Climate Change
Conference of the Parties
EAST HAMPSHIRE

Background information pack
June 2021

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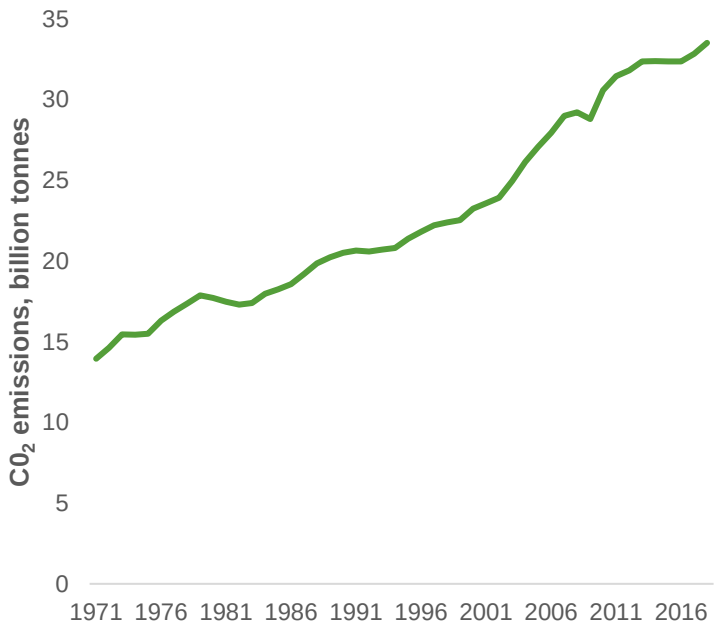
House of Commons
London SW1A 0AA

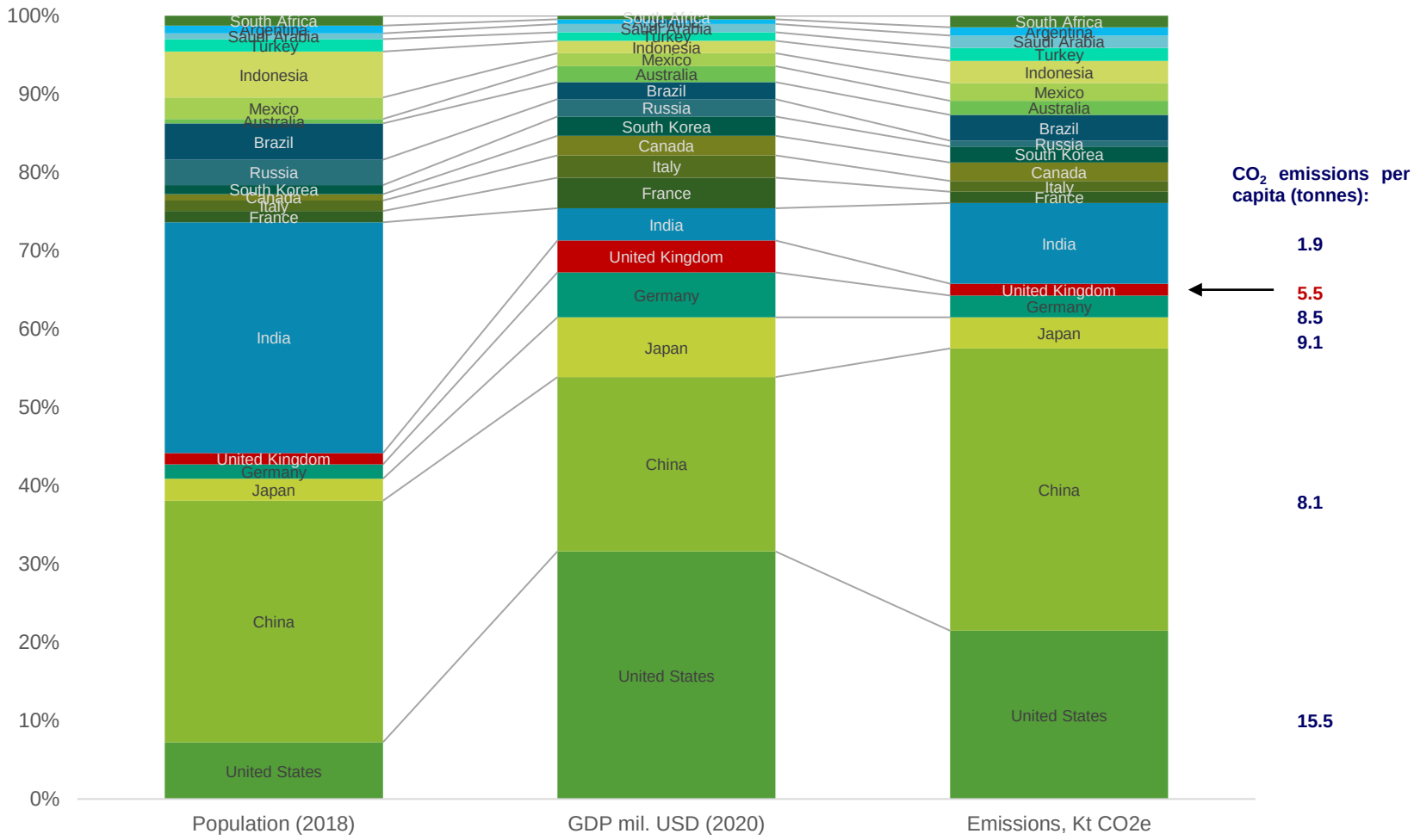
Global carbon emissions have more than doubled since 1971



- Emissions have grown from 14 billion tonnes in 1971 to almost 33 billion tonnes in 2017, an increase of 135%
- On current path of CO_2 emissions, temperature is expected to increase by 3 to 5 degrees Celsius by the end of century
- Potential for severe impact, e.g. by 2050 the number of people at risk of floods will increase from its current level of 1.2 billion to 1.6 billion.

Source: International Energy Agency: CO2 Emission from Fuel Combustion (2019 Edition)

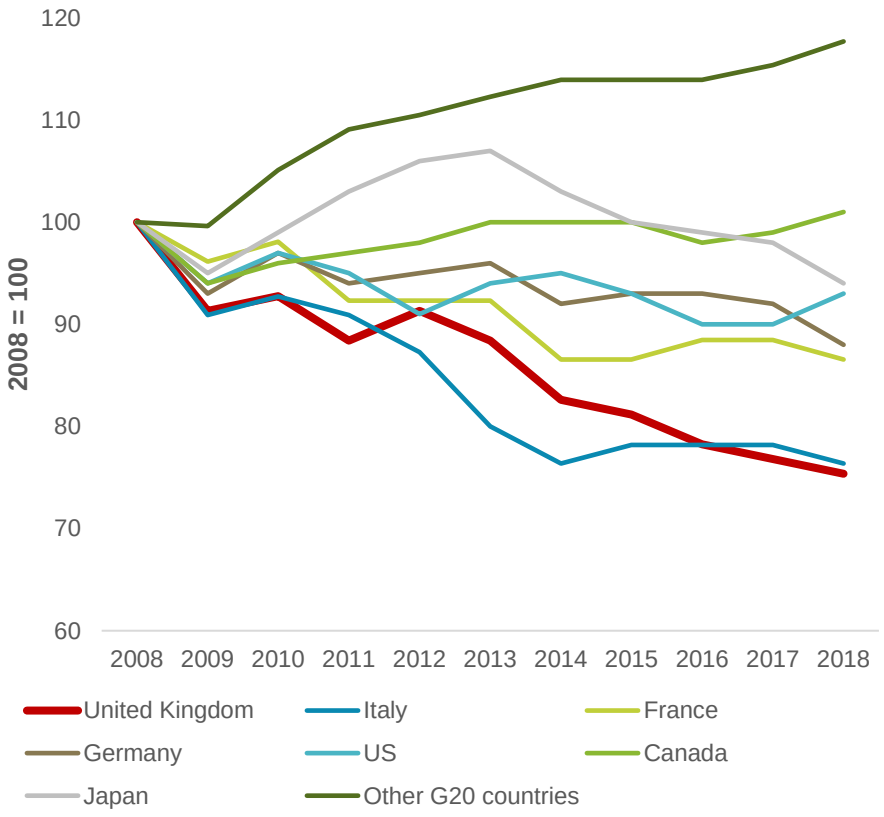
China and the US account for half of major nations' emissions. UK is 16th in the world for emissions (1.1% of global total)



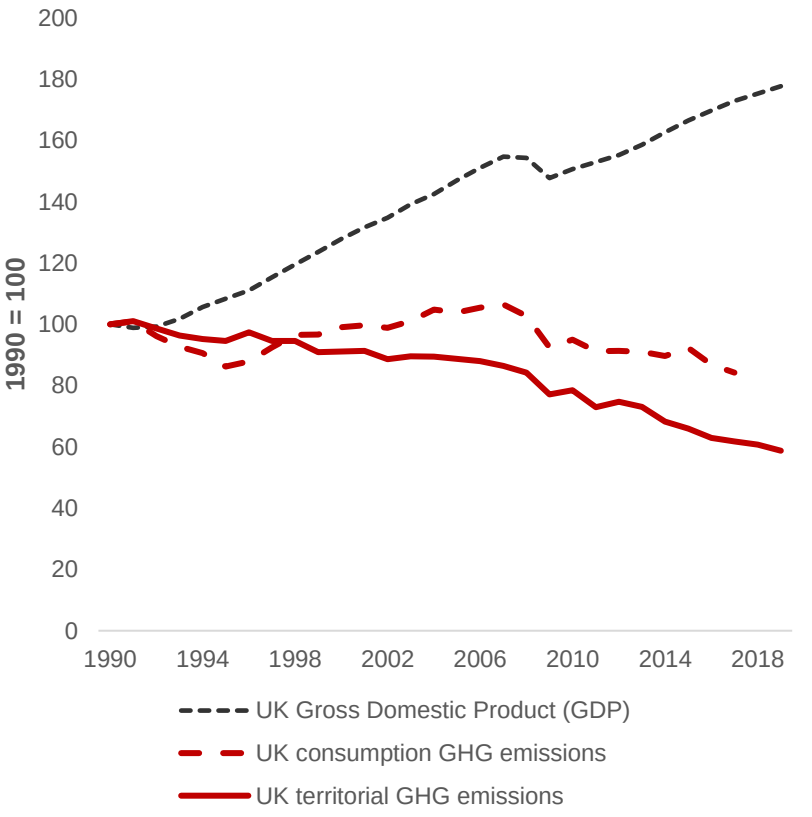
Source: Organisation for Economic Co-operation and Development (OECD)

UK emissions have reduced more than other major nations', and done so through periods of economic growth

GHG emissions: UK vs G20, 2008-18



UK GDP and Emissions, 1990-2018



Sources: Organisation for Economic Co-operation and Development (OECD) (LHS), Climate Change Committee 2020 Progress Report to Parliament (RHS)

G7 nations have made, or reaffirmed, commitments at the Carbis Bay summit

- Reaffirming commitment to the Paris Agreement
- Supporting a green revolution that creates jobs, cuts emissions and seeks to limit the rise in global temperatures to 1.5 degree
- Phasing out new direct government support for international carbon-intensive fossil fuel energy as soon as possible, with limited exceptions consistent with an ambitious climate neutrality pathway, the Paris Agreement, 1.5°C goal, and best available science
- Rapidly accelerating the transition away from unabated coal capacity, to end new direct government support for unabated international thermal coal power generation by the end of 2021, and to accelerate the international transition away from coal
- Accelerating the transition to zero-emission vehicles
- Reaffirming collective goal to mobilise $100bn per year to support developing countries in the transition to net zero
- Pledging to play a role in restoration of global biodiversity

Source: CARBIS BAY G7 SUMMIT COMMUNIQUÉ: Our Shared Agenda for Global Action to Build Back Better

The UK has legislated to reduce greenhouse gas emissions to net zero by 2050

UK Commitments

- Climate Change Act 2008
  - -80% GHG emissions target for 2050 (vs 1990 levels)
  - Establishment of Climate Change Committee (CCC)
  - Setting of 'Carbon Budgets' – five-year caps on emissions to meet 2050 target
- June 2019: subsequent legislative commitment to achieve 'net zero' by 2050 (vs 1990)
  - First G7 economy to legislate for net zero
  - Scotland: net zero by 2045, on basis of CCC achievability recommendation
- Sixth Carbon Budget: 78% emissions cut by 2035 (vs 1990), to be enshrined in law this year
  - If met, will bring UK ¾ of way to net zero
- Ban of sale of petrol/diesel cars and vans brought forward from 2040 to 2030, with sale of some hybrid cars/vans to continue until 2035

International Commitments

- Paris climate agreement
  - Prevent C21 global rise in temperature being > 2°C above pre-industrial levels
  - Pursue efforts to limit increase in global temperature to 1.5°C
  - Ratified by 189 countries to date
- Four other nations have passed laws for net zero targets:

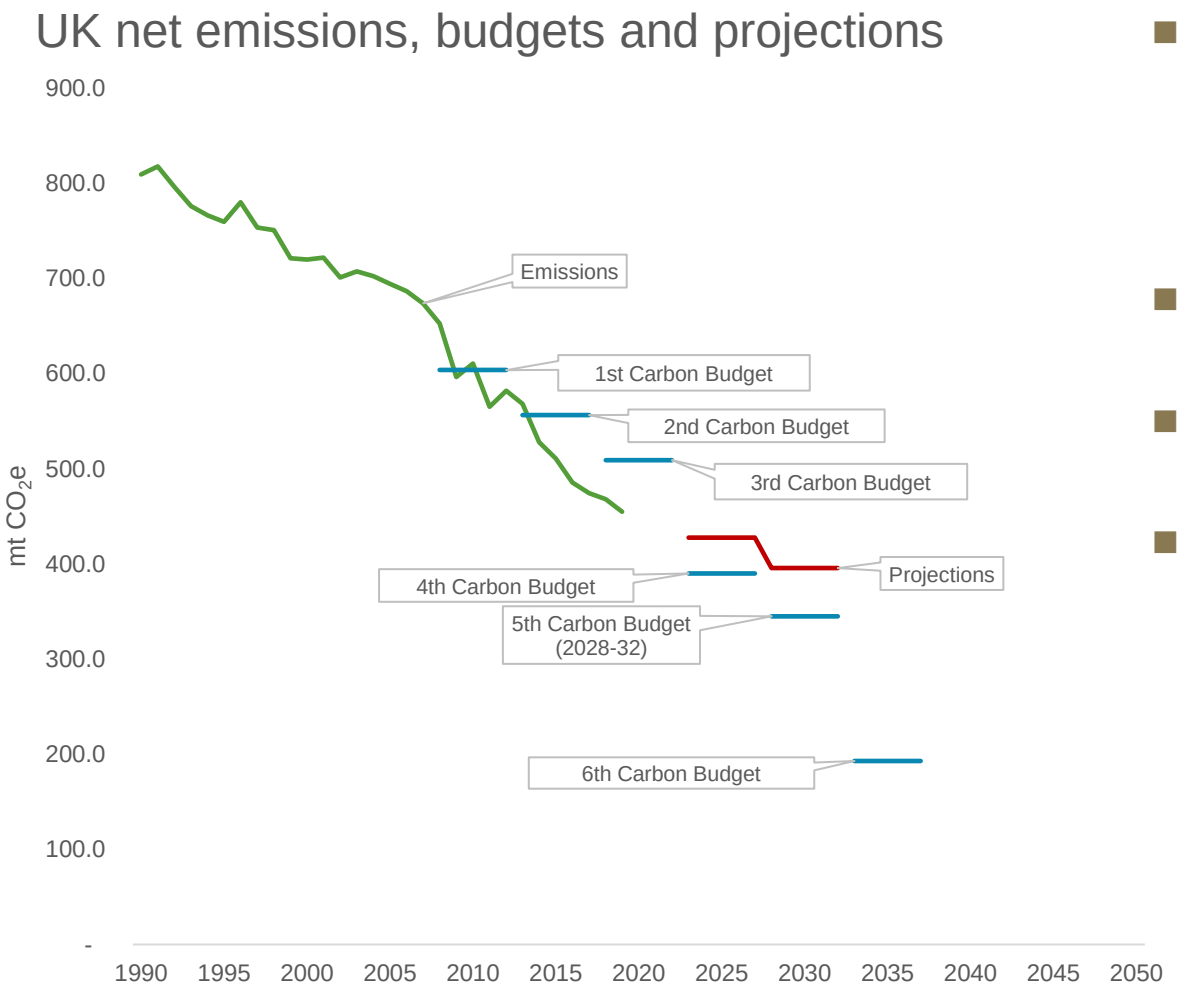
  2045 Sweden
  2050 France
  Denmark
  Hungary
  New Zealand
- EU in the process of legislating for 55% emissions cut by 2030 (vs 1990)
- In April 2021, US announced 50-52% cut by 2030 (vs 2005)
  - Includes goal to reach 100% carbon pollution-free electricity by 2035
- China: targeting an emissions peak by 2030, inc. coal consumption peak by 2025

The UK government has set out a 10-Point Plan for a 'Green Industrial Revolution' with £12bn government spend to support up to 250,000 jobs

1. Advancing **offshore wind**
   - 40GW offshore wind target
   - UK = greatest producer of electricity from offshore wind
2. Driving growth **hydrogen**
   - 5GW Hydrogen production capacity by 2030 target
3. New and advanced **nuclear** power
   - Holds a key role in decarbonisation of our electricity system
4. Accelerate shift to **zero emission vehicles**
   - All vehicles required to have 100% zero-emission capability from 2035
5. Green **public transport**, **cycling**, and **walking**
   - Electrification of bus and rail routes
   - Building on the Cycling and Walking Investment Strategy
6. **Jet zero** and green **ships**
   - Jet Zero Council established to accelerate development of tech
   - Investment in clean maritime tech
7. Greener **buildings**
   - Future Homes Standard for 'zero carbon ready' new build homes
   - Target of 600,000 heat pump installations p.a. by 2028
8. Investing in **carbon capture**, usage and storage
   - Goal to capture and store 10Mt of CO_2 per year by 2030
9. Protecting our **natural environment**
   - Target of protecting 30% of UK land by 2030, as AONBs or Nat. Parks
10. Green **finance** and **innovation**
    - £1bn of government funding in net zero innovation R&D

Source: The Ten Point Plan for a Green Industrial Revolution

However, on our current trajectory, we will not hit net zero by 2050 – we therefore need to accelerate decarbonisation efforts

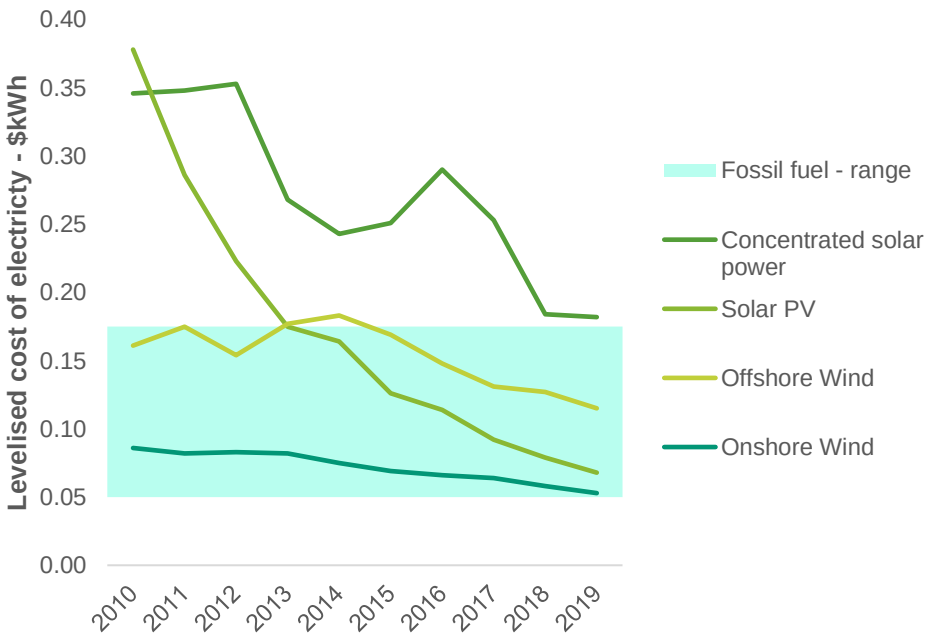


- Carbon budgets = restrictions on total greenhouse gases the UK can emit over a 5-year period to hit net zero by 2050
  - Established by the CCC
- UK met CB1 and CB2, and is on track to meet CB3
- UK is not currently projected meet CB4 or CB5
- CB6 will be enshrined in law this year

Sources: BEIS Final UK greenhouse gas emissions national statistics: 1990 to 2019, BEIS Updated energy and emissions projections: 2019

Renewable energy generation costs have declined since 2010, to rival fossil fuel costs

Global electricity costs



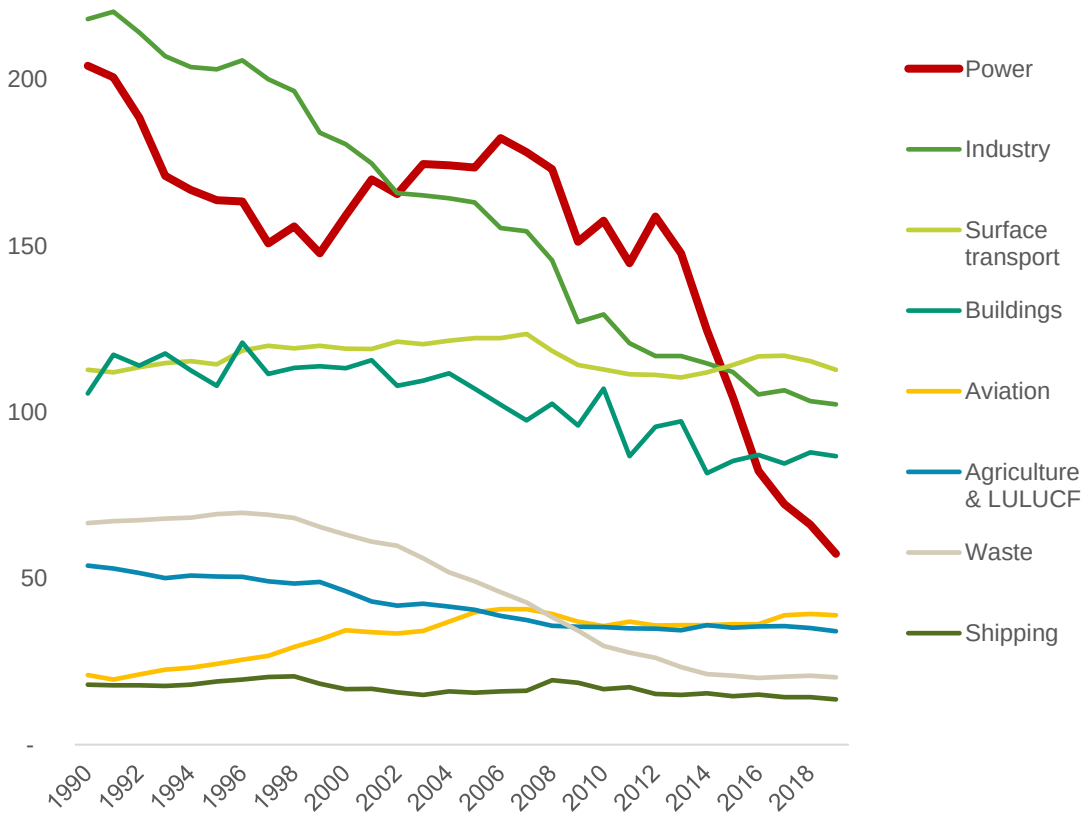
Source	2010	2019
Fossil Fuels	$0.05 – $0.18	$0.05 – $0.18
Concentrated Solar Power	$0.35	$0.18
Solar PV	$0.38	$0.04
Offshore Wind	$0.16	$0.04
Onshore Wind	$0.09	$0.05

- Note: Levelized cost of electricity represents the average revenue per unit of electricity required to recover the costs of building and operating a generating plant

Source: Climate Change Committee 2020 Progress Report to Parliament. Costs shown in constant 2019 USD

Power has been the greatest contributor to reducing emissions since 1990

Emissions by sector, 1990-2019 ($MtCO_2e$)

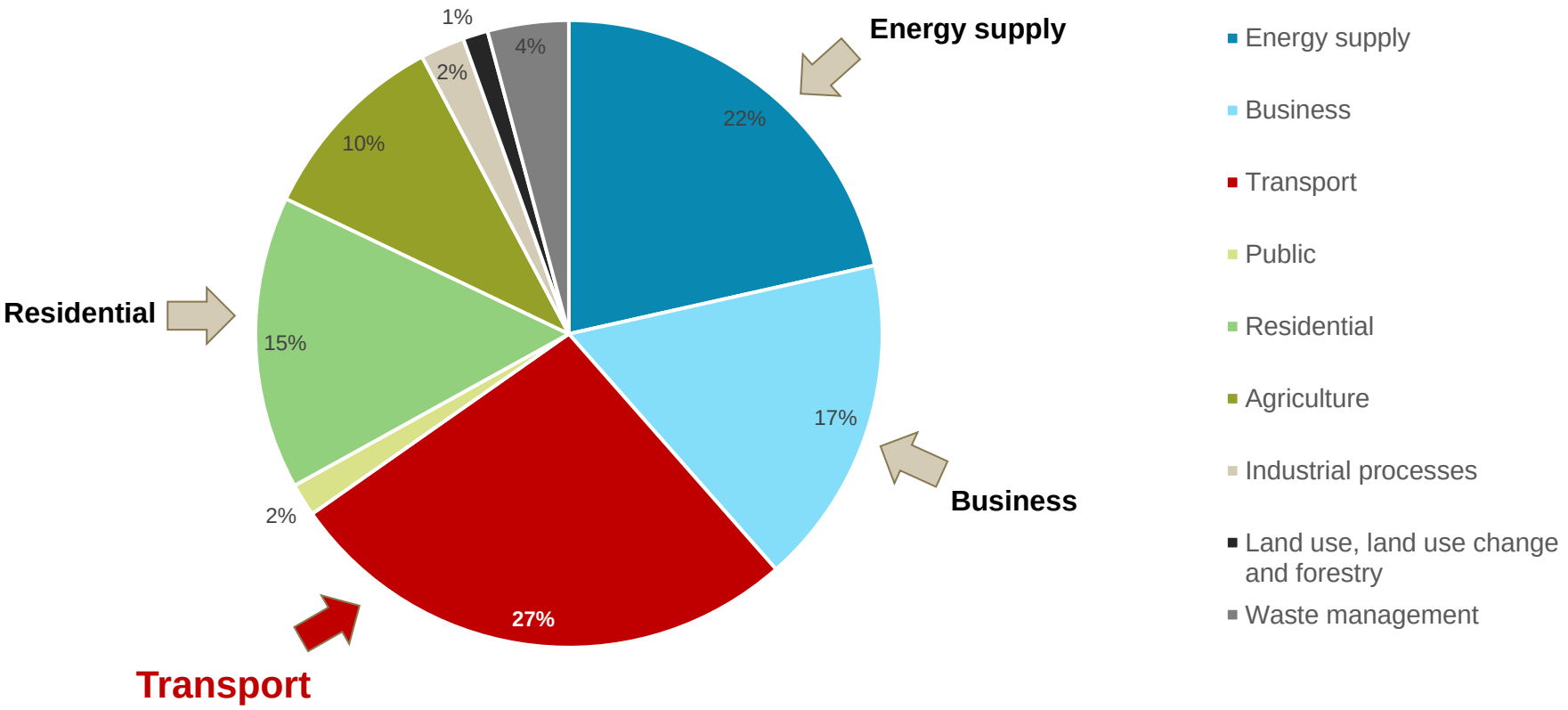


- Overall UK emission reductions driven by the acceleration of decarbonisation in the power sector
- Lack of change in surface transport emissions have led to it becoming the highest-emitting sector

Source: Climate Change Committee 2020 Progress Report to Parliament

Transport now contributes most heavily to total UK greenhouse gas emissions

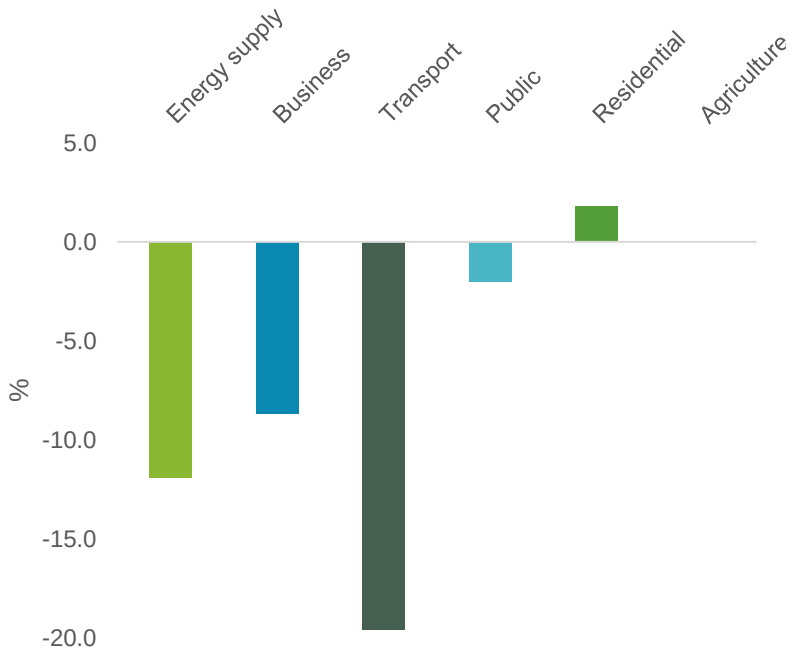
Territorial UK greenhouse gas emissions by sector, 2019 ($MtCO_2e$)



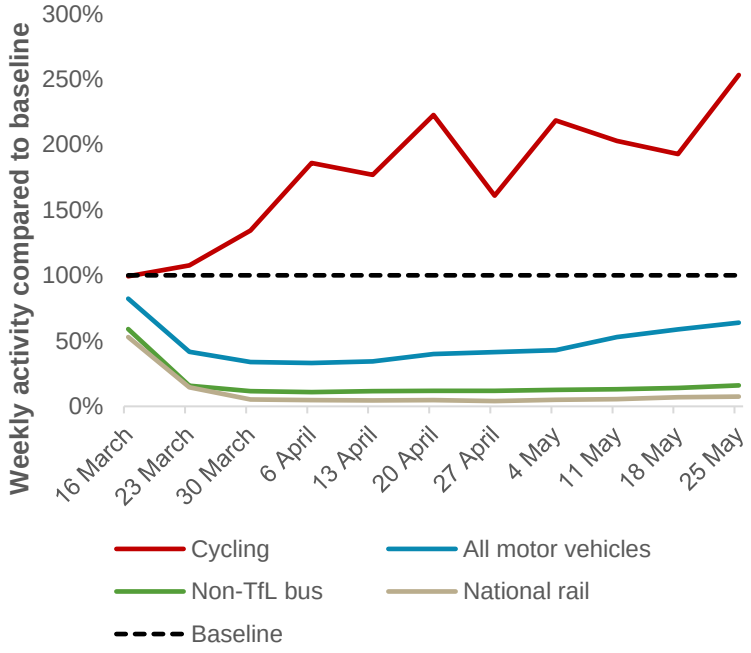
Source: BEIS Final UK greenhouse gas emissions national statistics 1990-2019

Coronavirus saw a big change in transport emissions

Percentage change in emissions by sector, 2019 - 2020



Changes in UK transport use during first lockdown, 2020

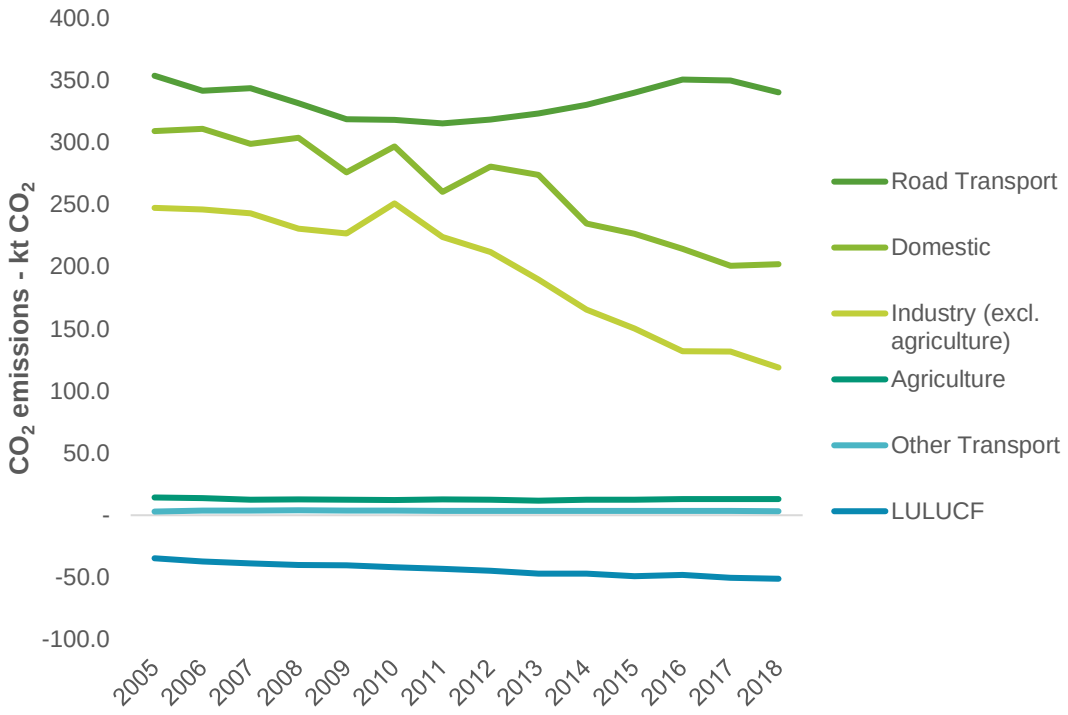


- Territorial emissions in 2020 = 9% lower than 2019 (49% lower than 1990)

Sources: BEIS Provisional UK greenhouse gas emissions national statistics 2020 (LHS), Climate Change Committee 2020 Progress Report to Parliament (RHS)

In East Hampshire, sectoral changes to emissions are mixed

East Hampshire emissions change by sector ($ktCO_2$)



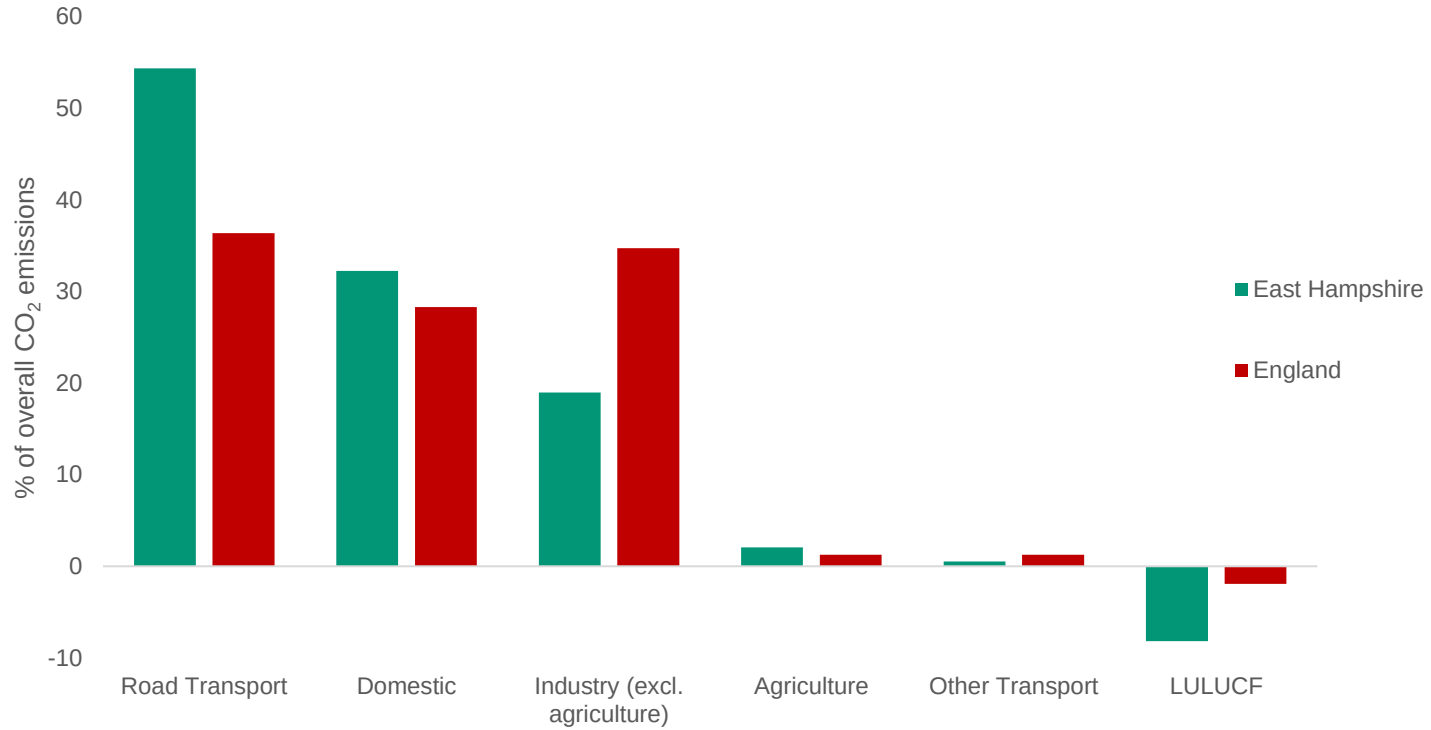
- Methodology for local estimates:
  - National end user emissions data are used to calculate emission factors for each sector
  - Local authority activity data are then multiplied by the relevant emission factor to generate an estimate of emissions in each local authority
- Note: BEIS local/regional figures do not include non-CO_2 greenhouse gases

$ktCO_2$	Road Transport	Other Transport	Domestic	Industry (excl. agriculture)	Agriculture	LULUCF
2005	354	2.9	309	247	14	-35
2018	340	3.2	202	119	13	-51

Source: UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018

And East Hampshire differs from England as a whole in the source composition of its CO_2 emissions

Percentage contribution to overall CO_2 emissions by sector (2018)*



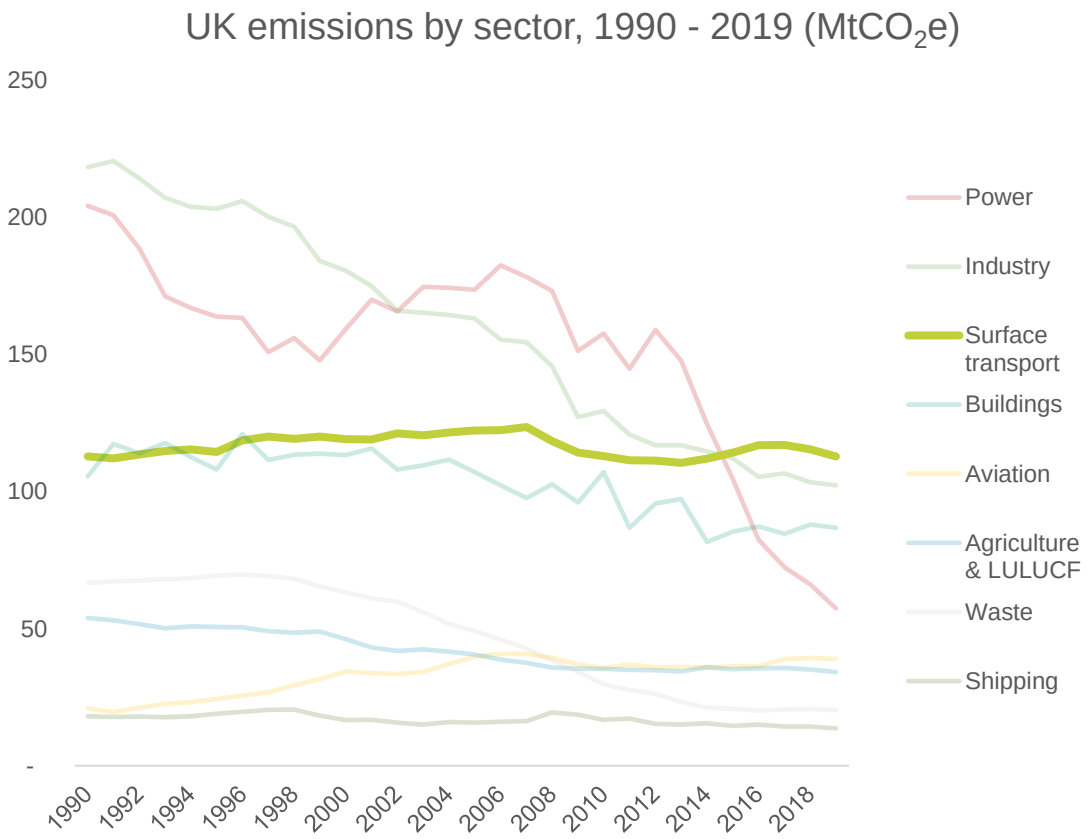
- East Hampshire's road transport emissions = 18%pts greater (54% vs 36%) as a proportion of overall emissions than England's
- East Hampshire's emissions per capita now exceed England average: 5.2 vs 5.0 (tCO_2e)
  - In 2005, East Hampshire's emissions per capita were 8.1 tCO_2e, vs 8.5 nationally

Source: UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018 *estimates do not include non-CO_2 greenhouse gases e.g. methane

For us locally, road transport and domestic are more important in the mix (industry & 'other' transport relatively less so)

Source	% of emissions	EH vs England as a whole		Emphasis
Road transport	54%	• 65% of EH population drive a car or van to work, vs 60% for England • 17% use public transport or active travel vs 26% for England	+	■■■■
Other transport	0.5%	• No sea-based activity • No major airports	–	■
Domestic	32%	• (Slightly) higher % of houses not on the gas grid (16% vs 14%)	+	■■■
Industry (excl. agriculture)	19%	• Economy skewed more towards services (and commuting)	–	■■
Agriculture	2.1%	• Produces 10% of East Hampshire's business emissions vs 3% nationally	+	■■■
LULUCF	minus 8%	• Substantial areas of forest	+	■■■

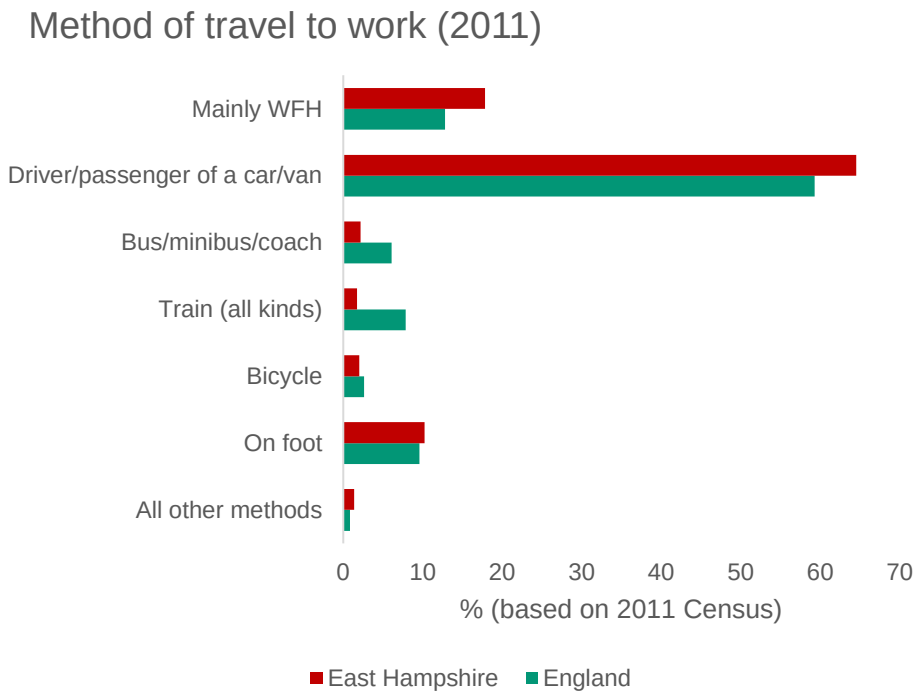
Focus on… transport



- Surface transport = single highest emitting sector in the UK since 2015
- In the UK, the number of kms driven has increased over the past decade
  - 530.6bn vehicle-kms in 2019, an increase of 6% since 2008, vs an 8% population increase
- Passenger transport has slowly started to electrify over the past decade, representing around 2.5% of 2019 sales
  - There are now over 400,000 ULEVs licenced on UK roads
  - However, presence of energy-intensive SUVs has grown significantly (from 6% market share in 2008 to 25% in 2019)

Sources: Climate Change Committee 2020 Progress Report to Parliament

In East Hampshire, use of public transport to travel to work is proportionally lower than across England



- A higher proportion of local residents use a car/van to get to work than nationally
- Whilst 18% of EH residents live <2km from their place of work, only 12% cycle or walk to work
  - Very similar to England average (17%: 12%)

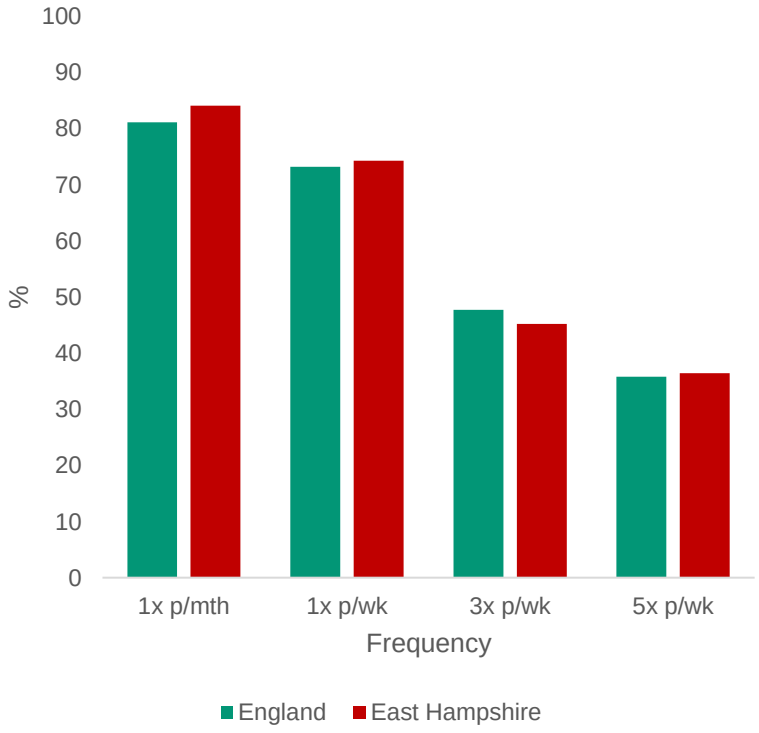
Distance from work	<2km	2km - <5km	5km - < 10km	10km - <20km	20km - <30km	30km - <40km	40km - <60km	60km +	WFH	No fixed place
% of EH population	**18%**	8%	12%	16%	8%	4%	2%	4%	18%	11%

- Note: method of travel to work = method of travel used for the longest part, by distance, of the usual journey to work

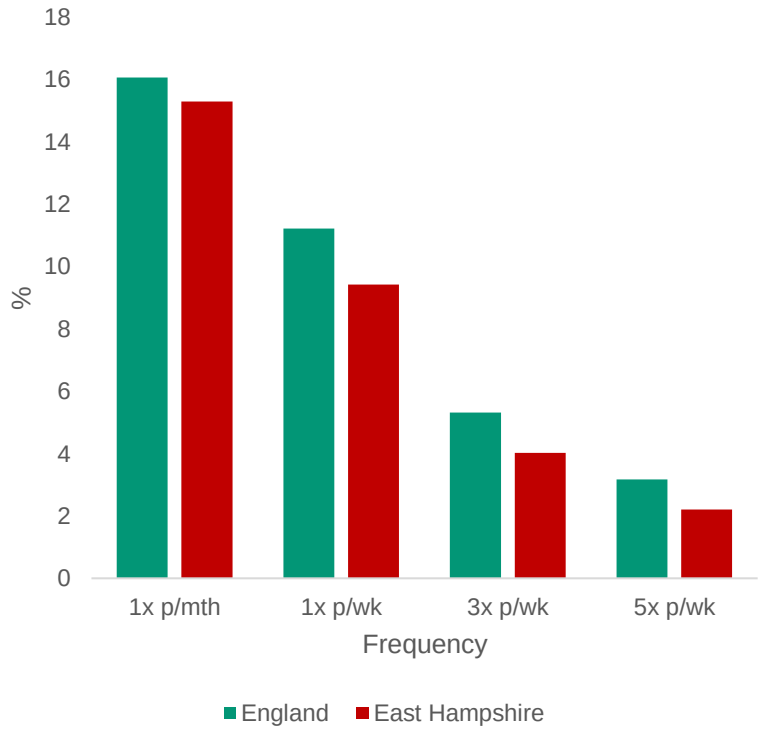
Sources: Department for Transport Statistics: Usual method of travel to work by region of residence, ONS dataset: Method of travel to work, ONS Home worker rates and levels, January to March 1998-2014, ONS Dataset: Distance travelled to work

And, whilst East Hampshire's overall active travel figures are comparable to England's…

Proportion of adults who do any walking or cycling (2018-19)



Proportion of adults who do any cycling (2018-19)

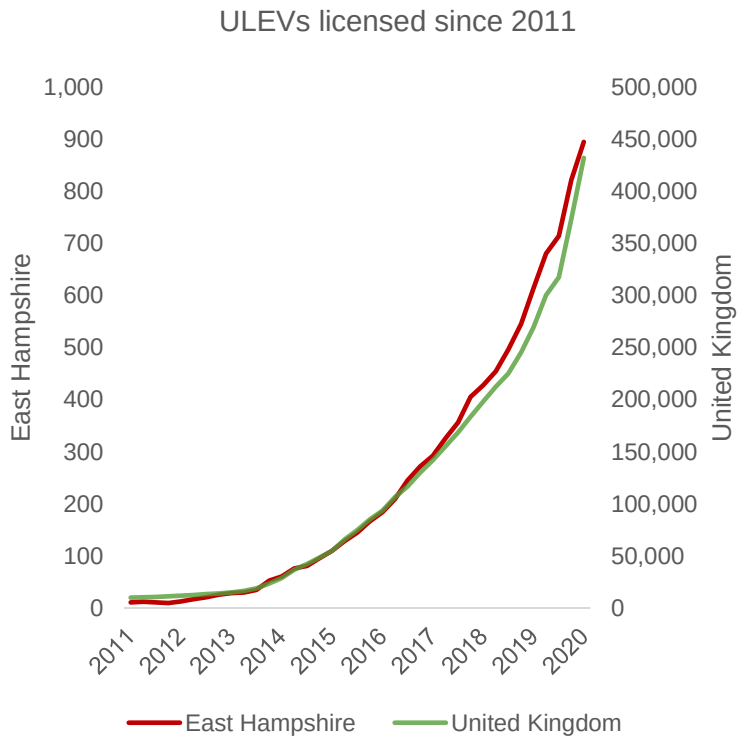


…cycling activity is evidently lower than national averages

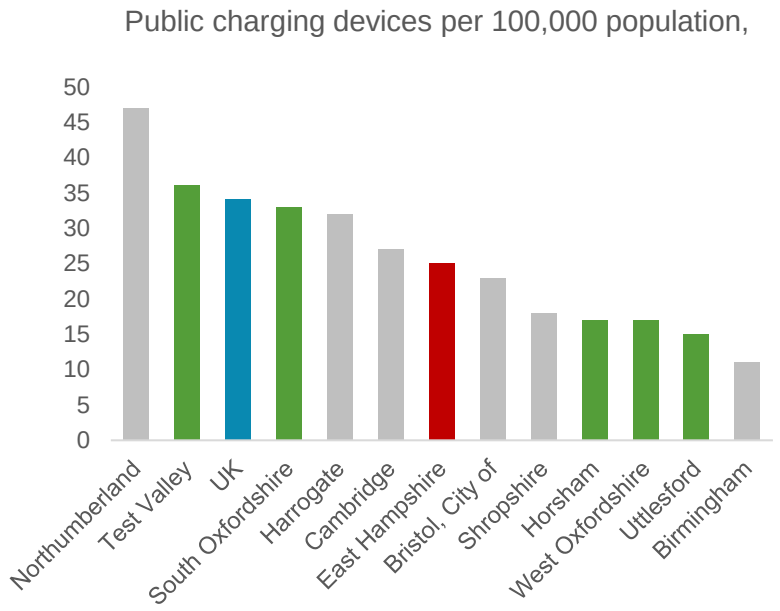
Source: Department for Transport Walking and Cycling Statistics

A closer look at… electric vehicles (1)

East Hampshire uptake growth rate matched UK national rate



Public chargepoint provision comparisons (April 2021)



(Local authorities in green on graph = classified by the ONS as being most qualitatively similar to East Hampshire, on the basis of the 2011 census)

Sources: Department for Transport statistics: Vehicle Licensing Statistics (LHS) Department for Transport: Electric vehicle charging devices by local authority, ONS 2011 residential-based area classifications (RHS)

A closer look at… electric vehicles (2)

Electric car economics

- Average cost of a new electric car in 2021 = £44,000
  - Least expensive model = £17,350
- All categories of EV have increased their market share in the year to date:

	2020 (YTD)	2021 (YTD)	Change
Diesel	19%	11%	-8.1%
MHEV Diesel	3.5%	7.2%	+3.7%
Petrol	60%	49%	-10.8%
MHEV Petrol	4.7%	11%	+6.5%
BEV	4.3%	7.5%	+3.2%
PHEV	2.9%	6.4%	+3.5%
HEV	5.7%	7.8%	+2.1%

Government support schemes

- On-Street Residential Chargepoint Scheme has funded more than 3,800 public chargepoints
- Electric Vehicle Homecharge Scheme (until 2022)
- LEV plug-in grant – for EVs of up to £35,000
  - Amount of grant varies depending on type of vehicle
  - Grant covers 35% of the purchase price, up to £2,500 (varies by vehicle type)

Source: Society of Motor Manufacturers and Traders Vehicle Registration Data

A closer look at… electric vehicles (3)

Dissuading factors

- Cost – lack of clear per month cost of EVs vs petrol/diesel cars due to pace of change in EV technology and value ‘trickle-down’
- Range anxiety – on a UK motorway, drivers are never more than 25 miles from a rapid chargepoint
  - Same cannot be said for all of road network
  - Average cost of a 100-mile journey in a diesel is £12; in an electric vehicle it is £7

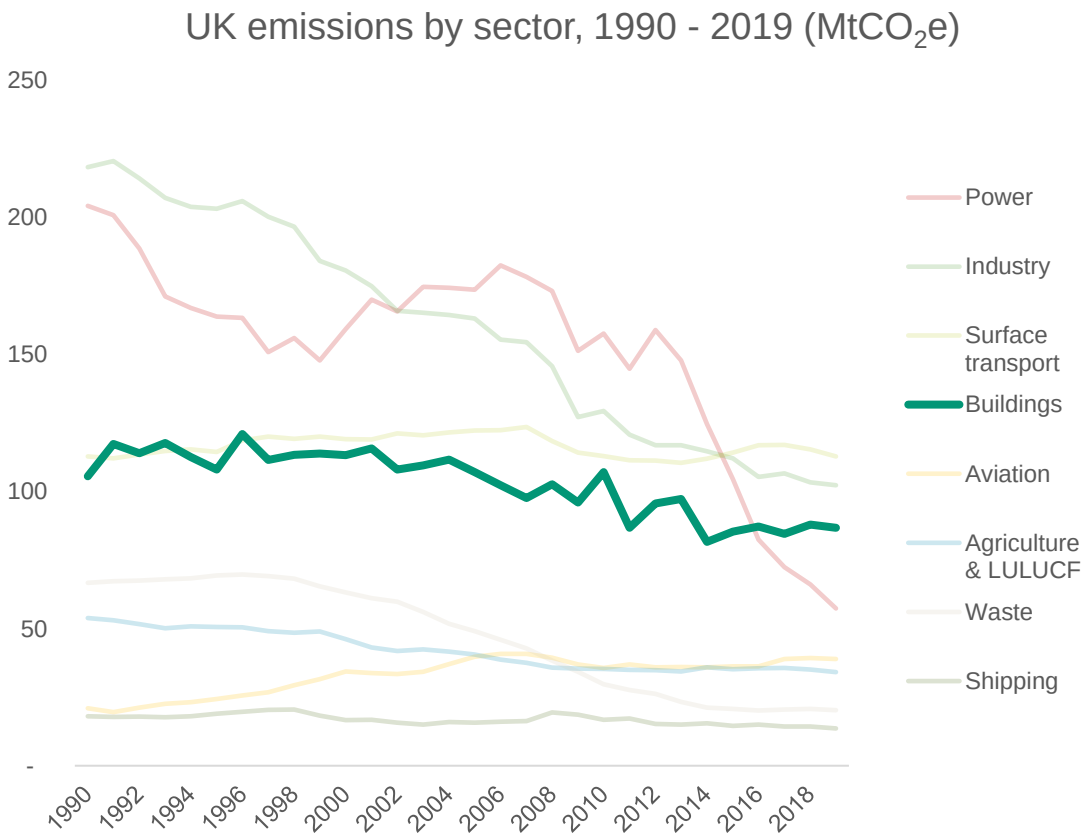
Role of hydrogen

- Hydrogen fuel cell vehicles could help decarbonise larger vehicles (e.g. buses, trains and HGVs)
  - Also for longer journeys in lighter vehicles, where the need to store and carry large amounts of energy is greater
- Potential important role in decarbonising shipping
- £3m hydrogen transport hub to be built in Tees Valley

Summary of key national initiatives – Transport

Initiative	Details
Phasing out use of petrol/diesel vehicles	Sales of new petrol and diesel cars will end in 2030; sale of hybrid cars/vans that can drive a significant distance with no carbon output will continue until 2035
Faraday Battery Challenge	£274m to supporting the development of safe, cost-effective and high-performance batteries for EVs
On-Street Residential Chargepoint Scheme	Available to all UK LAs to provide charging infrastructure for those without private parking (>105 LAs have used scheme, funding > 3,800 chargepoints)
Electric Vehicle Homecharge Scheme	Grant that provides a 75% contribution to the cost of one chargepoint and its installation; requires dedicated off-street parking
Workplace Charging Scheme	Voucher-based scheme that provides support towards the purchase and installation of electric vehicle chargepoints at registered businesses, charities, or public sector organisations
Electric Vehicle Infrastructure Strategy	To be published in 2021: will explore roles/ responsibilities for central government and stakeholders involved in deployment of charging infrastructure
Active Travel Fund	Grant funding supports local transport authorities with producing cycling and walking facilities: Hampshire awarded £4,143,350
Cycle to Work Scheme	Allows employees to obtain commuter bikes through their employer, spreading the cost over 12 months, with a tax break

Focus on… buildings

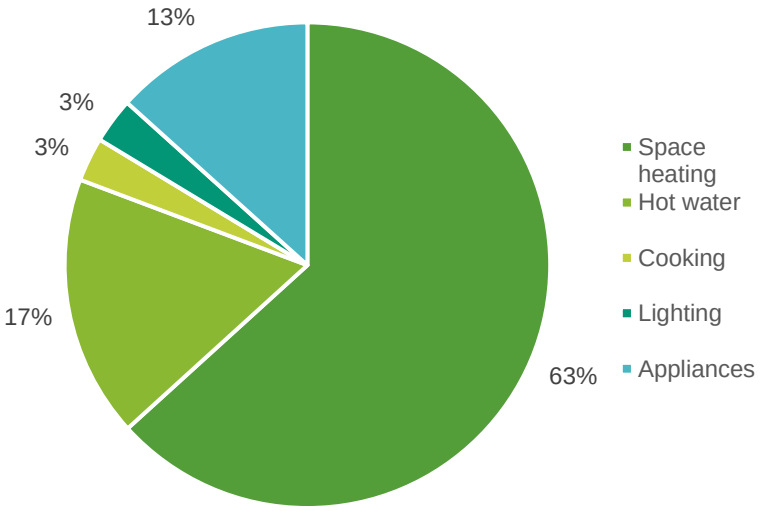


- At a national level, emissions from the buildings sector have remained fairly level over the latter half of the 2010s
- Decrease of emissions from building sector by 17% between 2008 and 2015
  - Driven by strong domestic standards phasing out non-condensing boilers
- 9 out of the past 12 years saw average temperatures above the long-term trend
  - When accounted for, emissions from buildings have made negligible progress since 2015
- Bulk of the challenge to decarbonise buildings therefore still remains
  - E.g. heat pumps are the heating solution in < 200,000 homes (0.69% of the 29m UK homes)

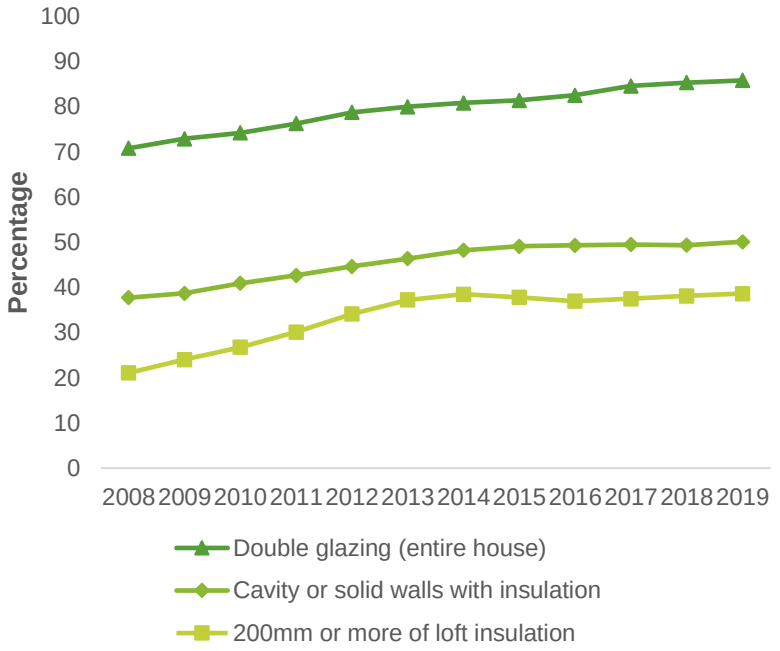
Sources: Climate Change Committee 2020 Progress Report to Parliament, Climate Change Committee Report: UK housing: Fit for the future?

Space heating is by far the greatest cause of energy consumption in homes, but rates of home insulation has steadily increased over the past decade

Breakdown of energy consumption in existing UK homes, TWh (2017)



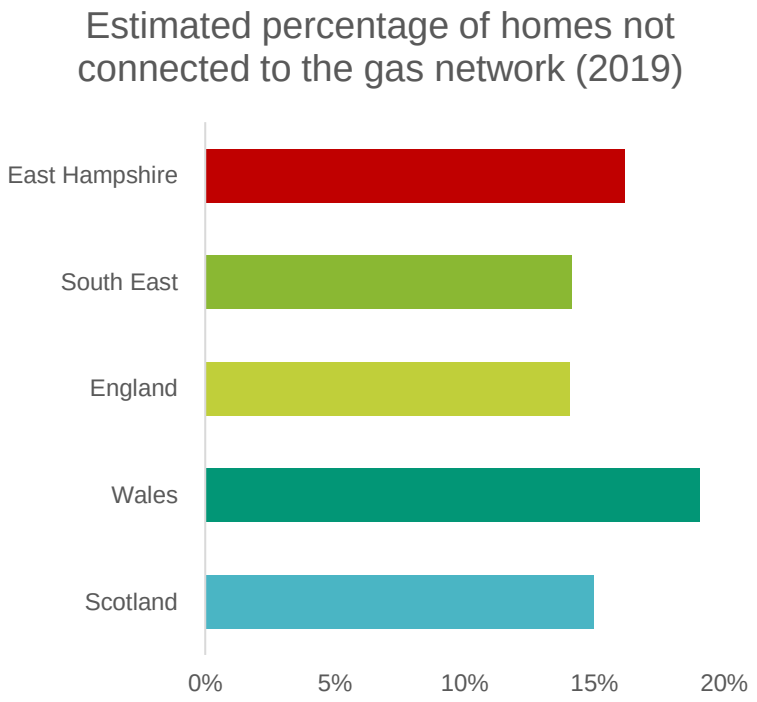
Insulation measures in English dwellings, 2009 - 2019

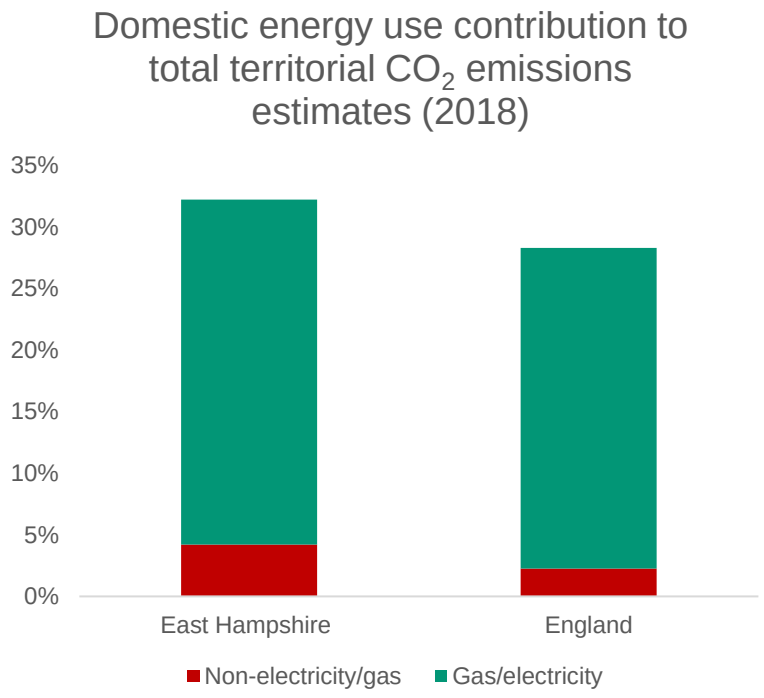


At the end of 2020:
14m properties had cavity wall insulation (70% of properties with a cavity wall)
17m had loft insulation (66% of properties with a loft)
772,000 had solid wall insulation (9% of properties with solid walls)

Sources: Committee Report: UK housing: Fit for the future?, BEIS Household Energy Efficiency statistics: detailed report 2020, English Housing Survey: 2019-20

East Hampshire does have a slightly higher than average proportion of houses not connected to the gas network

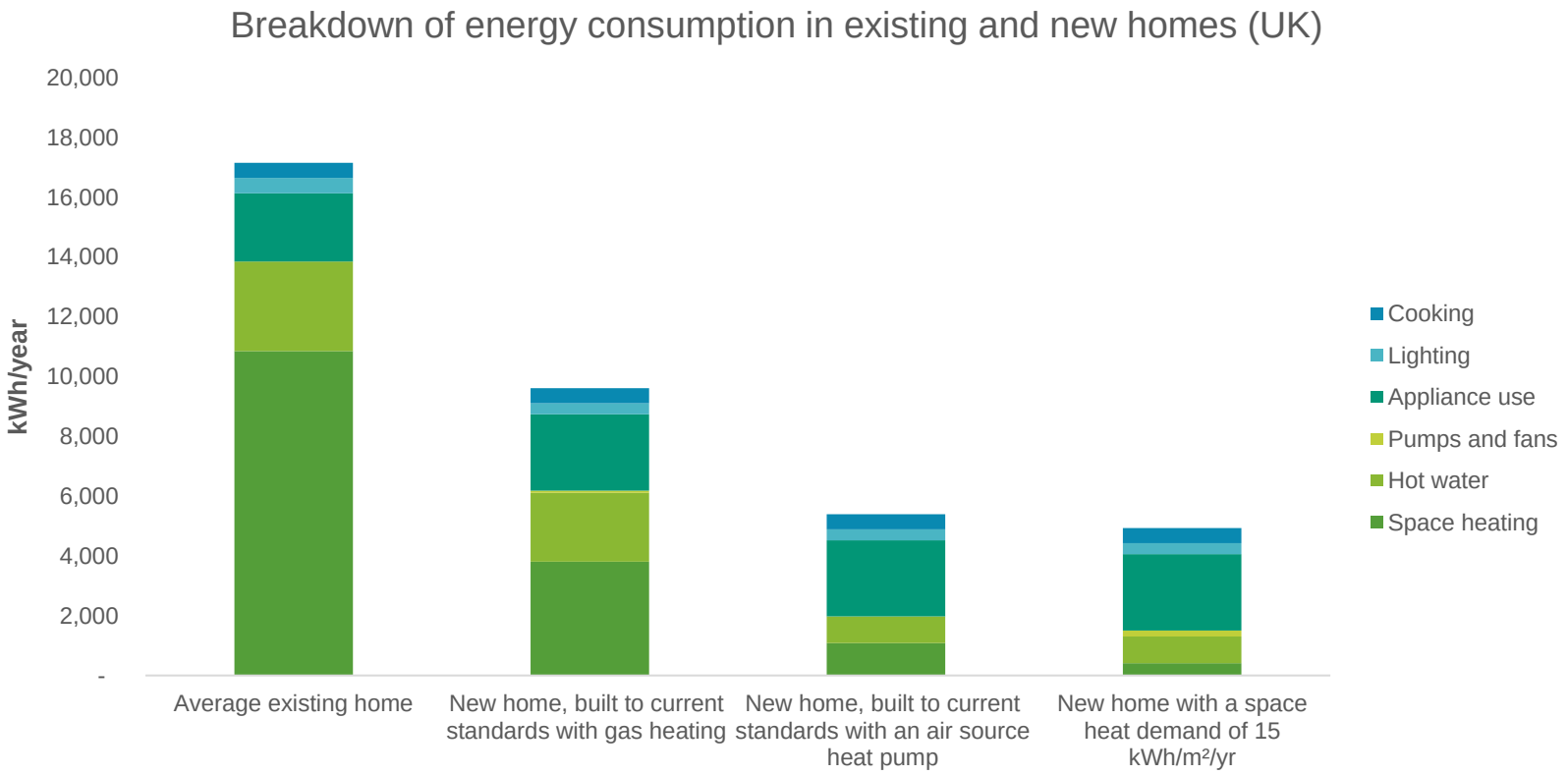




…and generates a greater proportion of emissions from domestic non-electric/gas power

Sources: Sub-national estimates of households not connected to the gas network, 2015-2019, UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018

New homes in East Hampshire have the potential to vastly improve per household energy efficiency…



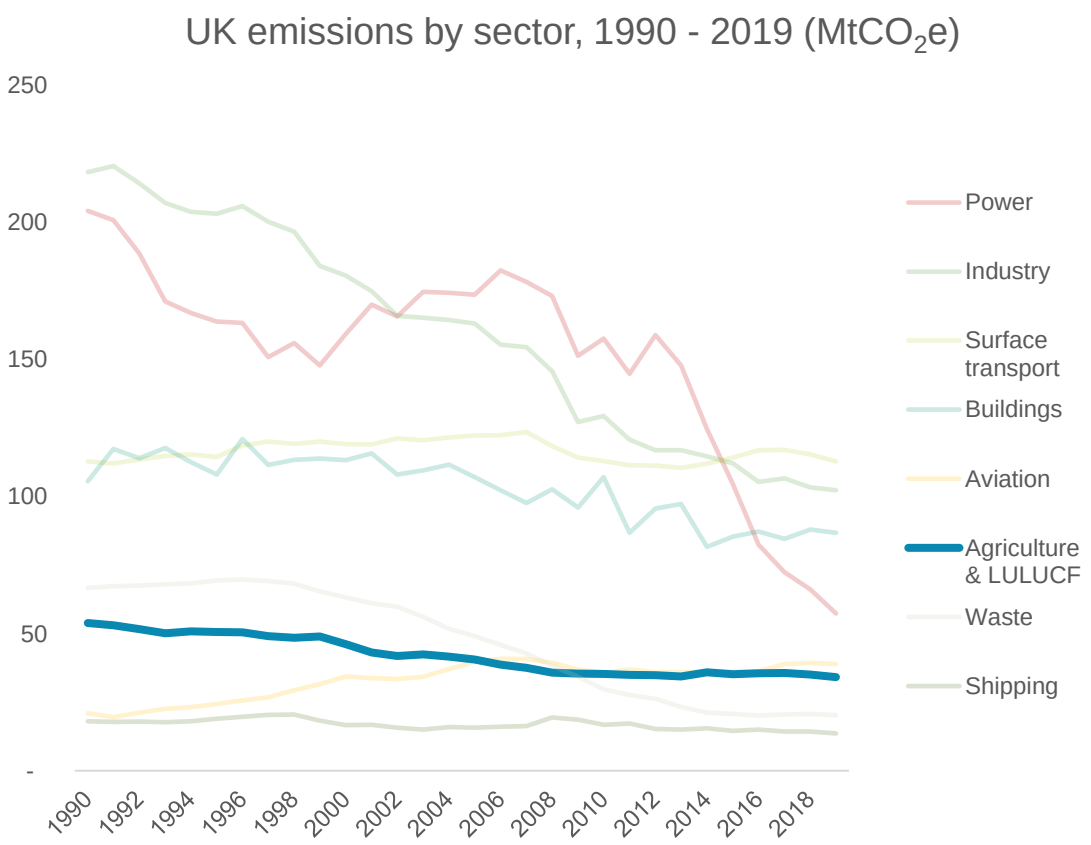
…but existing and older homes remain key

Source: Committee Report: UK housing: Fit for the future?

Summary of key national initiatives – Buildings

Initiative	Details
Local Energy Programme	Provides support to Local Enterprise Partnerships and LAs to help implement energy projects which reduce carbon emissions and benefit communities
Renewable Heat Incentive Programme	Households both on and off the gas grid can join the scheme to receive quarterly payments for seven years for the amount of clean, green renewable heat it's estimated their system produces
Heat and Buildings Strategy	To be published in 2021: will set out immediate actions to reduce emissions from buildings, and establish the role of LAs in supporting heat decarbonisation
Public Sector Decarbonisation Scheme	Provides grants for public sector bodies to fund heat decarbonisation and energy efficiency measures
Central Heating Fund	£25m to fund the installation of first-time central heating systems in low income homes off the gas grid
Green Heat Network Fund	£270m committed to support the deployment of low carbon heat networks
Energy Company Obligation (ECO)	Government energy efficiency scheme in Great Britain to help reduce carbon emissions and tackle fuel poverty

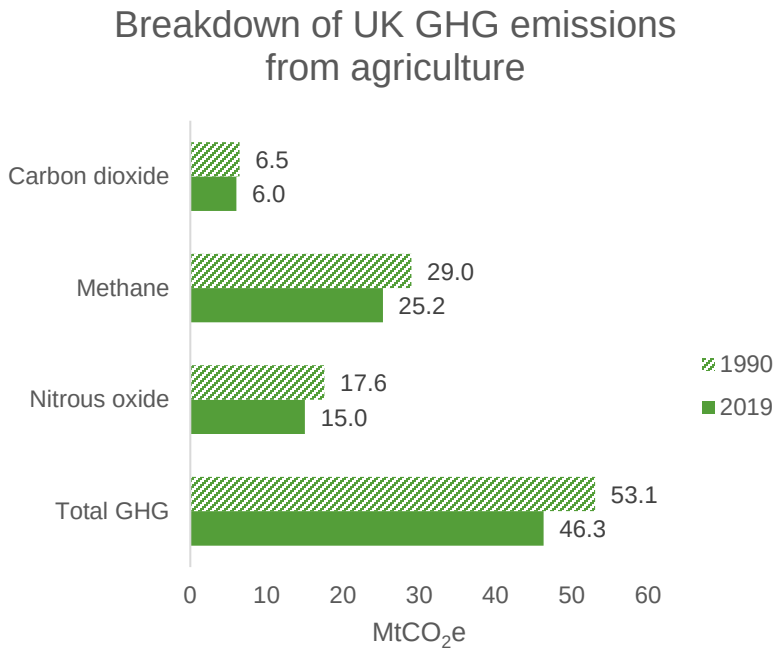
Focus on… land use and agriculture

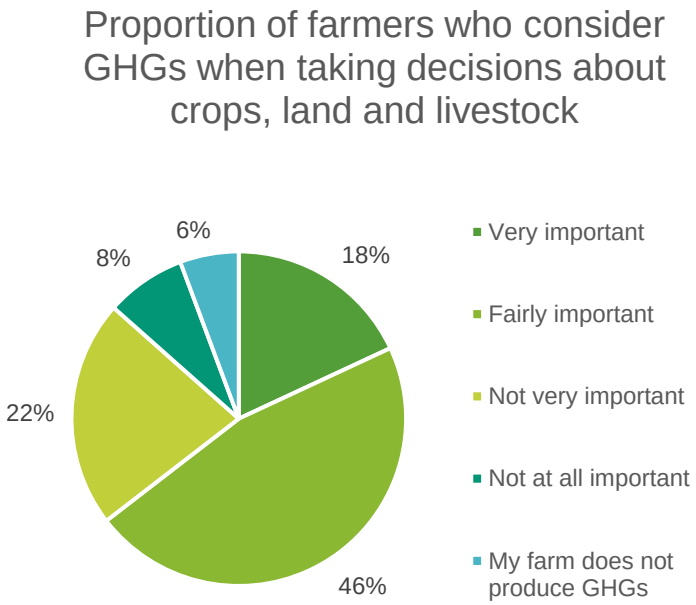


- Emissions from agriculture have increased by 2% between 2008-2018, whilst net carbon sink from LULUCF has risen by 15%
  - Overall effect = broadly flat emissions total since 2008, with a modest 2% decline
- However, overall agriculture and LULUCF emissions have decreased by 37% since 1990
- Methane accounted for 54% of emissions from agriculture in 2019
- Whilst agriculture forms only 2% of East Hampshire's emissions (see slide 15), it accounts for 10% of East Hampshire's emissions from business
  - Nationally, agriculture accounts for only 3% of emissions from business

Sources: Climate Change Committee 2020 Progress Report to Parliament, Forest Research: Forestry Statistics 2020

Methane is responsible for over half of total greenhouse gas emissions from agriculture…

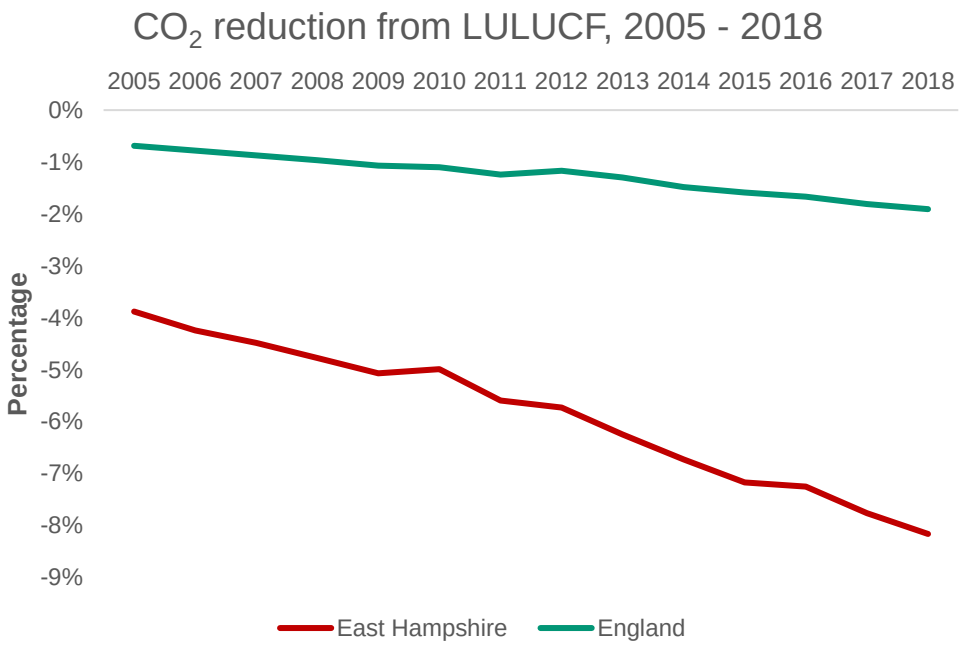




…but it is encouraging that over half of farmers consider emissions to be important when making decisions

Sources: Final UK greenhouse gas emissions national statistics 1990-2019, Department for Environment Food & Rural Affairs: Agricultural Statistics and Climate Change, Department for Environment, Food & Rural Affairs: Farm practices survey February 2020 - greenhouse gas mitigation practices

It is worth noting that, proportionally, East Hampshire has stronger CO_2 reductions from LULUCF than England as a whole



- LULUCF = Land Use, Land Use Change and Forestry

…and that East Hampshire's strength in this area has increased consistently over the course of the past decade

Source: UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018

Summary of key national initiatives – Land use and agriculture

Initiative	Details
Rural Community Energy Fund	£15 million programme to support rural communities in England to develop renewable energy projects which provide economic and social benefits
Agricultural Transition Plan	Outlines support for farmers and land managers by paying for improvements to the environment, animal health and welfare and reductions to carbon emissions
Environmental Land Management scheme	Payments to farmers for actions taken to manage their land in an environmentally sustainable way, including the delivery of land management actions that contribute to cleaner air or the mitigation of and adaptation to climate change
England Trees Action Plan	Provides a strategic framework for implementing the Nature for Climate Fund
Nature Climate Fund	Part of this £640m fund will be used to deliver the Government's manifesto commitment to plant more trees across the UK, rising to 30,000 hectares a year by 2025; will also fund the restoration of 35,000 hectares of peatland in England over the next five years

Summary of local initiatives – public sector

Hampshire County Council

- Hampshire Cycling Strategy
- Hampshire Walking Strategy
- Hampshire Tree Strategy
  - Target of planting 1 million trees by 2050
- Pilot schemes for on-street EV chargepoints in Eastleigh and Winchester
  - Ongoing survey to assess demand for chargepoints

East Hants District Council

- Switch to 100% renewable for EHDC energy
- Permission for residents to use EHDC land for wildflower planting
- Chargepoint locations
- Commitment to plant 120,000 trees
- 3 schemes for vulnerable and fuel poor residents in energy inefficient homes, for retrofit:
  - Energy Company Obligation 3 Flex – funding from larger obligated energy supply companies
  - Green Homes Grant LA Delivery phase 1a & 1b via a consortium led by Portsmouth City Council
  - + Phase 2 though a EM3 LEP area group of LAs funded by BEIS and led by GSE Local Energy Hub
- ECO3 retrofit funding
  - Eligibility criteria for retrofit funding to be extended
- Councillor grants £1k for Climate/Environment

Key Local Sources and Organisations

- Alton Climate Action Network
- Petersfield Climate Action Network
- Greening Campaign
- Cycle Alton
- Cycle Four Marks
- Repair Café
- Energy Alton
- Alton Local Food Initiative
- Alton Community Cupboard
- The Alton Society
- Petersfield Society
- The Sustainability Centre, Hampshire
- Hampshire and Isle of Wight Wildlife Trust
- Enterprise M3
- Hampshire Health Safety and Environmental Group
- Hampshire Conservation Volunteers
- CPRE
- Woodland Trust

Resources and further reading

- International Energy Agency: CO2 Emission from Fuel Combustion (2019 Edition)
- Organisation for Economic Co-operation and Development (OECD) Statistics on Greenhouse Gas Emissions
- Climate Change Committee 2020 Progress Report to Parliament
- The Ten Point Plan for a Green Industrial Revolution
- CARBIS BAY G7 SUMMIT COMMUNIQUÉ: Our Shared Agenda for Global Action to Build Back Better
- House of Commons Library – Climate change: an overview
- UK's Carbon Footprint 1997 – 2018
- National Statistics: Energy Trends: UK total energy
- European Union 2030 Climate Target Plan
- The White House Briefing Room Fact Sheet, 22/04/2021
- House of Commons Library: UK and global emissions and temperature trends
- BEIS Final UK greenhouse gas emissions national statistics: 1990 to 2019
- BEIS Updated energy and emissions projections: 2019
- BEIS Provisional UK greenhouse gas emissions national statistics 2020
- UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018
- ONS dataset: Method of travel to work
- ONS Dataset: Distance travelled to work
- ONS Home worker rates and levels, January to March 1998-2014
- Department for Transport Walking and Cycling Statistics
- Gov.uk: Low-emission vehicles eligible for a plug-in grant
- Society of Motor Manufacturers and Traders Vehicle Registration Data
- Department for Transport statistics: Vehicle Licensing Statistics
- Department for Transport: Electric vehicle charging devices by local authority
- ONS 2011 residential-based area classifications
- Climate Change Committee: Hydrogen in a low-carbon economy
- Climate Change Committee Report: UK housing: Fit for the future?
- BEIS Household Energy Efficiency statistics: detailed report 2020
- Sub-national estimates of households not connected to the gas network, 2015-2019
- English Housing Survey: Headline Report, 2019-20
- Forest Research: Forestry Statistics 2020
- Department for Environment, Food & Rural Affairs: Agricultural Statistics and Climate Change
- Department for Environment, Food & Rural Affairs: Farm practices survey February 2020 - greenhouse gas mitigation practices
- East Hampshire District Council: Climate and Environment Strategy 2020-2025
- Hampshire County Council Climate Change Strategy 2020-2025
- Hampshire County Council Climate Change Action Plan 2020-2025
- Net zero and the different official measures of the UK's greenhouse gas emissions
- Ofgem: Energy Company Obligation (ECO)
- Energy Saving Trust: Top tips to reduce your carbon emissions
- Energy Saving Trust: Quick tips to save energy