

PUBLIC PERCEPTIONS: GREENHOUSE GAS EMISSIONS

Institution of
**MECHANICAL
ENGINEERS**

**SURVEY RESULTS
2021**



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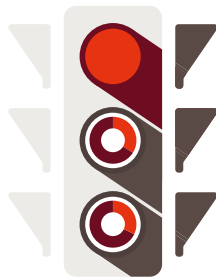
CONCLUSION



People underestimate the emissions from **home heating**, with just 15% mentioning it in the top three sources of emissions in the UK.



People say **driving less** (34%) and **taking fewer flights** (32%) are the most effective way for individuals to cut emissions.



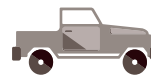
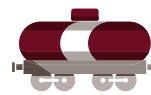
Twice as many 65-76 year olds (37%) mentioned **taking fewer flights** compared to 18-24 year olds (18%).



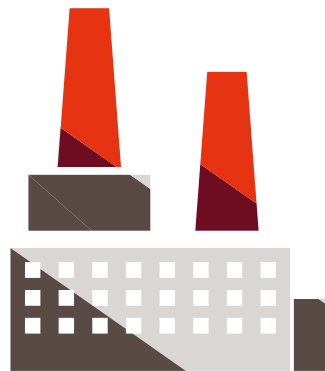
Range anxiety (59%) and **cost** (58%) are main concerns about buying an electric car.



53%



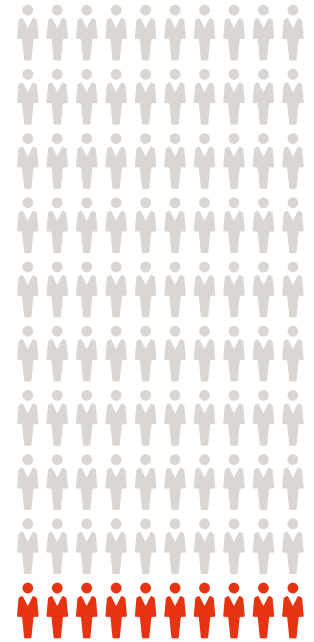
42%



56%

People say **industry** (56%), **aviation** (53%) and **road and rail transport** (42%) contribute most greenhouse gas emissions in the UK.

Nine out of ten people say they have heard of the Government's plan to **ban the sale of new petrol and diesel cars** from 2030.



Encouraging people to buy **electric cars** was the most impactful step people said the Government could take to **reduce emissions**.



02

KEY FINDINGS

- / **Industry (56%), aviation (53%) and road and rail transport (42%)** are the three sectors which are viewed as contributing the most greenhouse gas emissions in the UK.
- / Within the **transport sector**, **heavy goods vehicles (62%), international flying (60%) and cars (45%)** are seen as the three areas which produce the most greenhouse gas emissions in the UK.
- / Only **15% of people** mentioned heating systems in homes as one of the top three sources of emissions
- / When it comes to thinking about the most impactful action that Government could take to **reduce greenhouse gas emissions**, encouraging people to buy electric vehicles **comes out on top (30%)**.
- / On an individual level, people are most likely to cite **driving less (34%)** followed by **taking fewer flights (32%)** as the most effective actions for reducing emissions.
- / **9 in 10 (90%)** are aware of the Government's plans to **ban the sale of new petrol and diesel vehicles from 2030**, however the majority know just a little (42%) or know nothing but have heard about this (21%).
- / **Four in ten (43%)** support the plans to **ban the sale of new petrol and diesel vehicles** from 2030, while a quarter (27%) oppose them, and a similar proportion are neutral (25%).
- / **Three in ten (30%)** are likely to **buy an electric vehicle in the next 10 years**, a similar proportion to those who would be likely to buy a petrol vehicle (32%).
- / In terms of concerns around buying an electric vehicle, over half are **worried about the battery would run out during a journey (59%)**, the **cost (58%)**, and difficulty **finding charging points near their home (55%)**.

The Institution of Mechanical Engineers commissioned research into public understanding of the sources of greenhouse gas emissions and attitudes towards Government policy to reduce pollution from the road transport sector. The poll focused in particular on knowledge about the ban on the sale of new petrol and diesel cars (with the exemption of certain hybrids) which has been brought forward to 2030 as well as views about electric vehicles.

On behalf of the Institution, ICM Unlimited asked eight questions to a nationally representative sample of 2011 people across Great Britain in December 2020.

The Government has adopted a target of net-zero emissions of greenhouse gases in the UK by 2050, which means a 100% reduction in net emissions from 1990, in a drive to fight climate change.

To meet this target, people will have to make changes in their lifestyles, and we wanted to find out how aware the public is about this and their views on the best way to reduce net emissions. Transport and housing are some of the main areas where changes will need to be made.

The questions covered the following issues:

- / Understanding about sources of greenhouse gas emissions
- / Views on the most effective actions the Government and individuals could take to reduce the UK's carbon footprint
- / Understanding about the Government's policy to reduce road transport emissions
- / Attitudes to and concerns about electric vehicles

The results showed people underestimate the contribution of heating their homes to UK greenhouse gas emissions. Central heating in homes is one of the main sources of emissions in the UK but only 15% of people ranked it in the top 3 sources of emissions (graph 1).

People overestimate the contribution from aviation with 70% saying it was a top polluter in the transport sector compared with 64% mentioning road traffic. Although aviation emissions have risen sharply in recent years, even at their pre-pandemic peak, they were around a third of the level from road transport.

According to the Climate Change Committee (CCC), emissions from surface transport accounted for 22% of total UK greenhouse gas emissions in 2019 and this will need to fall to near zero by 2050 if the UK is to meet its net-zero target.

The CCC said this would require a combination of behavioural change (for example more car sharing), efficiency improvements to fossil fuel vehicles and the introduction and uptake of zero-carbon technologies.¹

Our poll showed people have a broad understanding of the levels of emissions produced by different sectors. Respondents mentioned industry (56%), road and rail transport (42%) and power stations (35%) among the main sectors contributing to UK greenhouse gas emissions.

Within the transport sector, the public has a good understanding that flying and driving are high emission modes of travel, while train travel is low emission.

1. <https://www.theccc.org.uk/publication/sixth-carbon-budget/>, accessed on 5 February 2021

Nine out of ten people say they have heard of the ban on the sale of new petrol and diesel vehicles. However, the majority say they know a little or nothing about it so a sustained publicity campaign by Government and the motor industry will be needed as the deadline approaches. Over 80% of people understand the reason for the ban is to cut greenhouse gas emissions or air pollution.

When asked how people could reduce their own carbon footprint most effectively, people are most likely to cite driving less (34%) followed by taking fewer flights (32%) (graph 2). As for a Government action that would have most impact, encouraging people to buy electric vehicles came out on top (30%).

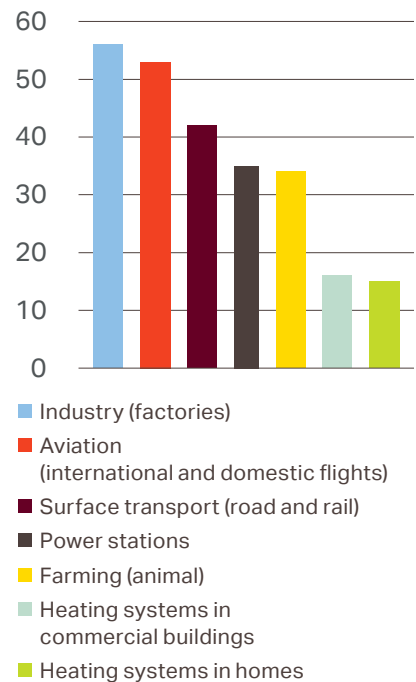
Electric car sales are rising in the UK despite a depressed car market due to the COVID-19 pandemic. Around 108,000 battery electric vehicles were sold in the UK last year, with a market share of 6.6% compared to 1.9% in 2019.²

Looking ahead to the next 10 years, 30% of interviewees said they were likely to buy an electric car. A similar amount (32%) would buy a petrol car while just 14% would buy a diesel vehicle.

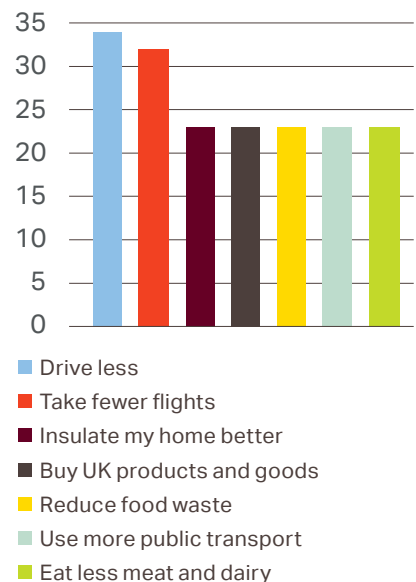
Top concerns about buying an electric car were the battery running out during a journey, difficulty in finding charging points near people's homes and the cost of the car. It was interesting to see cost is still such a concern as electric vehicle prices are falling and e-versions of budget cars, such as Skoda's Citigo, have become available. In addition, there is a Government grant of up to £3,000 available, if the car has a list price of below £50,000.

With the ban on new petrol and diesel cars less than a decade away, the Government urgently needs to develop and implement a strategy for building a national network of standardised charging points that people will be confident they can access when they need to. A recent press story about a couple taking nine hours to do a 130-mile journey in their new electric car because of problems with the charging network highlights the problems drivers face at the moment.³

Graph 1. - Which sectors do you think contribute most greenhouse gases in the UK?



Graph 2. What action could you take as an individual which would have the most impact on reducing greenhouse gas emissions?



2. <https://www.autocar.co.uk/car-news/industry-news/analysis-2020-uk-car-sales-hit-28-year-low-ev-market-grows-rapidly>, accessed on 5 February 2021

3. <https://www.theguardian.com/money/2020/nov/28/electric-cars-porsche-charging-network>, accessed on 5 February 2021

04

SOURCES OF GREENHOUSE GAS EMISSIONS

The British public underestimate the contribution of heating their homes to UK greenhouse gas emissions, although they have a good understanding of the importance of pollution from industry and the transport sector.

The poll showed many people are unaware the relative importance of emissions from gas and oil-fired central heating. Only 15% of people mentioned home heating as one of the top three sources of emissions. They ranked aviation (53%), livestock farming (34%) and the heating of commercial buildings (16%) higher although in reality these sectors produce less emissions than homes.

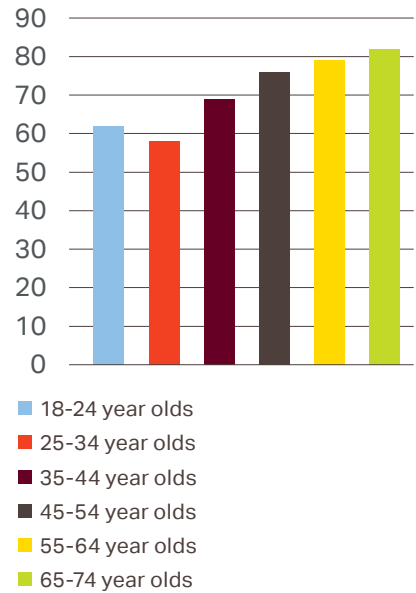
Figures from the CCC show direct emissions from buildings account for 17% of the UK's emissions. The CCC has said gas-fired central heating systems in homes and offices will need to be electrified. This would mean installing heat pumps which use electricity but much more efficiently than the average electric heater, if the UK is to meet its net zero target.⁴

The public has a good understanding of the importance of transport as a leading source of greenhouse gas emissions, with the sector being mentioned in the top three sectors by 72% of interviewees.

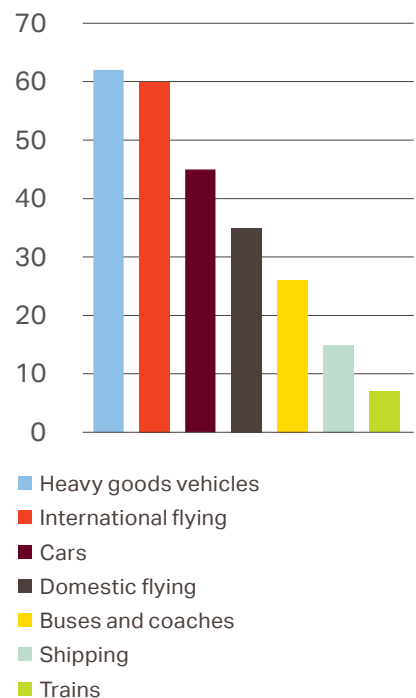
It was interesting to see younger people ranked it as less important than older people, with 62% of the 18-24 age group mentioning it compared to around 80% of the over 55s (graph 3).

Within the transport industry, flying is flying is cited as the top polluting sector by 70% of interviewees, followed by road transport by 64% (graph 4). The poll showed that people overestimate the contribution of flying to UK emissions.

Graph 3. Mentions of the travel sector being among the main contributors to greenhouse gas emissions



Graph 4. Within the transport sector, which areas produce most greenhouse gas emissions?



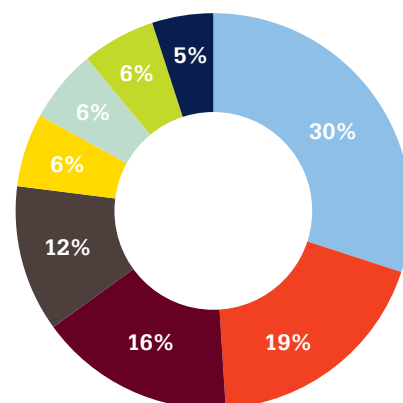
4. <https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Buildings.pdf>, accessed on 5 February 2021

5. <https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Agriculture-land-use-land-use-change-forestry.pdf>, accessed on 5 February 2021

This overestimate is likely to be because of the sharp increase in flying in recent years, awareness of the high amounts of pollution emitted by individual flights compared to other modes of transport, and the debate about whether to tax frequent flyers.

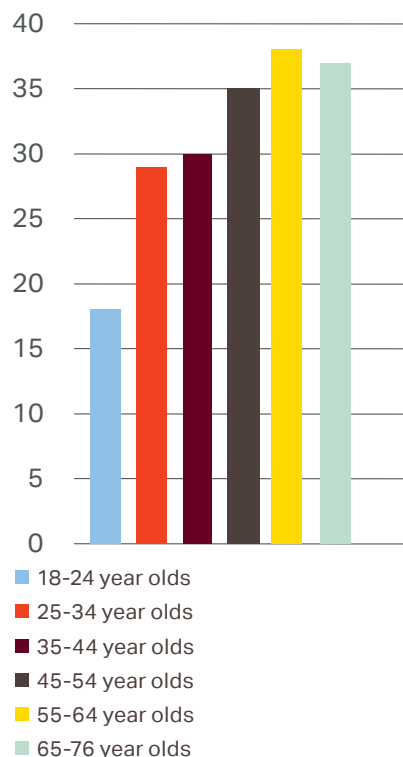
Aviation represented 7% of total emissions in 2018, up 88% over 1990 levels ⁶. Emissions from the sector have fallen sharply since last year due to the COVID-19 crisis but are expected to rebound once the pandemic is over.

Graph 5. What is the one thing the Government can do which would have most impact on reducing emissions?



- Encourage people to buy electric cars
- Subsidise public transport
- Help insulate homes better
- Increase taxes on flying
- Support digital infrastructure
- Build more cycle lanes
- Increase tax on petrol and diesel
- Something else

Graph 6. Mentions of taking fewer flights being the individual action which would have the greatest impact on reducing greenhouse gas emissions



- 18-24 year olds
- 25-34 year olds
- 35-44 year olds
- 45-54 year olds
- 55-64 year olds
- 65-76 year olds

05

REDUCING EMISSIONS

We asked respondents what one thing they thought the Government could do which would have the most impact in bringing down emissions, and what one step they could take individually. The top item the public said the Government could do is to encourage people to buy electric vehicles, which was mentioned by 30%, followed by subsidising public transport (19%) and helping people insulate their homes better (16%) (graph 5).

The electric vehicle revolution will take time and there will be millions of petrol and diesel vehicles and lorries on the roads for decades to come. The CCC said improvements to fossil fuel engines will also be needed to meet the new net zero target. Recent research by the Institution showed that emissions from conventional road vehicles can be quickly reduced through a move to synthetic low-carbon fuels and biofuels and also by improving the efficiency of the internal combustion engine.⁷

The survey showed the public has a good understanding about the best ways to reduce their own carbon footprint.

On an individual level, people are most likely to cite driving less (34%) followed by taking fewer flights (32%) as the most effective actions for reducing emissions. Attitudes varied by age towards taking fewer flights (graph 6).

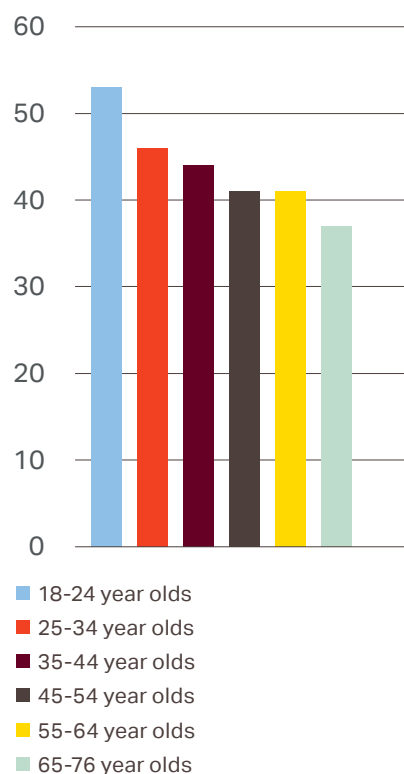
6. <https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Aviation.pdf>, accessed on 5 February 2021

7. <https://www.imeche.org/policy-and-press/reports/detail/accelerating-road-transport-decarbonisation>, accessed on 5 February 2021

Reducing food waste was mentioned by 23% and eating less meat and dairy by 22%. Three in 10 people (31%) also said we should change our shopping behaviour to include buying more UK products as well as buying second-hand goods. Women were more likely to be in favour of changing shopping and food behaviour than men. Over one in four women (27%) were likely to mention reducing food waste compared to two in 10 men (19%). Women were almost twice as likely to be in favour of buying second-hand clothes and goods (12% vs 7%).

Food waste is an important area to tackle. An Institution report in 2013 found half of all food produced globally was wasted, a figure which is unlikely to have changed much since.⁸

Graph 7. Support for the Government's ban on the sale of new petrol and diesel vehicles from 2030



06

BAN ON THE SALE OF NEW PETROL AND DIESEL VEHICLES FROM 2030.

There is a high level of awareness of the ban on the sale of new petrol and diesel vehicles from 2030 and the reasons driving the Government's policy. The ban was supported by over two fifths (43%) of people interviewed.

The poll found 90% of people had heard about the ban, with 85% saying it was being introduced to cut greenhouse gas emissions.

Just over a quarter of respondents (26%) said they knew a great deal or fair amount about the ban, which was brought forward to 2030 last year from 2035 previously.

However, the majority know just a little (42%) or know nothing but have heard about this (21%).

Men were twice as likely as women to say they knew a great or fair deal (37% vs 17%) and knowledge was highest in the South East (30%) compared with Scotland (21%).

The results showed 43% of adults backed the policy, with support highest among 18-24-year olds (53%) and lowest among the 65-74 age group (37%) (graph 7). There were differences in support according to income bracket and region.

8. <https://www.imeche.org/policy-and-press/reports/detail/global-food-waste-not-want-not>, accessed on 5 February 2021

People with the highest incomes gave the strongest backing (52%), in line with their greater likelihood to buy an electric car (see below), possibly as the perceived high cost is not such a barrier. In lower income groups, support was around 40%.

Adults in the South East were most enthusiastic about the policy, with 49% backing it compared with 38% in Scotland where support was lowest.

07

ELECTRIC VEHICLES

We asked about which type of car people were likely to buy in the next 10 years and also looked into their concerns about electric vehicles, which centred on worries about charging networks and cost.

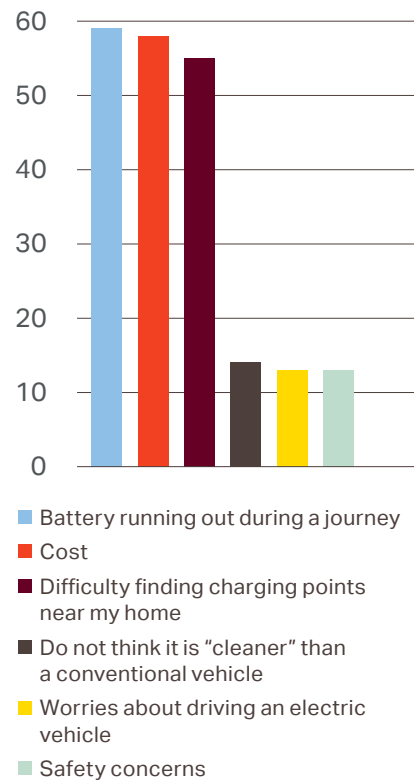
The poll found 30% of people were likely to buy an electric car in the next 10 years compared with 32% saying petrol and just 14% diesel.

Men were more enthusiastic about buying an electric car than women (34% vs 25%) and more than twice as many younger people said they would aim to buy one than older people – 53% of the 18-24 age group compared to 21% of 55-64 year-olds.

Given that cost is a major concern among purchasers, people in the higher income age group AB were nearly twice as likely as people in the lower income DE group to say they would be buying an electric vehicle (40% vs 23%).

Worries about charging networks also feature high in the list of concerns. Fears of a car battery running out during a journey and the difficulty finding charging points near their homes were mentioned by 59% and 55% of people respectively (graph 8).

Graph 8. Concerns about buying an electric vehicle



The survey showed people have a good understanding of how everyday activities are linked to emissions and climate change, especially in the area of transport. The public is also aware of Government policy and has a clear understanding of the reason for the move towards electric cars.

People are also clear about what they can do as individuals to reduce their carbon footprint.

The public's underestimate of the relative importance of the contribution of heating from their homes to the UK's emissions could increase resistance to any Government plans to encourage people to switch from gas-fired to low-carbon heating.

The survey highlights that cost and problems with the UK's charging infrastructure are concerns which could slow the switch to electric vehicles.

The Government faces a major challenge if it is to have suitable charging infrastructure in place ahead of its ban on new petrol and diesel cars in 2030.

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