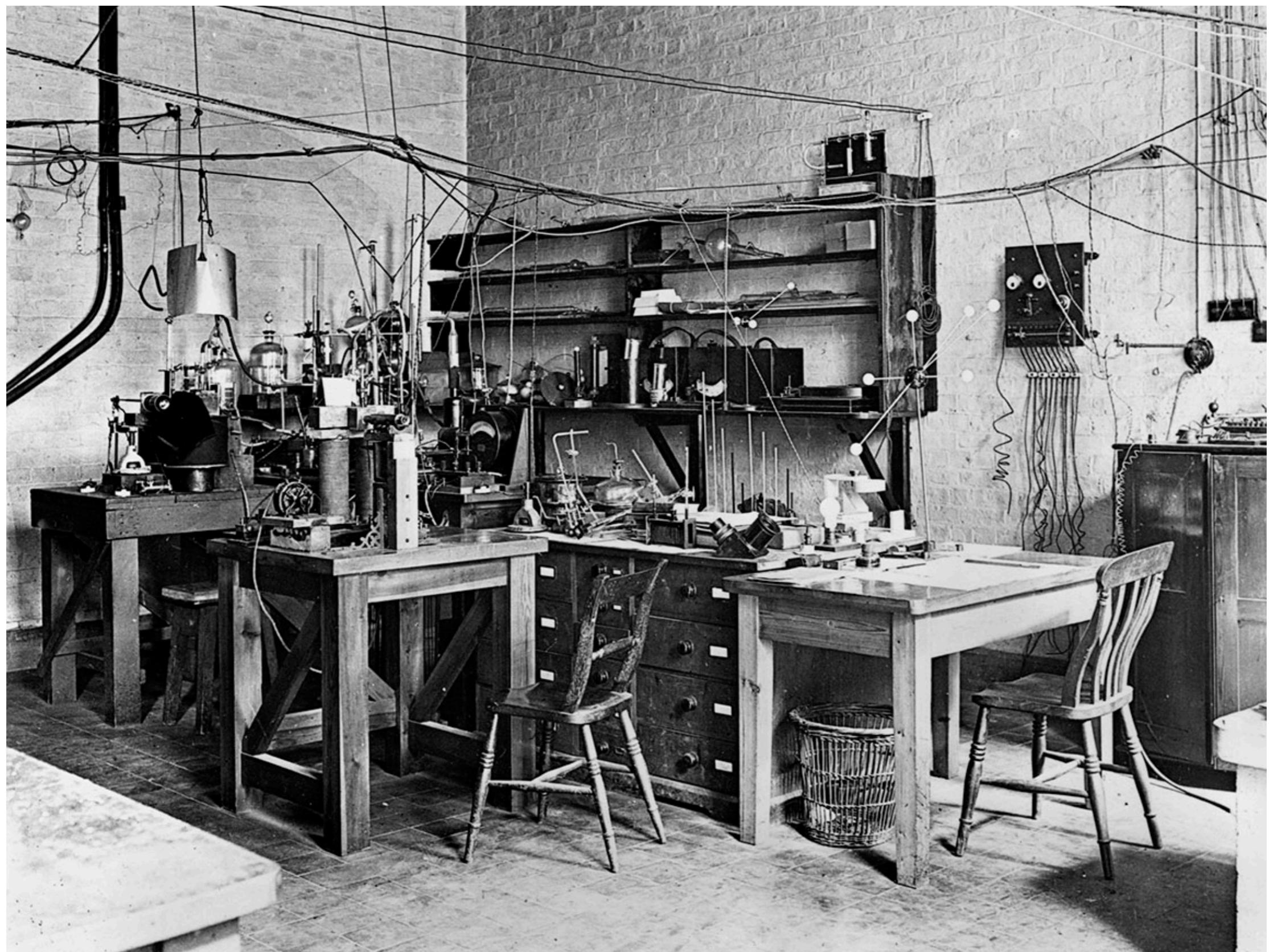


Cleaning up data for a climate emergency

#PlanetData, ODI Leeds
29 November 2019

Dr Henry Partridge
Trafford Data Lab Manager



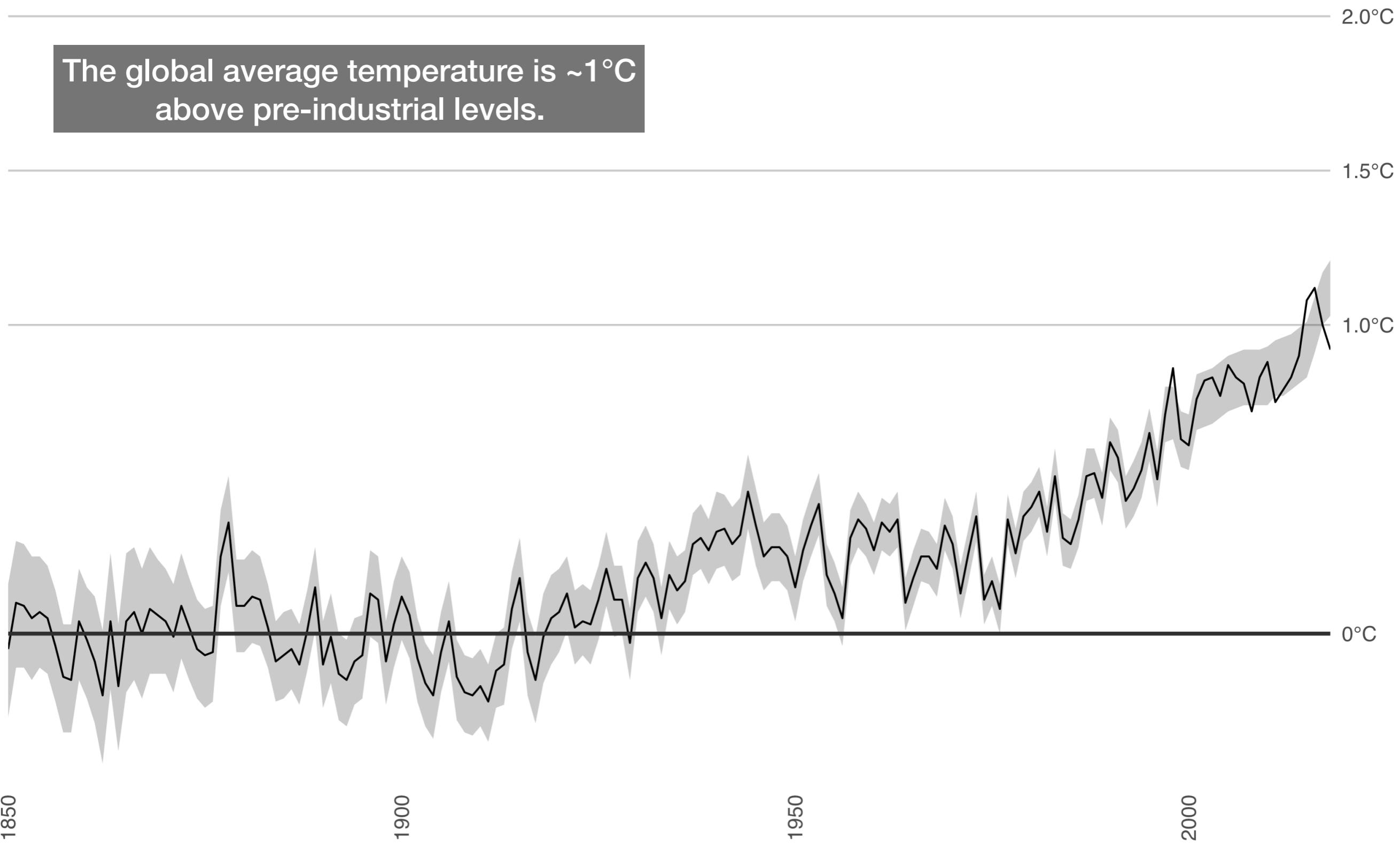


Climate Emergency

The 2018 special report of the Intergovernmental Panel on Climate Change (IPCC) warned that we have only **12 years** to limit global temperature rises to 1.5°C above pre-industrial levels or risk water scarcity, food shortages, mass migration, rising sea levels, ocean acidification, and species extinction.

Global temperature change, 1850-2018

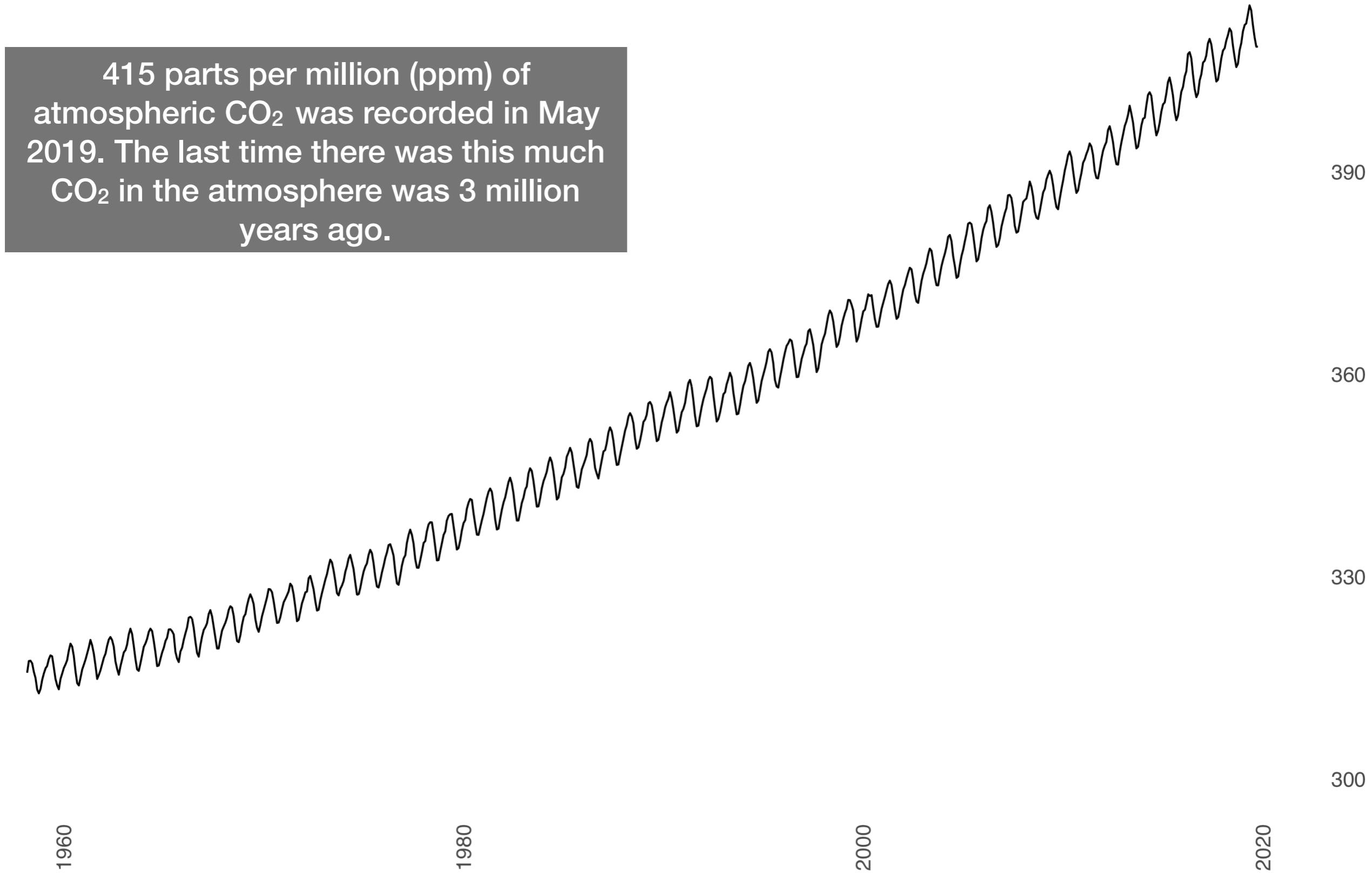
Deviation from 1850-1900 average



Source: Met Office Hadley Centre and Climatic Research Unit

Monthly average atmospheric CO₂ levels (ppm)

Mauna Loa observatory (Hawaii), 1958-2019

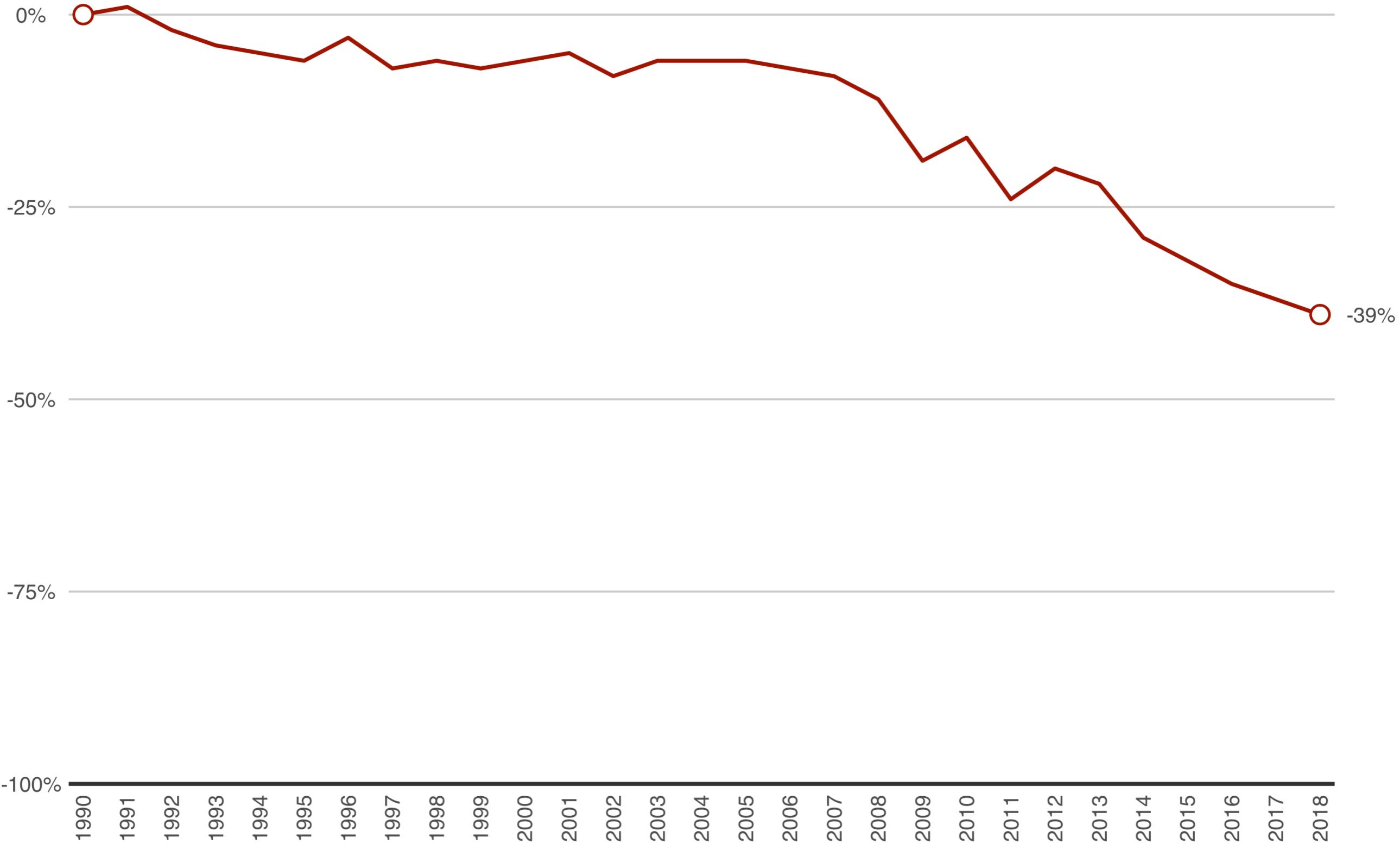


Source: National Oceanic and Atmospheric Agency ESRL

UK

Change in CO₂ emissions since 1990

United Kingdom, 1990-2018

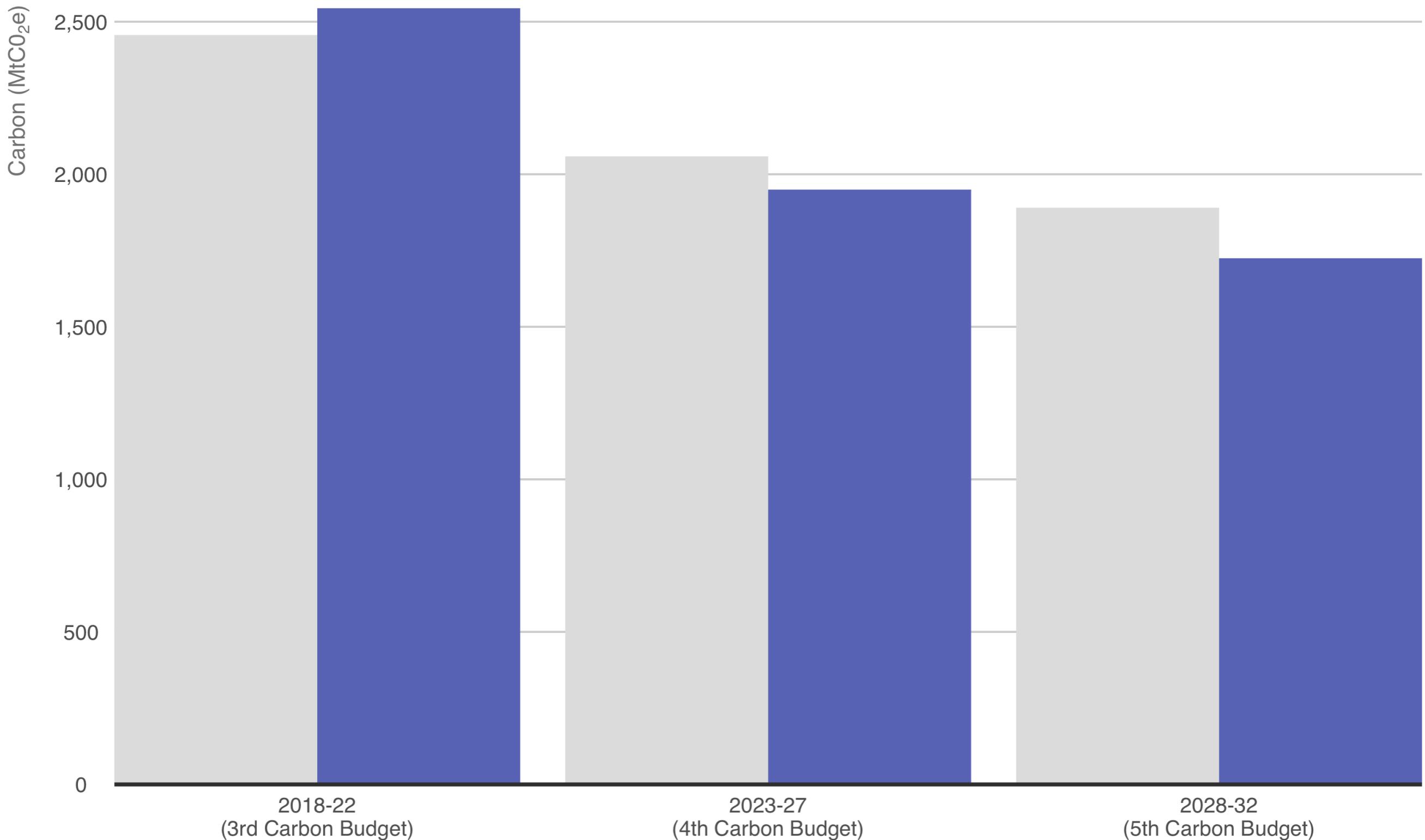


Source: BEIS

Projected performance against carbon budgets

United Kingdom, 2008 - 2032

Emissions Budget



Share of energy from renewable sources

United Kingdom, 2004-2018

EU Renewable Directive 2020 target

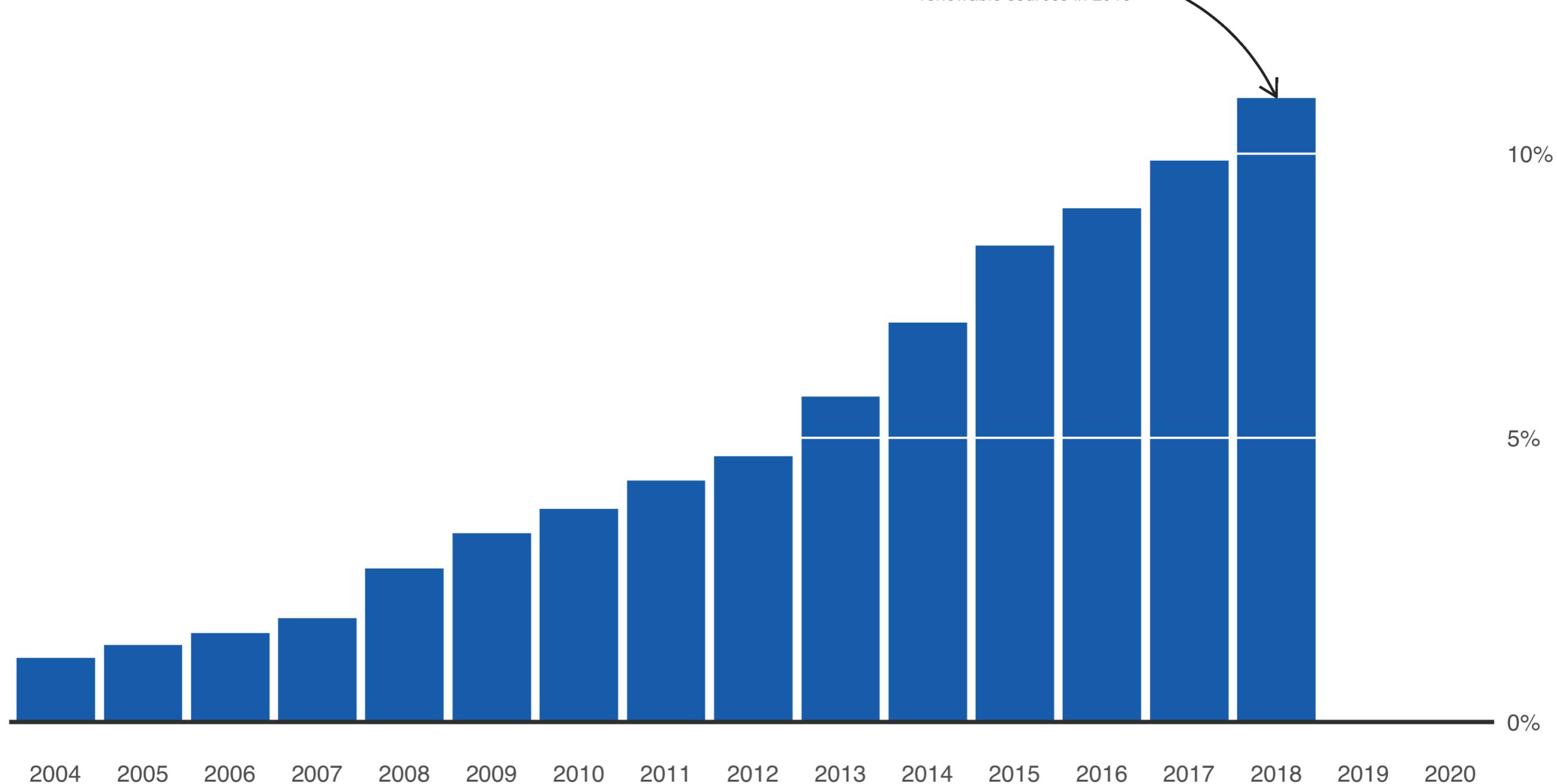
15%

11% of total energy consumption came from
renewable sources in 2018

10%

5%

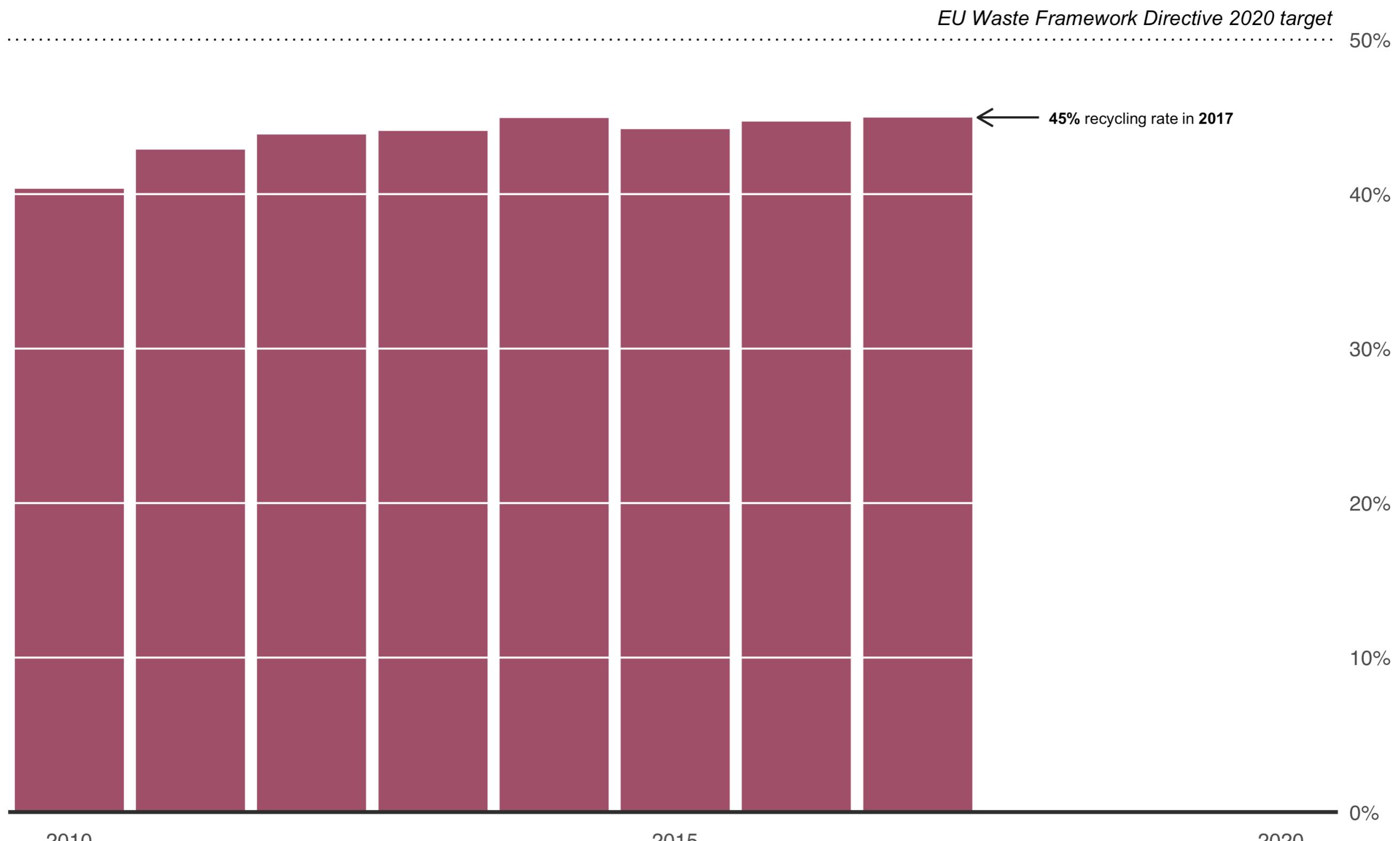
0%



Source: BEIS

Recycling rates

United Kingdom, 2010-2017



EU Waste Framework Directive 2020 target

50%

← 45% recycling rate in 2017

40%

30%

20%

10%

0%

2010

2015

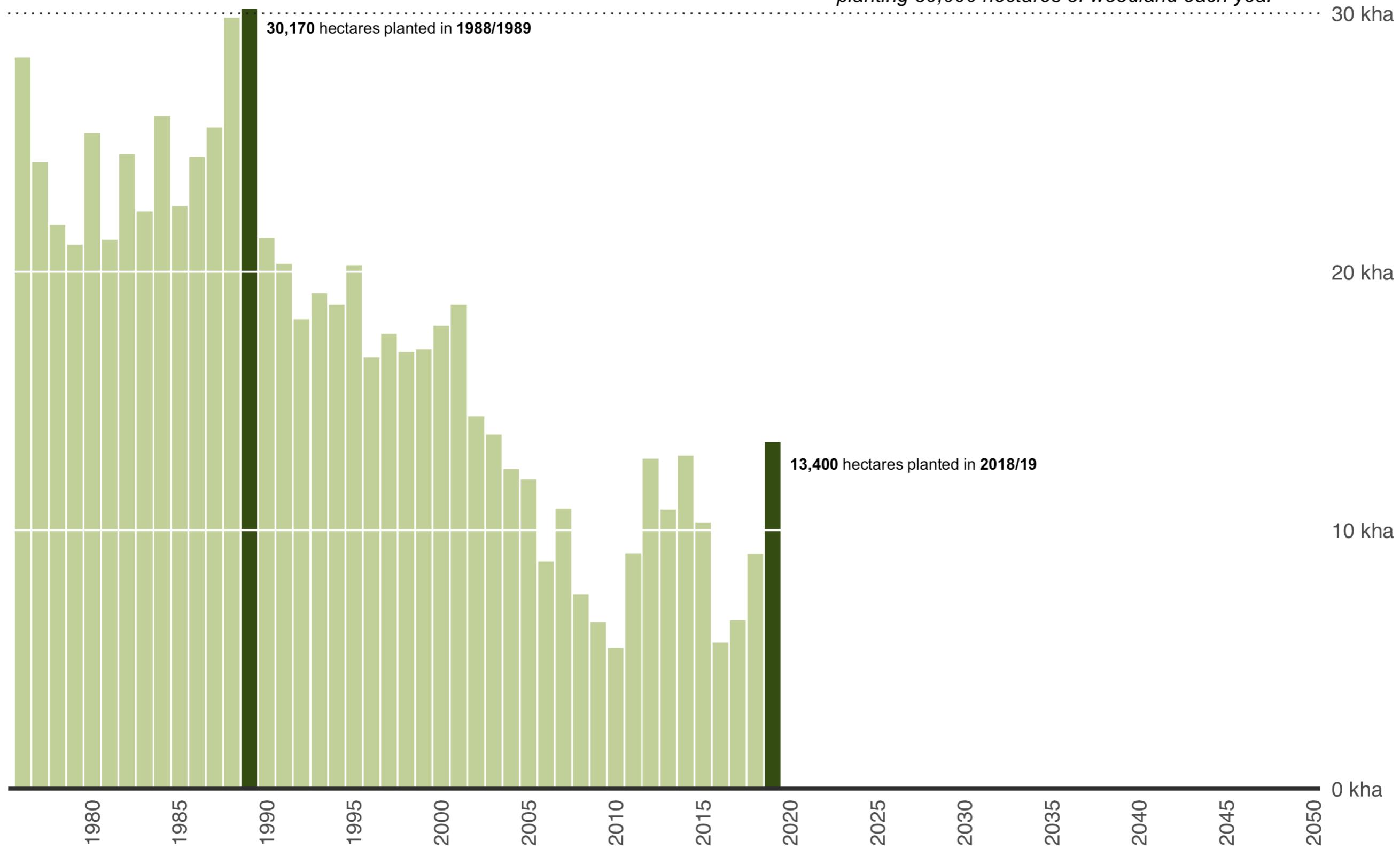
2020

Source: DEFRA

Tree planting rates

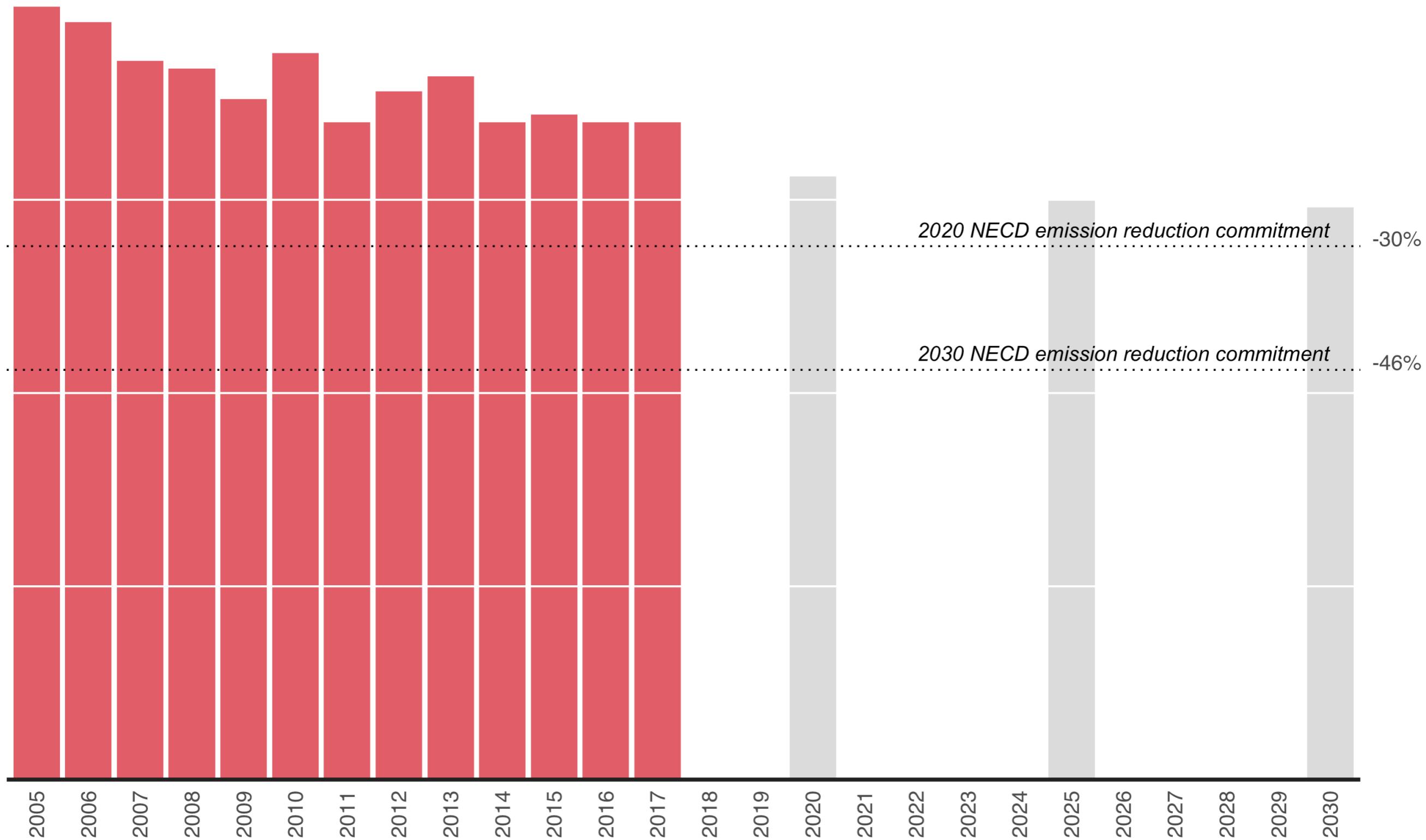
United Kingdom, 1976-2019

*The Committee on Climate Change recommend
planting 30,000 hectares of woodland each year*



Change in total PM_{2.5} emissions (Gg) since 2005 with projections

United Kingdom, 2005-2030

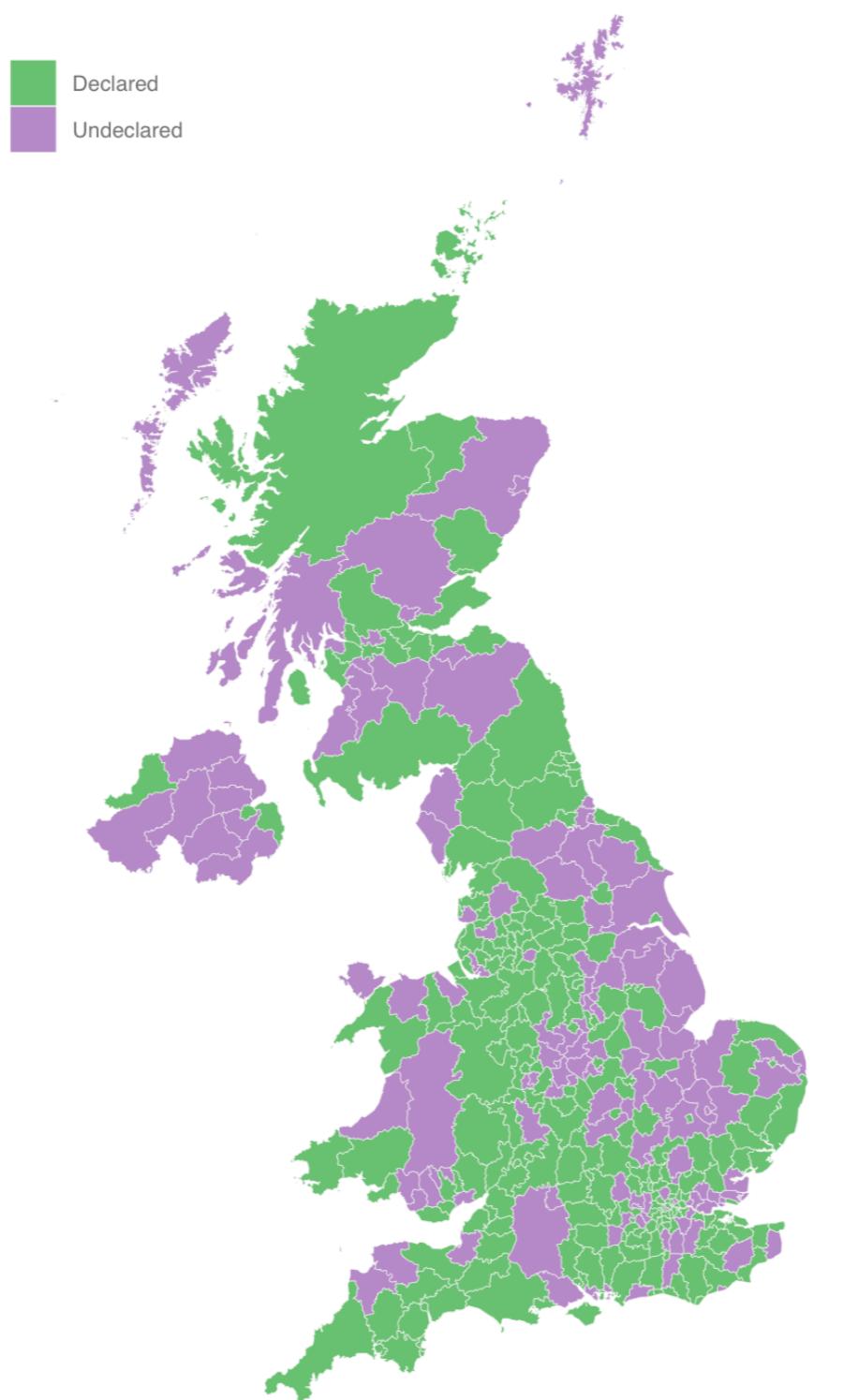


Local authorities

In November 2018, Bristol City Council became the first local authority to declare a **climate emergency**. Since then over half of the UK's councils have committed themselves to taking urgent action to reduce local carbon emissions.

UK councils declaring a climate emergency

as of 21 October 2019



Open data

The image shows a Mac desktop with four overlapping browser windows, all displaying the GOV.UK website (www.gov.uk). The windows are arranged vertically from top to bottom:

- Top Window:** Shows the main GOV.UK header with a search bar.
- Second Window:** Shows a link to "Statistical data" and a large heading "Total final and local".
- Third Window:** Shows a link to "Home" and a section titled "Sub-region".
- Bottom Window:** Shows a link to "Home" and a section titled "Regional".

The "Regional" window is the most prominent, containing the following content:

- Section Header:** "UK local authority and regional carbon dioxide emissions national statistics"
- Description:** "UK local authority and regional estimates of carbon dioxide emissions from 2005."

Name	Description	Data type	Value constraints	Example(s)
area_code	ONS code for the local authority	String	Local authorities in the UK	E08000009
area_name	ONS name for the local authority	String	Local authorities in the UK	Trafford
indicator	Concise description of dataset	string	No reference to measure	Carbon dioxide emissions
period	The period of time the data refer to	String	Date: YYYY-MM or YYYY-MM-DD	2019-01 or 2018-12-31
			Single year: YYYY	2019
			Financial/education year: YYYY/YY	2017/18
			Date range: YYYY to YYYY	2016 to 2019
measure	How values are expressed	String	Maintain consistency of terms	CO ₂
unit	The unit of measurement	String	Maintain consistency of terms	CO ₂ (kt)
value	A numeric value	Integer / Double	Round value to one decimal digit	262.7
group	A grouping variable	String		Industry & Commercial Electricity

Carbon dioxide emissions

Total carbon dioxide emissions are broken down by different domestic, industrial & commercial, and transport sectors. Carbon dioxide emissions are also available per capita (ktCO₂/capita) in the source dataset.

Indicator	Period	Geography	Source	Updated	Licence	Data
Carbon dioxide emissions	2005-2017	Local authority	BEIS	2019-06-27	OGL v3.0	view

Carbon dioxide emissions by main sector
Trafford, 2005-2017

Source: BEIS

The chart displays the total CO₂ emissions for Trafford from 2005 to 2017, broken down into three sectors: Transport (dark purple), Industry and commercial (teal), and Domestic (yellow). The Y-axis represents emissions in ktCO₂, ranging from 0 to 2,000. The X-axis shows the years 2005, 2010, and 2015. The total emissions show a general downward trend over the period, starting around 2,100 ktCO₂ in 2005 and ending around 1,600 ktCO₂ in 2017. The Domestic sector consistently contributes the largest share of emissions, followed by Industry and commercial, and then Transport.

Year	Transport	Industry and commercial	Domestic	Total
2005	420	1150	530	2100
2006	410	1140	550	2000
2007	400	1130	570	1970
2008	390	1120	590	1900
2009	380	1110	610	1890
2010	370	1100	630	1890
2011	360	1090	650	1800
2012	350	1080	670	1700
2013	340	1070	690	1690
2014	330	1060	710	1680
2015	320	1050	730	1650
2016	310	1040	750	1600
2017	300	1030	770	1590

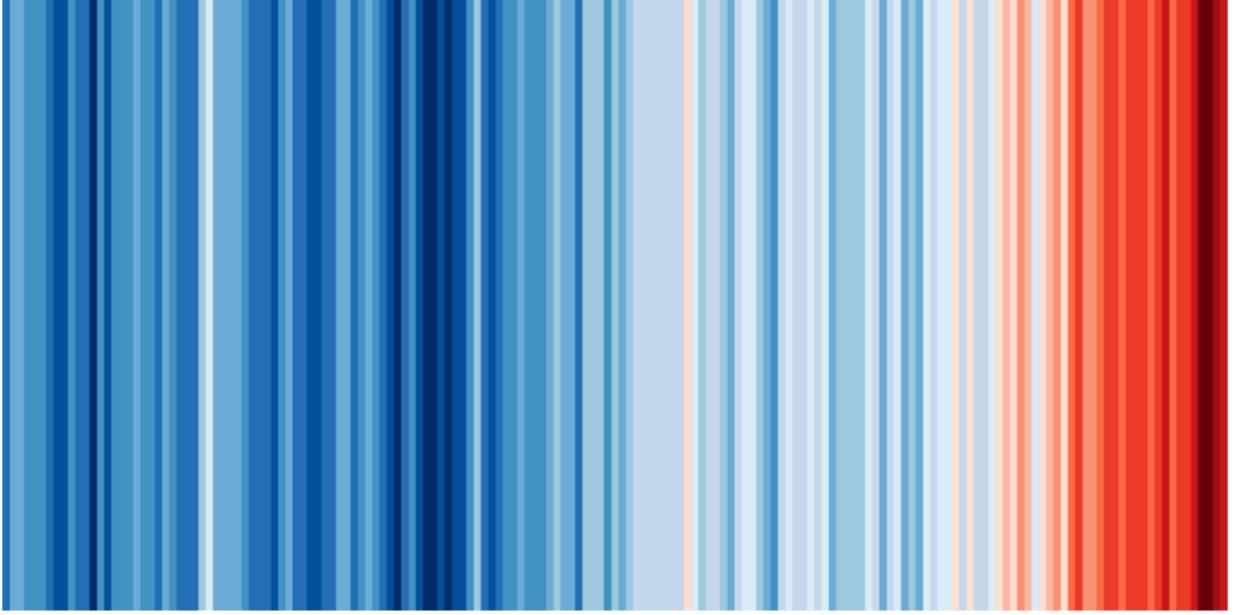
Additional resources
The [National Atmospheric Emissions Inventory](#) (NAEI) website has an [interactive map](#) that allows you to explore CO₂ emissions by local authority area and sector.



Slide packs

 **Climate emergency slide pack**

Last updated: 25 October 2019



Annual average global temperatures (1850-2018). Source: [showyourstripes.info](#)

More than half of UK councils have declared a 'climate emergency'. This tool is designed to support local councils by visualising open data relating to climate change. Just select your local authority and hit the 'Build slides' button to create a slide pack of visualisations.

Please note that this app is an alpha release so there may be some bugs. Also, local government reorganisation in some areas means that historical data are unavailable and visualisations will not render.

Choose a local authority district:

Trafford

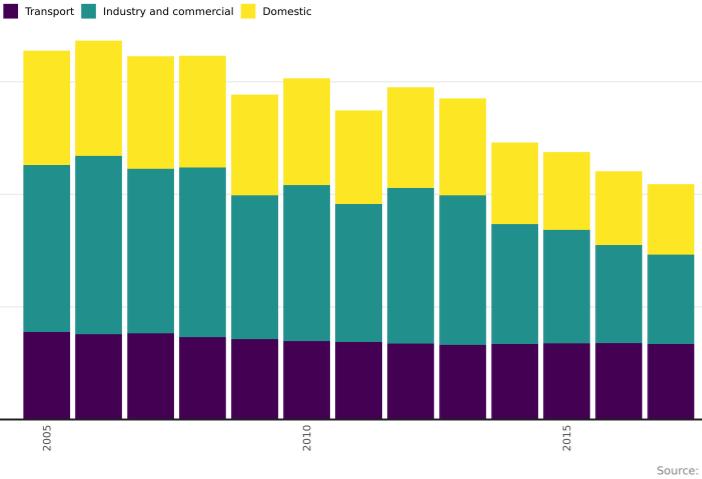
 **Build slides**

Developed in R by the [Trafford Data Lab](#) under the [MIT](#) licence



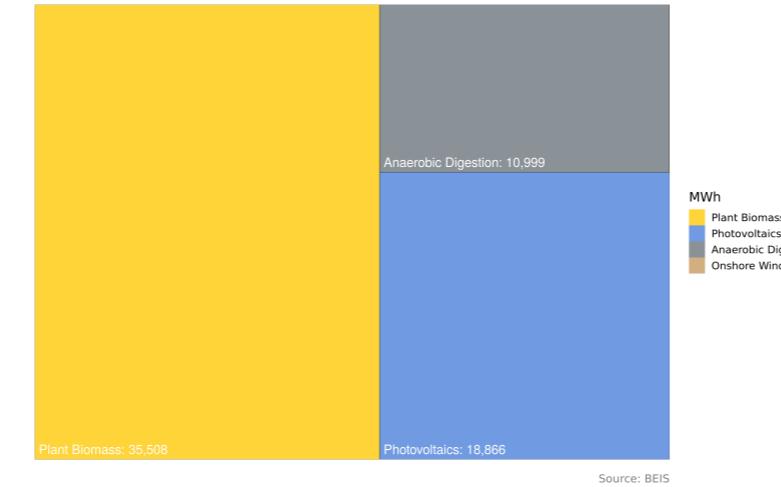
Carbon dioxide emissions by main sector

Manchester, 2005-2017



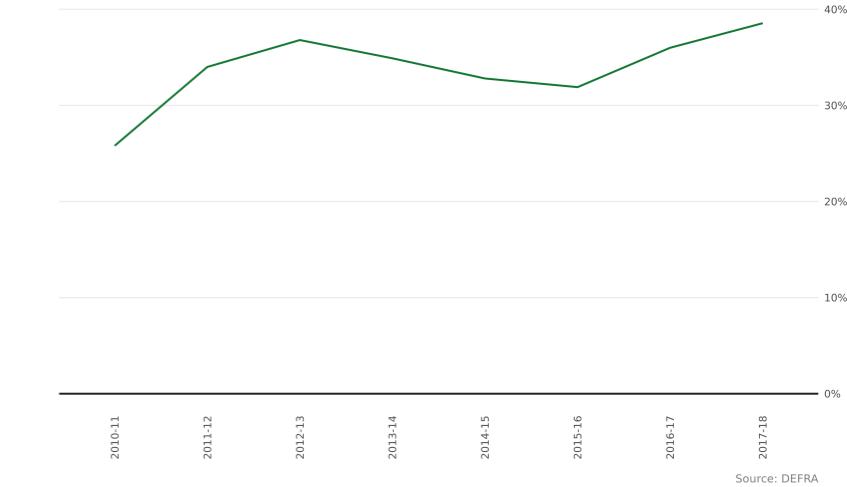
Renewable electricity generation by source

Manchester, 2017



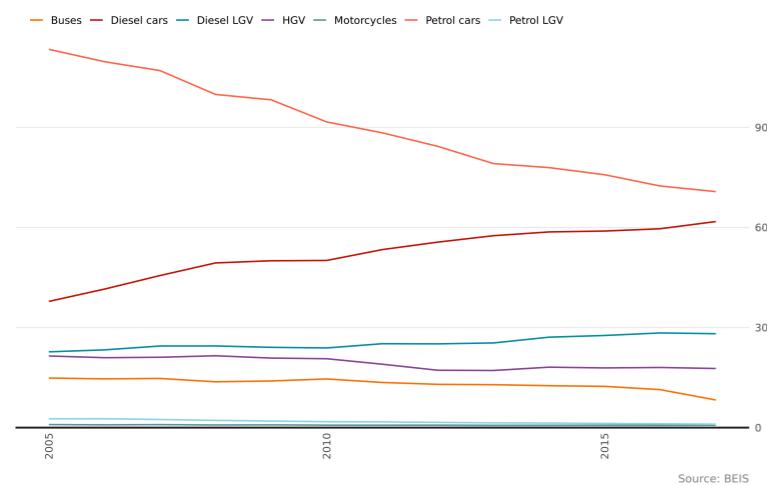
Reuse, recycling or composting of household waste

Manchester, 2010/11 - 2017/18



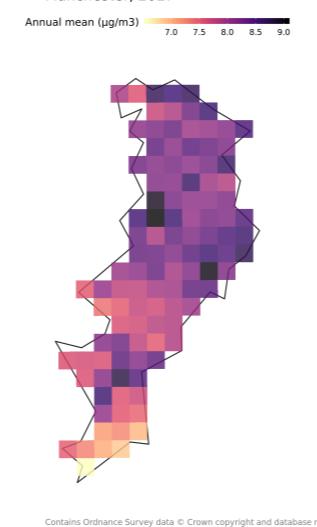
Fuel use by vehicle type

Manchester, 2005-2017



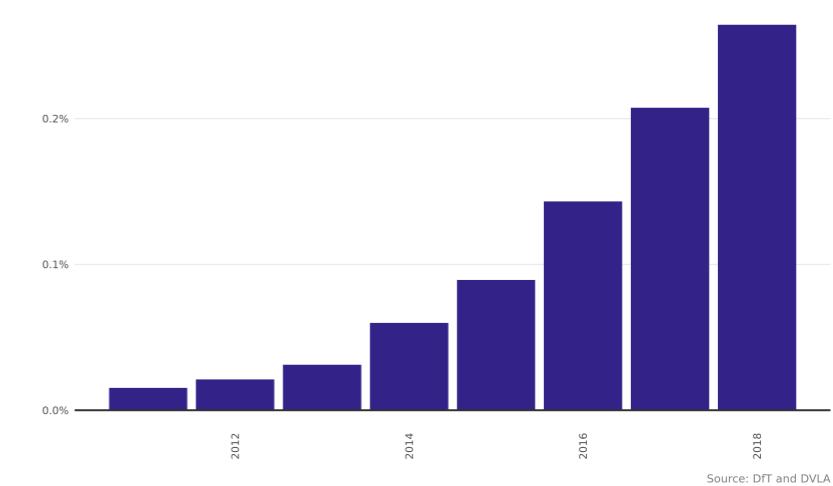
Modelled background PM_{2.5} concentrations

Manchester, 2017



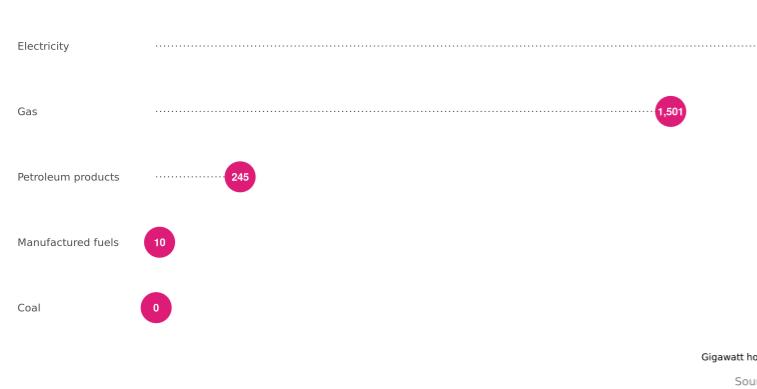
Licensed electric cars and vans as a proportion of all licensed cars and vans

Manchester, 2011-2018



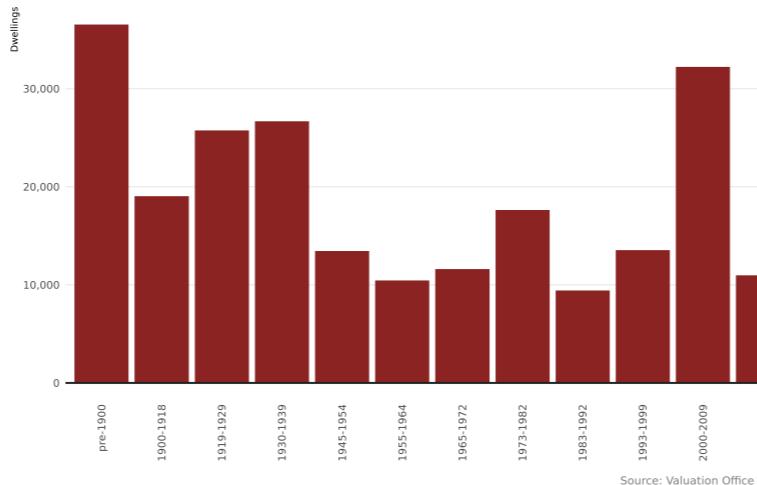
Industrial and commercial fuel use

Manchester, 2016



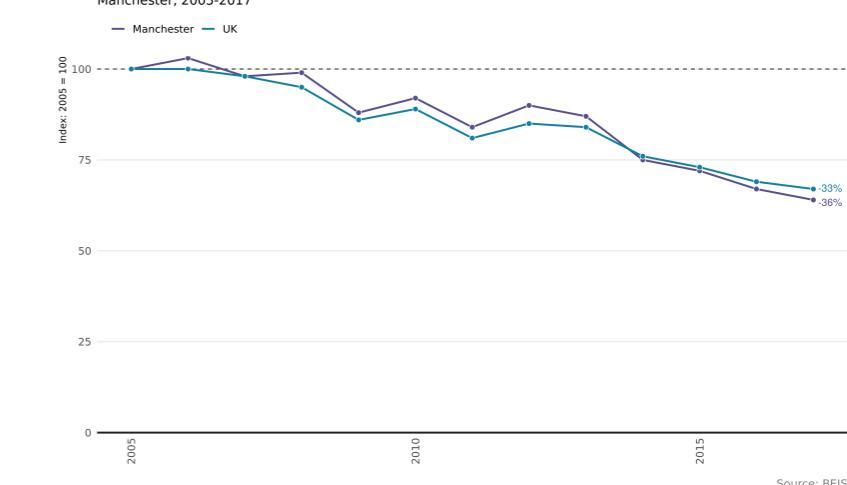
Build period of domestic dwellings

Manchester, 2018



Change in total CO₂ emissions

Manchester, 2005-2017



Search or jump to... Pull requests Issues Marketplace Explore

Unwatch 2 Star 0 Fork 0

Code Issues 0 Pull requests 0 Actions Projects 0 Wiki Security Insights Settings

Resources to make open data relating to climate change more discoverable for local councils
<https://www.trafforddatalab.io/climat...>

Manage topics

80 commits 1 branch 0 packages 0 releases 1 environment 1 contributor

Branch: master New pull request Create new file Upload files Find file Clone or download

File / Commit Message	Time
rcatlord Update schema.md	Latest commit 026407c 12 minutes ago
code Renewable Heat Incentive	22 days ago
data Renewable Heat Incentive	22 days ago
www app	2 months ago
.gitignore Initial commit	2 months ago
README.md Renewable Heat Incentive	22 days ago
global.R Renewable Heat Incentive	22 days ago
index.Rmd Renewable Heat Incentive	22 days ago
index.html Renewable Heat Incentive	22 days ago
intro.html Parameterised green belt	last month
logo.png Licensed electric vehicles	2 months ago
schema.md Update schema.md	12 minutes ago

Thank you

-  @trafforddatalab
-  @trafforddatalab
-  trafforddatalab.io