

2024
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2024

State of the Switch



About New AutoMotive

New AutoMotive is an NGO that works to increase the pace of the clean energy transition, focusing on road transport - one of the largest sources of greenhouse gases and air pollution. We use data to tell stories, informing the public and influencing policy development. New AutoMotive campaigned for and helped win the UK's Zero Emissions Vehicle mandate, one of the most ambitious clean transport policies in the world.

Each month we release the Global Electric Vehicle Tracker, Electric Car Count and Electric Van Count, the most up-to-date sources of EV data in the UK and globally. We've also released numerous reports detailing the switch to electric and what the UK government needs to do to make this happen.

About this report

This report is New AutoMotive's third annual 'State of the Switch', gauging the UK's progress towards electrified road transport. The report assesses progress, and highlights recent developments, including successes and failures, in the UK's transition over the course of 2023. It makes predictions for the upcoming year and examines barriers to the transition, as well as potential interventions that could accelerate the transition. Much of the data is derived from our monthly Electric Car Counts. We also analysed publicly available data published by the Vehicle Certification Agency, the Driver and Vehicle Licensing Agency, ZapMap, the Department for Transport, and the Department for Energy Security and Net Zero. The State of the Switch 2024 report uses this data to provide a snapshot of where the UK is in its journey towards electrification, and identify the challenges and opportunities facing the transition.

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Foreword



Baroness Bryony
Worthington

Executive Chair

STATE OF THE SWITCH 2024

Foreword

At the start of this year a new regulation came into force in the UK, requiring manufacturers to sell a rising proportion of EVs. New AutoMotive worked to influence and secure this ambitious policy, and it has already seen a big uptick in investment thanks to the certainty it provides.

So, 2023 represents the last year in which the sale of EVs was seen as voluntary. It was also a year in which there was an incentive to hold back sales until January 2024 in order to make compliance with the new regulations easier.

Despite these facts in 2023 UK electric car sales were up nationally by 18.5% on 2022 levels. And the share of 'zero emission car miles driven' – the metric we care about the most - is up 50%.

None of this should be surprising, given that an average driver can save £1000 a year in running costs by going fully electric. Incidentally, anyone wanting to check their savings can do so via our personalised calculator¹ – just by entering your car registration number.

In other good news, the number of public charge points is also up by almost 50%, and, taking home and workplace charge points into account, there are now almost 15 times as many chargers as there are fuel pumps in the UK.

So I recommend this – the third annual State of the Switch report from New AutoMotive – as a remedy for anyone depressed by headlines in some news media claiming that the EV revolution is stalled or failing. It is very much alive and kicking.

And as the total cost of ownership of electric cars and vans continues to fall, thanks to economies of scale and more models being made available, this transition is set to pick up pace.

¹ <https://electriccar.guide/ev-savings-calculator>

Which will mean cleaner air back in our cities and communities as polluting petrol and diesel cars are largely off our roads by 2050.

Nevertheless there is still more that needs to be done. Misinformation about EVs is still sadly rife. New AutoMotive will continue to get the real facts into the media, people's inboxes and social media feeds. We hope Government and manufacturers will also step up their communications efforts. The public information campaigns of old, that warned of the dangers of drunk driving and the need to wear seatbelts, feel like they're from a lost age – but there is a strong argument for bringing them back. We absolutely need public understanding and support if we're going to meet our legally binding climate targets by mid century.

On the charging front, action is needed to resolve the mess of charging at motorway service areas. And though the majority of homes in the UK have access to home charging we also need action to address the far higher price of public charging – otherwise there is currently much less of an incentive for many to make the switch.

The start of 2024 also saw New AutoMotive's analysis go global. Our first data report covering over 80% of global car sales shows that battery electric vehicle sales have reached more than 10 million a year, growing 40% on 2022 levels, twice the pace of the UK. And in addition to massive growth in China our report shows the share of EV sales in many EU countries, including Ireland, Portugal, Belgium and the Netherlands, as well as the Nordic nations, have all overtaken us.

The UK can be proud of the world leading policy it passed last year – we are now on the brink of a very fast transition, that will see us massively reduce our reliance on imported and volatile fossil fuels in the transport sector – our single largest source of greenhouse gases.

I hope you enjoy this year's report – I feel certain next year's will contain even more good news, especially if the recommendations included here are taken up.

Baroness Bryony Worthington
Executive Chair

TIMELINE

April

EV uptake surges by 60% year-on-year as record number of motorists are choosing electric vehicles.

DfT figures show that the UK added 3,095 new chargers to its public charging network in Q1 - a 33% increase in the overall size of the network compared to the same time last year.

May

Electric car sales make up 18% of all new registrations, up by 5 percentage points compared to figures for the same time last year.

The final ZEV mandate consultation responses are submitted for Government's review. New AutoMotive is largely supportive of the proposals but issues caution at certain flexibilities, especially those that link the ZEV mandate to the CO₂ regulations which will govern the rest of the new car market. This flexibility allows manufacturers to convert over-compliance with the CO₂ regulations into ZEV mandate credits, and vice versa. This is the only part of the Government's proposals which sees ICE vehicles being used to replace ZEVs.

June

BEVs continue to grow in popularity and this is shown by consumer demand still outstripping supply. The wait times which have been increasing all year have extended out by as much as 52 weeks for some popular electric models. This shows a clear need for the DfT to enact the ZEV mandate in 2024 without delay.

July

DfT figures show that the UK added 6,965 new chargers to its public charging network so far this year, an increase of 38% from the previous year's level.

August

One in 5 new car registrations in August are electric, the strongest month for sales so far this year.

October

DfT figures show that the UK added 5,200 new chargers to its public charging network in Q3, an overall growth of 42% compared to the same time last year.

The much delayed regulations to improve the EV charging experience for those motorists using the public charging network were finally approved by the Commons. It sets out a timeline for a number of regulations which will govern transparent pricing structures, reliability measures, and simpler payment measures.

November

There was a drop in EV registrations this month, with EVs accounting for 16% of the car market. This was in line with New AutoMotive's predictions for the industry as the manufacturers prepare for the start of the ZEV mandate in January 2024. The drop can also be attributed to Tesla's lack of sales this month due to a number of issues with production that the company has faced in the second half of the year.

December

Despite a slowdown for the last 2 months of the year EV registrations hold firm for the month of December. Whilst down on the record breaking figures for December 2022, the sales are at 20%, close to the ZEV mandate target of 22% for 2024.

January

EV sales grow by 6% despite a torrent of unfavourable headlines, focusing especially on the public charging network. New AutoMotive releases a deepdive into the state of the charging network and finds that the UK is on target to reach the government's aim of 300,000 chargers by 2030.

February

The number of EV sales grows by 16% year-on-year this month, despite market share stagnating, as the whole of the car market receives a boost in sales compared to the previous year.

March

Later than expected, the final ZEV mandate consultation is opened with the first look at the details of the policy which will govern the electric portion of the new car and van market. Despite the targets largely staying the same for the car market, a number of newly proposed flexibilities mean the targets have been watered down, especially in the first three years of the scheme.

September

Rishi Sunak announces that the phase-out of petrol and diesel vehicles will be delayed by 5 years. This shock announcement was met with disappointment from a wide range of stakeholders including prominent industry voices. The new phase-out date is set for 2035 when all ICE vehicles, including hybrids will be phased-out. Despite this news, petrol and diesel vehicle registrations continue their long term fall.

Just a week after this U-turn the government announces the final ZEV mandate legislation which will be enacted at the beginning of 2024. This ensures that, despite delaying the phase-out of pure petrol and diesel vehicles, the government is still committed to 80% of new registrations being zero emission by 2030 and 100% by 2035.

Summary: Predictions for 2024

01

Consumers can expect price cuts and discounts - potentially up to £10K - for sales of some new EVs, especially from the brands that make up the Stellantis family (Citroën, Fiat, Peugeot and Vauxhall), as well as Nissan, Ford and potentially Renault.

02

The number of EVs on the road will increase by 20-30% from less than 1 million at the beginning of 2024 to 1.2-1.3 million by the end of 2024.

03

The ratio of miles travelled by petrol, diesel and hybrid cars to those driven by battery electric cars will continue to fall from 25:1 in 2023 to between 21:1 and 20:1 by the end of 2024.

04

The costs of second hand electric vehicles are likely to remain extremely competitive.

05

More low cost EVs will come to market.

06

The cost of home charging will drop, potentially by 22% by year end, whilst petrol and diesel prices stay unchanged.

07

There will be 70,000 to 75,000 public charge points at year end, up 30-40% from 54,000 at the beginning of the year.

08

Concerns about charge point availability will ease as the rollout of charge points keeps pace with electric vehicle sales.



INDICATOR 1



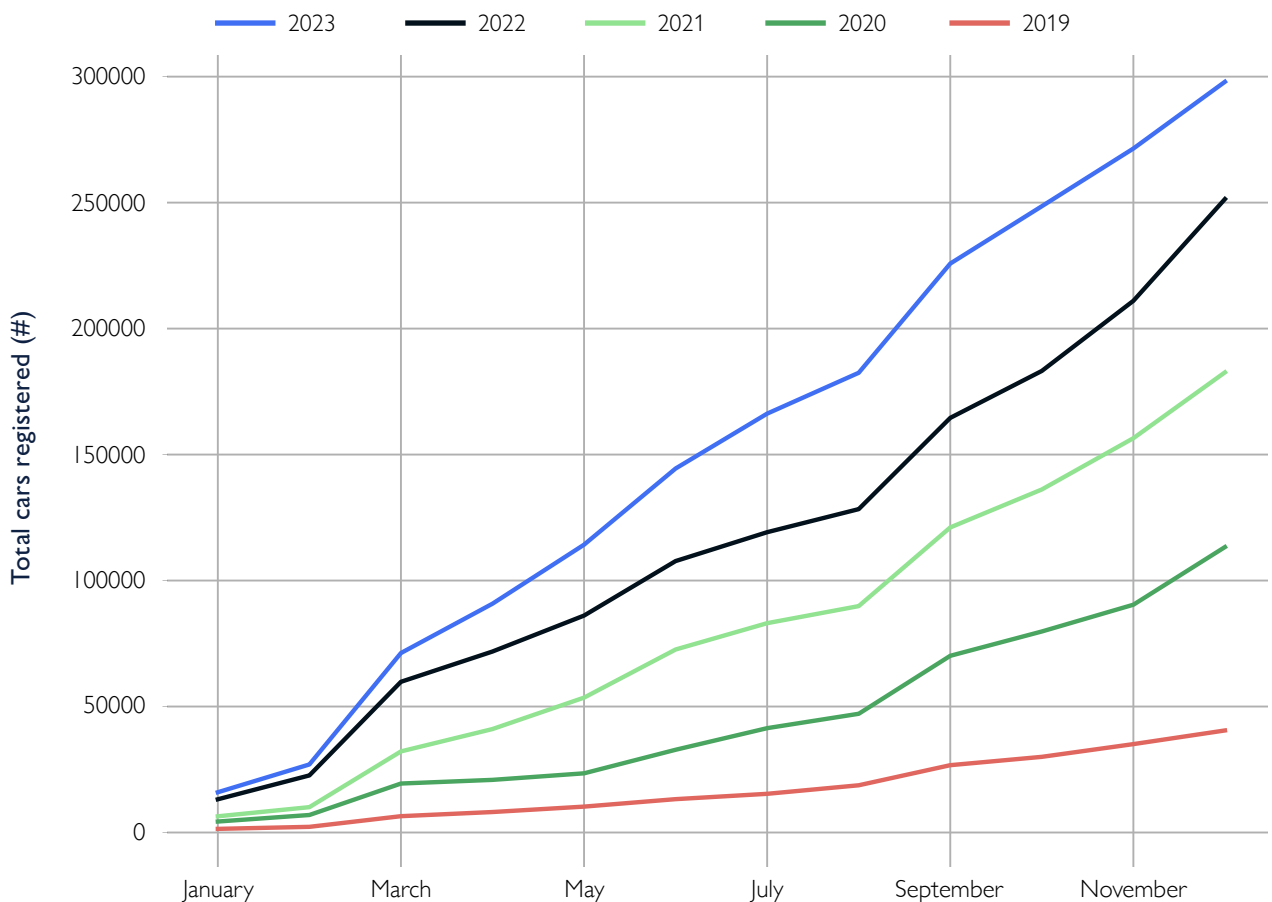
NEW CAR
SALES

STATE OF THE SWITCH 2024

Total Sales

2023 again saw a record number of BEVs registered in the UK, in a period of growth for the whole car market after a disappointing 2022. The total number of EVs registered in the UK over 2023 was 297,890. This is 18.5% higher than the number registered in 2022 which stood at 251,406. Figure 1 illustrates how the number of BEVs sold in a single year since 2019 have grown considerably year-on-year. BEV sales in the third month of 2023 outstripped the number of BEVs sold in the whole of 2019. By May 2023 BEV sales had surpassed the number of sales which occurred for the whole of 2020. By August 2023, sales had matched sales for the whole of 2021, and by October, the whole of 2022.

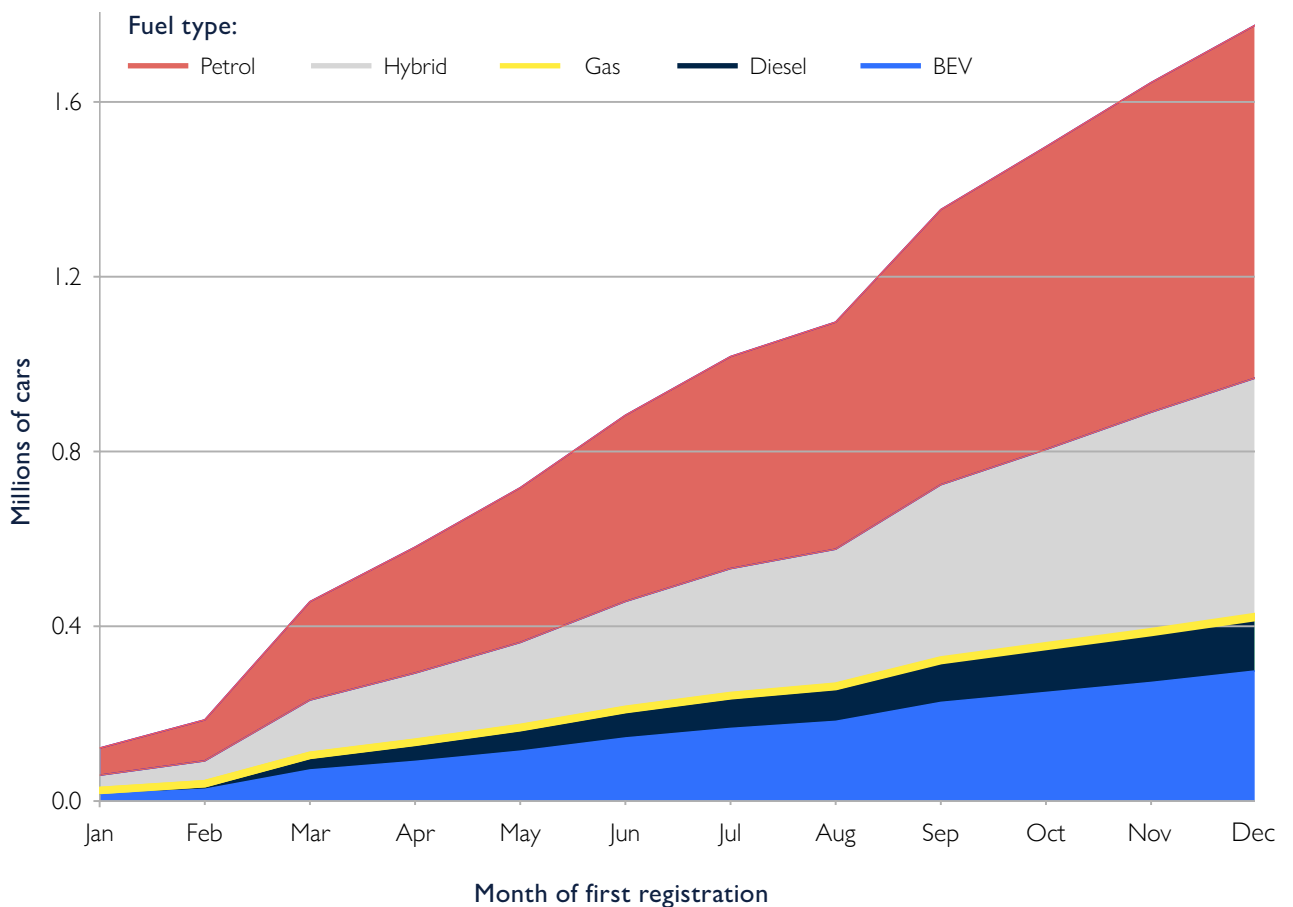
Figure 1: Total cumulative sales of BEVs in from 2019 to 2023



Turning to the total number of sales, figure 2 shows the cumulative registration of all fuel types in 2023. It shows significant sales of fossil fuel powered vehicles, with a total of 1.457 million petrol, diesel or hybrid vehicles registered in 2023.

This is why slowing down the rate of the transition has a significant knock on effect for the UK’s emissions. The average age at which a vehicle is scrapped is 14 years. This means that most fossil fueled vehicles registered in 2023 are likely to be polluting the roads well into the 2030s. For the UK to reach net zero carbon emissions by 2050 without costly or unproven technologies such as bioenergy with carbon capture and storage or direct air capture, it is imperative that the last fossil fueled vehicles are sold no later than 2035. Otherwise it is likely that the Government’s legally binding goal will not be met.

Figure 2: Total cumulative car sales of all fuel types

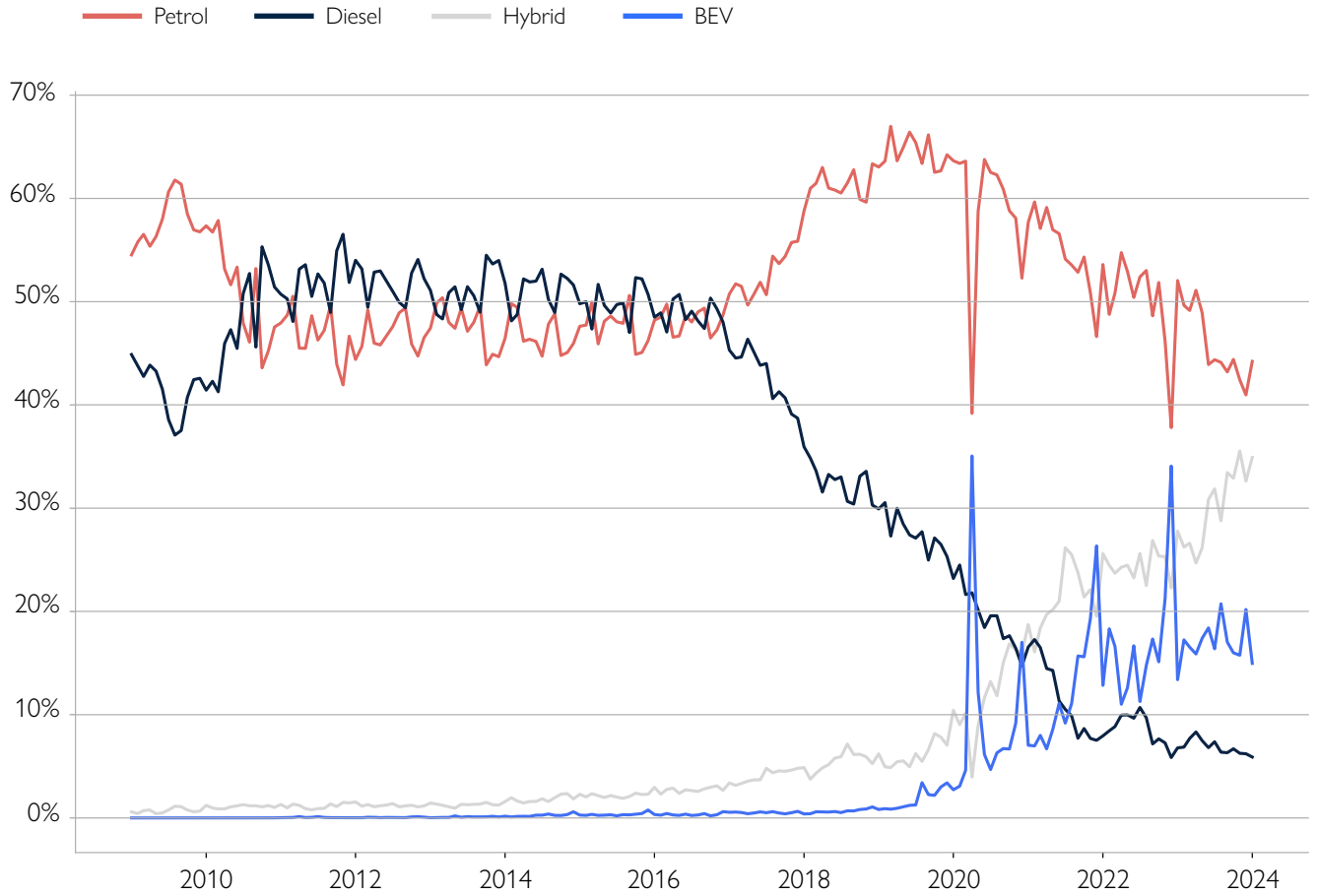


Market Share

Market share largely remained steady, compared to 2022, but within a larger market. BEVs were responsible for 16% of all sales this year. This is slightly under the market share it enjoyed in 2022 (just under 17%), however the total car market increased by 19% in 2023 compared with 2022, so the total number of BEVs hitting UK roads still rose considerably. Despite diesel's drastic drop off in market share over the past seven years, it has largely stayed steady this year at 7% of the total market. The market share of hybrids (including full hybrids and plug-in hybrid cars) managed to gain 4 percentage points on 2022 figures, carving out 29% of the total market - the largest segment growth.

Figure 3 highlights the longer term trends of market share since 2010. It shows that until 2017 both diesel and petrol vehicles dominated the market, enjoying a fairly equal slice of the market. 2017 is the year that diesel sales, spurred on by a number of scandals, started to see a considerable drop in market share. Initially this saw petrol's market share increase at a comparable rate until 2020 when both hybrid and BEV sales began to eat into the windfall it had experienced. 2023 saw petrol fall below that pre 2017 market share. Hybrids in particular have strengthened their market share; although hybrids tend to be somewhat less polluting than other ICE vehicles they still use fossil fuels to run and have a significantly higher pollution impact than BEVs. This market share plateau is not reason to panic - with the ZEV mandate's implementation in 2024, it is likely that the market will again rise in the coming year. However, the government must double down on its commitments and enact policies which help to ensure that this happens.

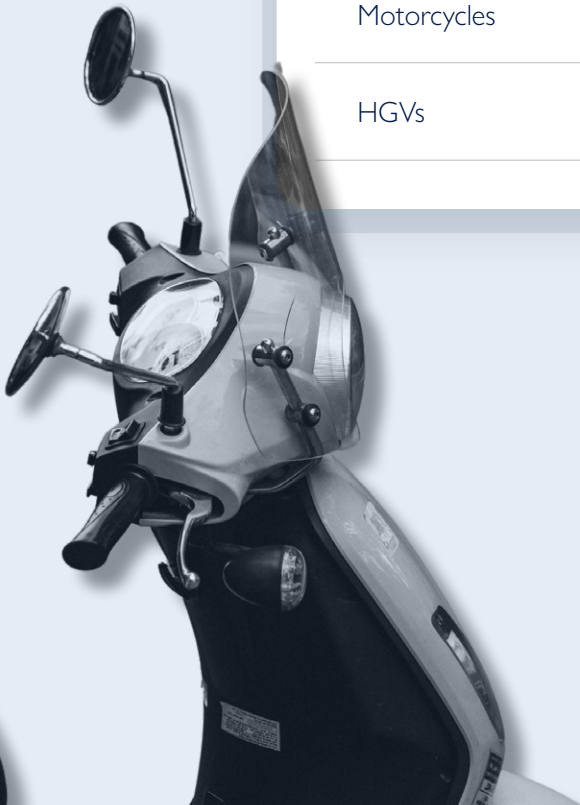
Figure 3: Historic market share broken down by fuel types.



How are the other market segments faring?

The electric car market continues to be the standout vehicle type in the UK, electrifying faster than motorbikes, vans and HGVs. Vans, which will be subject to a 10% ZEV mandate target next year, largely stayed steady comparing figures from last year. Motorcycles had a particularly hard year, losing 3 percentage points of market share compared with 2022 figures. This may be due to the government's scrapping of incentives. Lastly electric HGVs had a breakthrough year indicating that BEV technology is starting to proliferate this market.

BEV Market Segment	Total BEV sales 2023	% of market 2023 (BEVs)	Total BEV sales 2022
Cars	297,890	16.38%	251,406
Vans	19,813	5.37%	16,866
Motorcycles	2,100	2%	3,360
HGVs	250	3.1%	109



Predictions for 2024

The ZEV mandate & CO₂ scheme for non-zero emissions vehicles

The Zero Emissions Vehicle (ZEV) mandate is a legal framework - also used in California and China - under which car manufacturers must meet an increasing percentage target of electric vehicles. In 2024, the mandate requires that 22% of sales are fully electric.

Manufacturers can meet this target by selling more electric cars as a proportion of sales, purchasing excess allowances from manufacturers who have exceeded their targets, borrowing allowances from future years or paying a “buy out” price to the Government.

A final way of meeting the target in the early years of the mandate is by transferring unneeded CO₂ allowances from a separate scheme for non zero-emission vehicles. This scheme works in a similar way to the Zero Emissions Vehicle mandate, giving firms allowances corresponding to their targets and then allowing firms who fall short of their targets to buy allowances from firms who met their target or make a buyout payment to the Government². However in the CO₂ scheme for non-zero emissions, firms have different targets, set by reference to the emissions of their UK car sales in 2021.

Firms who have exceeded their targets will have a surplus of allowances. Our analysis, based on the first 2 months of sales in 2024, suggests that the targets will be relatively easy to meet, and there will be many excess allowances, which the holders can transfer into the ZEV mandate to lower the percentage of electric vehicles they need to sell.

There is a cap on such transfers into the ZEV mandate, which means that no firm can lower its target for EV sales to below 10.85% in 2024. The cap is tightened in subsequent years so that a firm can potentially lower its ZEV mandate target to 18.9% of vehicles being electric in 2025 (rather than the headline target of 28%) and 30.3% in 2026 (compared with the headline target of 33%). No further transfers from the CO₂ emissions scheme for non-zero emission vehicles to the ZEV mandate are permitted after 2026.

² They could also theoretically transfer unused allowance from the ZEV mandate scheme. However we expect few if any firms to make use of this option.

Our analysis has identified 3 groups of firms:

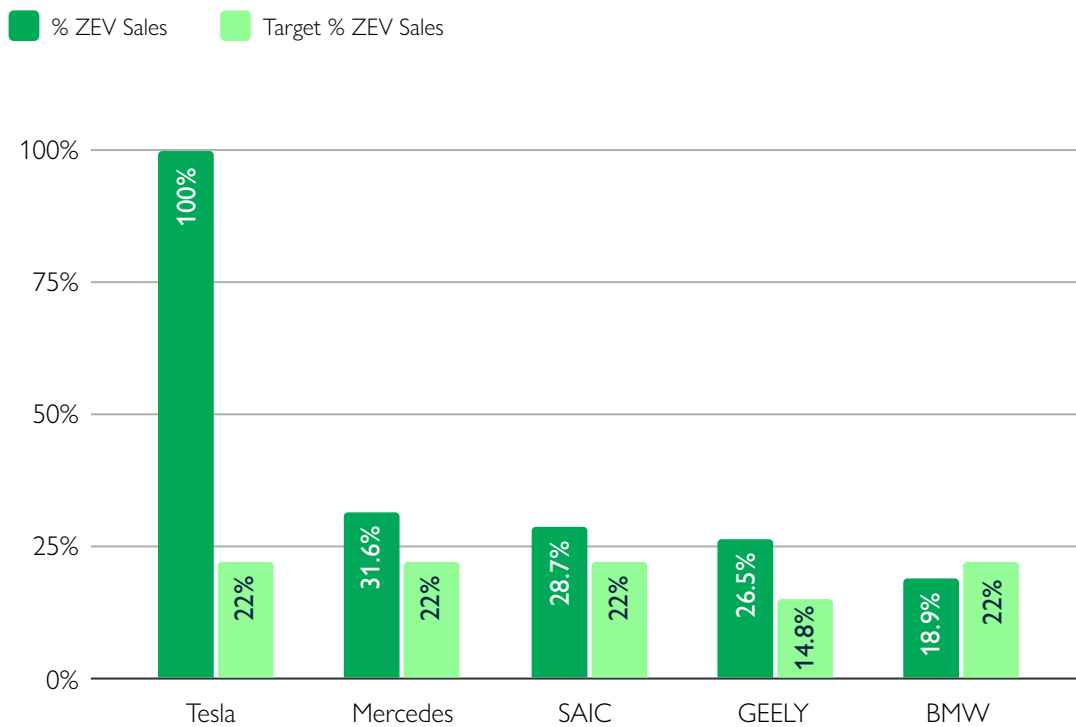
Outperformers

A small number of firms are likely to comfortably hit their ZEV targets, leaving them valuable allowances to trade.

These include Tesla (who only sell Battery Electric Vehicles) and Mercedes (including Smart) - more than 30% of whose sales are battery electric. Meanwhile MG and Geely (who own Volvo, and Polestar, as well as the London EV Company, the makers of black cabs) are also comfortably ahead of the 22% target and will have some, but fewer credits. We also include in this group BMW (owners of Mini), whose share of sales currently fall short of the 22% target, but trended upwards sharply throughout 2023 and are therefore likely to meet the target.

Figure 4: Outperformers

% Zero Emission Vehicle sales in 2024 and company targets



Firms who will meet their targets

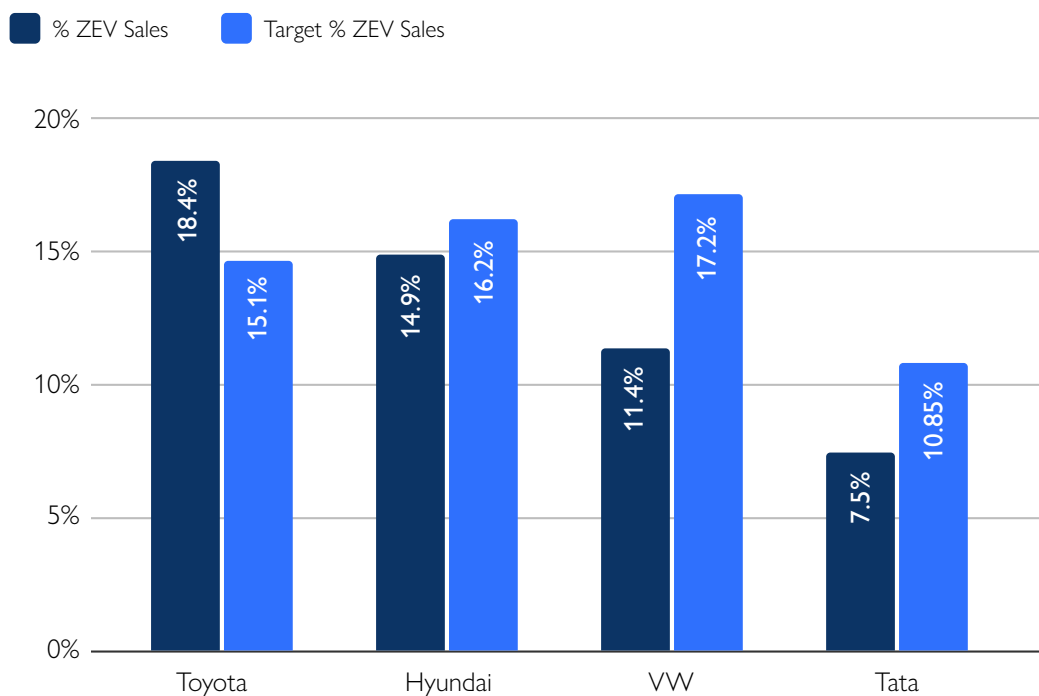
A second group of firms may not sell 22% of electric vehicles this year, but are likely to still meet their targets, due to outperformance on the CO₂ of their non-zero emissions vehicle. By transferring allowances in the way described above, these firms will lower their targets significantly.

In this group are Hyundai (who also own Kia), Toyota, Volkswagen (owners of Audi, Seat, Skoda and many other brands), and Tata (owners of Jaguar Land Rover) which have all significantly improved the average emissions performance of their vehicles since 2021.

Our estimates of the real targets for these firms – when transfers of surplus allowances from the CO₂ scheme for non-zero emission vehicles are taken into account – are shown below, alongside their percentage of EV sales so far in 2024. Some may even have excess zero emission vehicle credits to sell.

Figure 4: Middle performers

% Zero Emission Vehicle sales in 2024 and company targets



Firms who will struggle to hit their targets

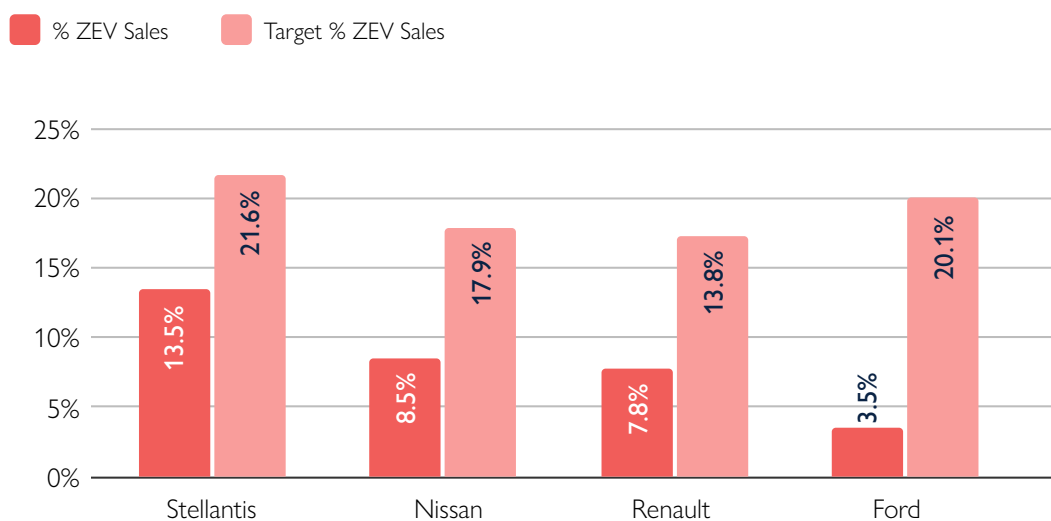
Some firms have sales of EVs which currently fall significantly short of the 22% target for EV sales and so far appear unlikely to have significant amounts of surplus allowances from the CO₂ scheme for non-zero emissions vehicles.

In this group are Stellantis (owners of Vauxhall, Peugeot, Citroen and Fiat), Nissan and Ford. For these manufacturers, fewer than 14% of their passenger car sales were electric vehicles in the second half of 2023, and their real EV targets will be close to 22%.

We also include Renault in this group. Like Nissan, Renault came early to electric vehicles, with 20% of their sales being battery electric from 2021 through to the first half of 2023. However, the share of EVs in their sales dropped off steeply in the second half of 2023 and this appears to be continuing. Nevertheless, Renault have outperformed their targets on CO₂ from their non-zero emission vehicles, so their task will be slightly easier.

Figure 6: Bottom performers

% Zero Emission Vehicle sales in 2024 and company targets



We anticipate that these companies will wish to avoid saving up trouble by borrowing allowances from future years, as this will incur a heavy penalty in the form of a compounding interest rate, as well as the requirement to repay all borrowed credits in 2027. They will also face a high price from outperformers such as Tesla and Mercedes for surplus allowances.

We therefore predict that consumers can expect price cuts and discounts - potentially up to £10K - for sales of some new EVs, especially from the brands that make up the Stellantis family, as well as Nissan, Ford and potentially Renault.

This will cut - and potentially eliminate altogether - the price differentials between battery electric vehicles produced by these manufacturers and their petrol and diesel equivalents.

To help consumers switch, Government could readily pull together a personalised price comparison tool using the data it holds on vehicle mileage from the MOT database, alongside representative ICE and EV vehicle efficiencies from the Vehicle Certification Agency and public statistics on weekly road fuel prices, the energy price cap and typical overnight/EV electricity tariffs. A government-sponsored online calculator with a transparent methodology which uses data from consumers' current vehicles to illustrate the potential savings from going electric has the potential to be both more useful and more widely trusted than commercial tools which are seeking to sell products³.

The rising popularity of electric vehicles has regrettably been accompanied by a rising tide of misinformation. The Carbon Brief website⁴ has documented and rebutted 21 persistent myths which have been repeatedly replayed in the UK print media. Whilst Ministers in the Department for Energy Security and Net Zero have criticised misinformation about heat pumps on several occasions, we have been unable to find any evidence of Ministers at the Department for Transport publicly rebutting falsehoods about electric vehicles.

³ New AutoMotive publishes such a calculator at <https://electriccar.guide/ev-savings-calculator>

⁴ Carbon brief. *Factcheck: 21 misleading myths about electric vehicles*. October 2023. ⁵ See, for example, Lord Callanan on [Twitter](#), [Sky TV](#) and in [Hansard](#)

Without trusted sources of information and rebuttals of myths and misinformation on EVs, the benefits of going electric, and the affordability of electric vehicles, especially in the second hand market, risk being drowned out. The end result is that consumers miss out on the financial and non-financial benefits of electric vehicles, and more manufacturers risk missing their targets.

Recommendations

01 Government should launch an online calculator at GOV.UK to help consumers compare the current real-world costs of running their petrol and diesel vehicles, and how much they could save by switching to a range of electric models.

02 Government should – working with industry experts – expand and promote information on the realities of electric vehicle costs, charging and infrastructure via GOV.UK. Ministers and manufacturers should take an active role in publicly challenging misinformation in hostile media reporting.

INDICATOR 2



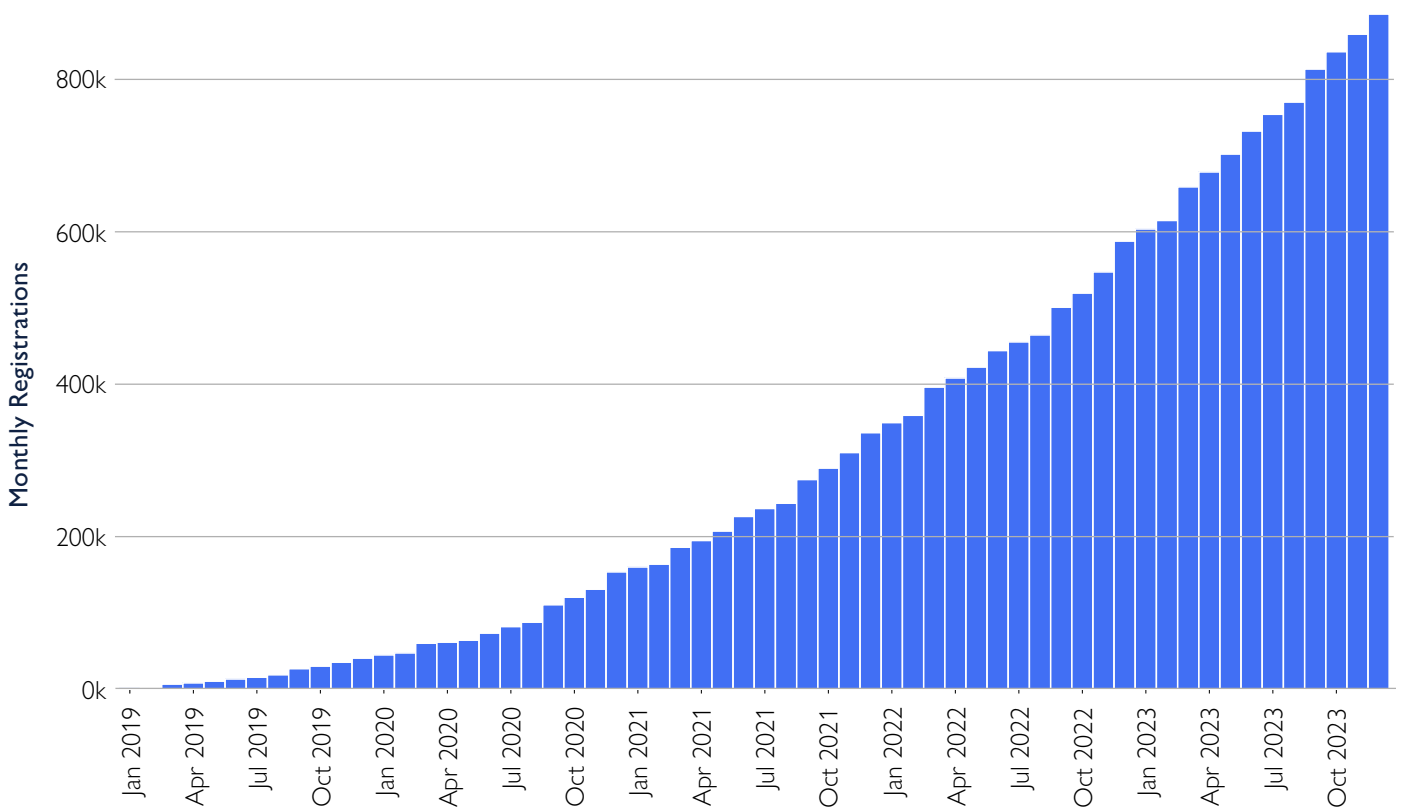
BEVS ON
UK ROADS
& MILES
TRAVELLED

STATE OF THE SWITCH 2024

BEVs on the road

The total number of BEVs on the road at the end of 2023 just missed the 1 million mark. This milestone came just into 2024, meaning BEVs now account for approximately 3% of the total car parc in the UK. This highlights that although a record number of motorists switched to electrified transport over the year, there is a high mountain to climb before this starts to drastically affect the car parc’s overall makeup.

Figure 7: Cumulative EV registrations over time



Miles travelled: The New AutoMotive Index

Measuring the number of BEVs on UK roads only tells us part of the story, as it is not the number of vehicles, but the miles driven by them that saves consumers money and displaces the consumption of fossil fuels.

NEW
AUTOMOTIVE INDEX

2023

25 : 1
ICE MILES⁶ : EV MILES

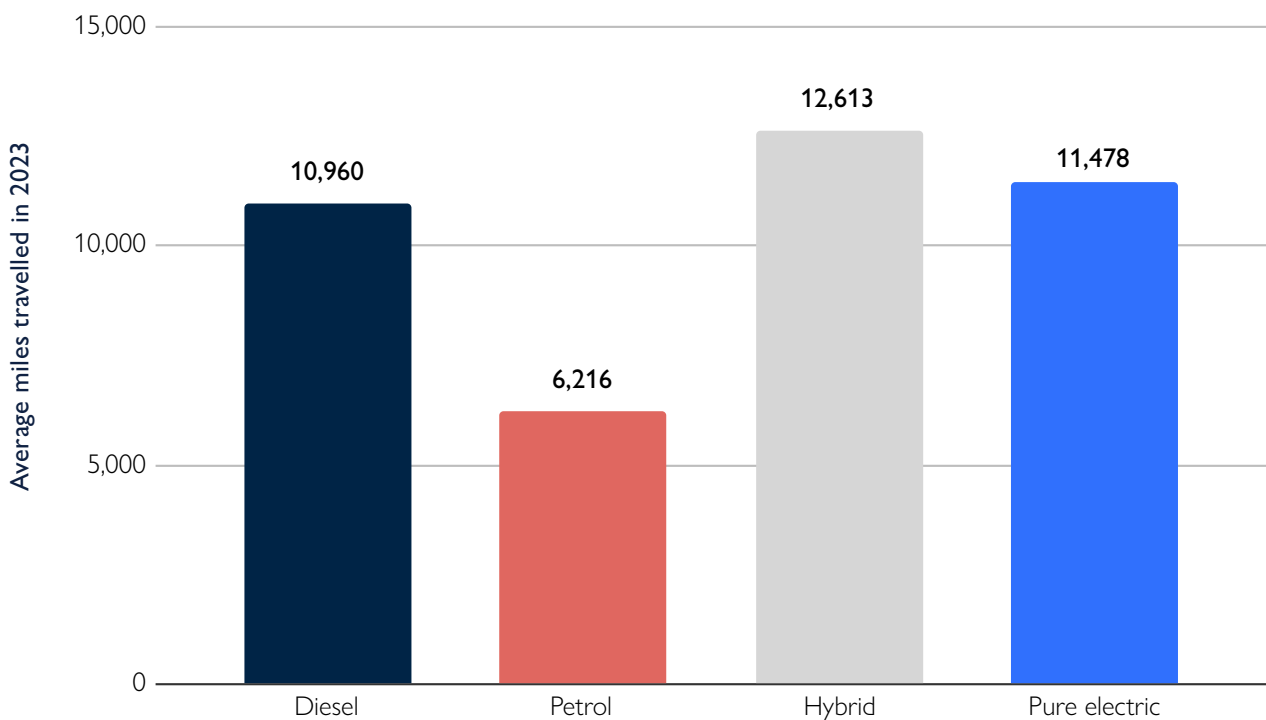
One way to monitor how quickly the new registrations are displacing ICE miles is to look at the ratio of petrol and diesel miles to EV miles which are being driven in the UK's car parc. In 2023, for every 25 ICE miles, one BEV mile is driven. This ratio is determined by two factors, the number of BEVs which are coming onto the market, and crucially how many miles those vehicles are driving. Figure 8 shows the average mileage of vehicles on UK roads, broken down by fuel type. It is hybrids and BEVs which are being driven the most in the UK. Petrol vehicles, on average, are driving half the number of miles travelled by a hybrid vehicle. Most surprisingly, diesel vehicles, once known for their popularity with high mileage drivers, come in behind BEVs.

⁶Hybrid mileage is included within ICE miles, there is no way to ascertain how many hybrid miles are electric or fossil fuel powered. Therefore this ratio will be slightly higher than the true value.

There may be a number of reasons why BEVs are being driven more than diesel and petrol vehicles. A key reason is likely to be that high mileage drivers are being attracted by the potential savings which BEVs give. However, another contributor may be that the savings from switching to a BEV stimulate some “mile inflation”, where motorists do not have to think as carefully about how much fuel they use. More research is needed to ascertain whether this may be a factor.

However, it is clear that BEVs are not simply being used as second vehicle ‘run arounds’ but as vehicles which are able to support motorists doing a larger number of miles. BEVs are already having an impact on the overall car parc and the miles travelled - the government needs to redouble its commitment to speeding this up.

Figure 8: Average miles travelled by fuel type in 2023



Predictions for 2024

We have used a range of scenarios to estimate the number of battery electric vehicles on the road at the end of 2024.

In the high estimate scenario, where all firms meet their ZEV mandate target without the use of surplus allowances from the CO₂ scheme for non zero-emissions vehicles, we forecast that there will be 1.296 million vehicles. In the middle estimate, where firms meet their ZEV mandate target through using allowances from the CO₂ scheme, we forecast that there will be 1.239 million vehicles. Finally in the lowest growth scenario, where we assume that there is no growth in market share of EVs on 2023 levels, we forecast that there will be 1.203 million vehicles. **In summary, our prediction is for there to be 1.2-1.3m electric vehicles to be on the road by the end of 2024.**

Expressing this in miles travelled, we predict that the ratio of miles travelled by ICE cars to those by battery electric cars will continue to fall from 25:1 in 2023 to between 20:1 and 21:1 with a central estimate of 20.8:1.

There are further policy measures which Government could adopt to drive a steeper reduction in the ratio of ICE miles to BEV miles. Whilst those going electric tend to have higher than average annual mileage, there are many high mileage drivers who are missing out on the financial benefits which switching can bring. New AutoMotive's report *Switch first, save fast*, assessed the characteristics and distribution of high mileage drivers and brought forward proposals to help them switch.

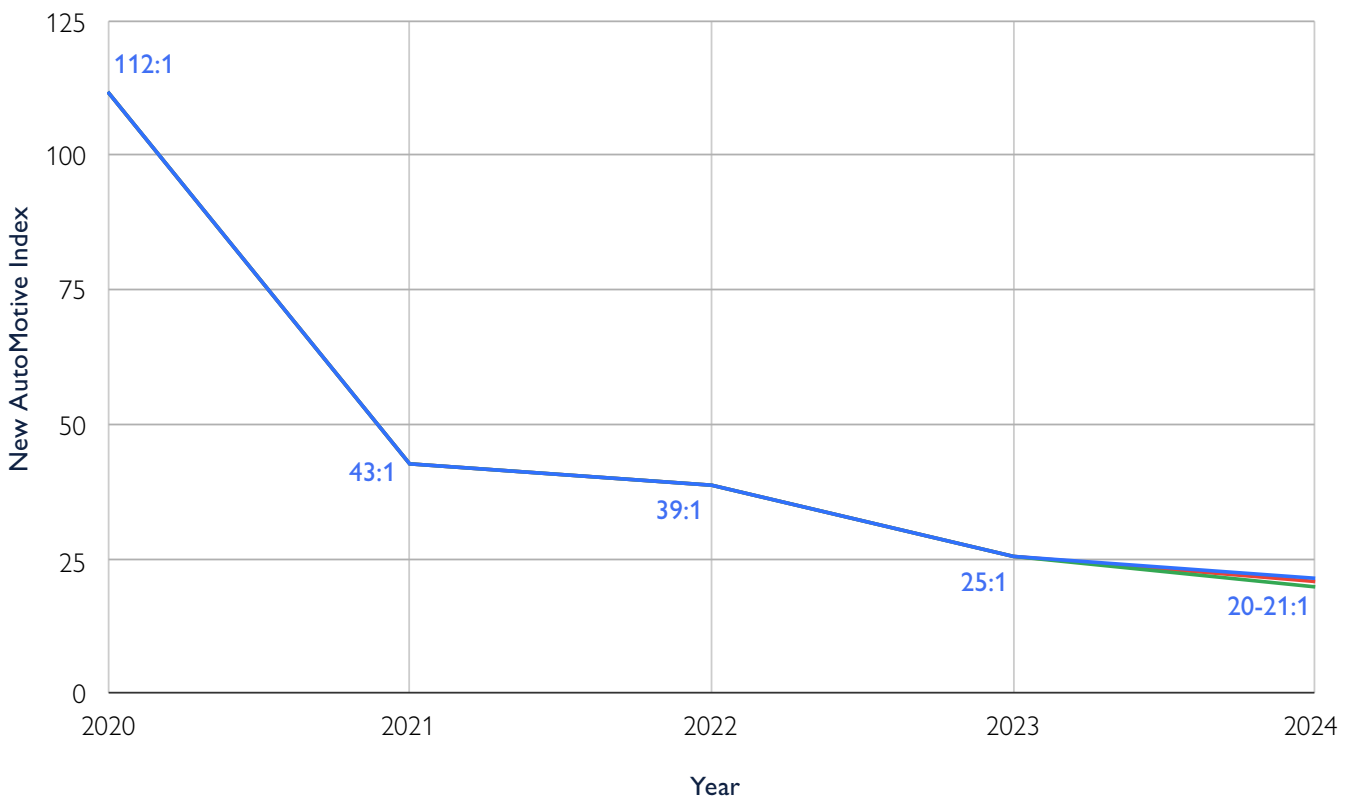
Recommendation

03 Government should identify low or zero cost measures to specifically encourage higher mileage drivers to switch to battery electric vehicles.

This could include changes to the system of ZEV mandate credits to give more credits to sales to high mileage drivers who trade in their old ICE vehicle, and using the bulk buying power of Government to deliver “social leasing” for lower earners in a way which is cost-neutral for taxpayers. Other policy measures, such as low or zero-interest loans, vouchers and rebates, could be developed with maximum earnings criteria to ensure that support is targeted at drivers who could not otherwise afford to switch.

Figure 9: New AutoMotive Index

The ratio of ICE miles to EV miles - over time





INDICATOR 3



EV PRICE
PARITY

STATE OF THE SWITCH 2024

EV Price Parity

It is widely believed that once price parity is achieved between BEVs and their ICE counterparts the largest obstacle to take-up will be removed and BEVs will spike in popularity due to their lower running and maintenance costs⁷.

A number of factors contribute to the timing of price parity, battery prices and economies of scale chief amongst them. Battery prices over the last decade have plummeted and continue to decrease and manufacturers have been shoring up their supply chains to rapidly ramp up production of BEVs. Price parity has also largely been achieved in the EV leasing sphere, allowing motorists to access the savings from switching right from the start⁸. There is also increasing evidence to show that second hand electric cars are reaching price parity as well⁹, following significant falls in prices through 2023.

Despite new BEVs still having a higher sticker price than comparable ICE vehicles, BEVs continue to save motorists running and maintenance costs, making their total cost of ownership lower. Both fuel and electricity prices spiked in 2022 making both running an ICE or an EV more expensive: however in 2023 the prices of both have fallen back. Electric power continues to be the significantly cheaper option when charging domestically.

New AutoMotive analysis based on January 2024 consumer electricity, fuel pump and public charge point costs suggests that an EV charged on a standard tariff was approximately 30% cheaper than running a diesel vehicle, and 36% cheaper per mile than a petrol vehicle. However, this saving balloons to 78-80% cheaper per mile if the EV is charged on an overnight/ EV-specific tariff.

There is a much more mixed picture for the price motorists pay to use the public network of chargers - the numerous companies which offer public charge points use a range of pricing models and are subject to VAT of 20%, compared with 5% for home charging. This can lead to uncertainty surrounding how much it costs to charge on long journeys or for those relying on the network - and effectively eliminates the savings that can be made by the 20% of the public¹⁰ who do not have access to off-street charging.

⁷ See for instance, Fair Charge. [Driving away from fossil fuels](#), July 2022.

⁸ LeasePlan, car cost index

⁹ Auto Trader. [The road to 2035](#).

¹⁰ FairCharge. [Driving away from fossil fuels: consumer attitudes to electric vehicles](#).

Predictions for 2024

We predict that the costs of second hand electric vehicles are likely to remain extremely competitive in 2024 - new ICE vehicle sales in 2021 were barely improved on 2020 figures, which means a relatively small number of 3 year old ICE vehicles will be coming out of company fleets and personal contract purchase arrangements and into the second hand market, whilst a comparatively high number of second hand EVs will become available.

We also anticipate that more low cost new EVs will come to market - Citroen (owned by Stellantis) will launch the eC3 at approximately £21K in 2024, whilst Dacia (owned by Renault) are set to launch a £17K EV. Meanwhile Renault themselves are expected to launch a revamped electric Renault 5 at less than £25K in early 2025 - all at lower cost than the current cheapest vehicle, the Chinese-made £26,140 BYD Dolphin. Whilst the market share of Chinese manufacturers may increase, they account for no more than 15% of sales in the first two months of 2024.

A 14.5% cut in the unit cost of electricity will take effect under the Ofgem-set price cap from April onwards. Cornwall Insight¹¹ have predicted a further 15% drop in unit prices in Q3. A forecast partial bounceback in Q4 will still leave the cost of charging down 22% down on Q1 levels. Most forecasts for international oil prices¹² (which determine the price at the pump, not the volumes in the UK's offshore waters) see prices as largely unchanged through 2024, although clearly subject to steep rises in the event of a geopolitical flashpoint in the Middle East or elsewhere.

We therefore predict that the price of home charging will fall, potentially by up to 22% by year end, whilst petrol and diesel prices will stay largely unchanged at the pump. All of the biggest six electricity suppliers now also offer an EV tariff¹³, providing off-peak or all-day low-cost EV charging, providing the opportunity for those with domestic charging to save further.

¹¹ Cornwall Insight. [Predictions and Insights into the Default Tariff Cap.](#)

¹² See for example Euronews.business. [Oil price forecast for 2024: What's in store for global crude?](#)

¹³ Money Saving Expert. [Electric vehicle energy tariffs.](#)

However, Government and regulators are missing the opportunity to incentivise switching further in the way that they levy “policy costs”, the fees used to cover schemes to support energy efficiency improvements in homes and businesses, help vulnerable people and encourage take-up of renewable technology. From April, a typical consumer will be paying £142 towards these schemes from their electricity bill, and only £46 from their gas bill¹⁴. Moving more of these costs from electricity to gas will help to lower the unit price of electricity. Not only will that encourage consumers to switch to EVs by making the cost of charging cheaper - it will also encourage consumers to switch to low carbon heat such as heat pumps, and offer greater benefits from the very energy efficiency improvements that the fees help to fund.

Government has been talking about taking action on rebalancing policy costs since the net zero strategy in October 2021¹⁵. But it has yet to even launch a call for evidence on the topic, promised that same year, and is now only talking about “making significant progress by the end of 2024.”¹⁶

The situation is worse for those without access to domestic charging or the use of apps which allow consumers to “borrow” others’ drives, such as Just Park or Co-Charger. Harmonising the VAT rate of public charging with that paid by domestic users is necessary to ensure that the average public charger is cost-competitive with refuelling by petrol or diesel.

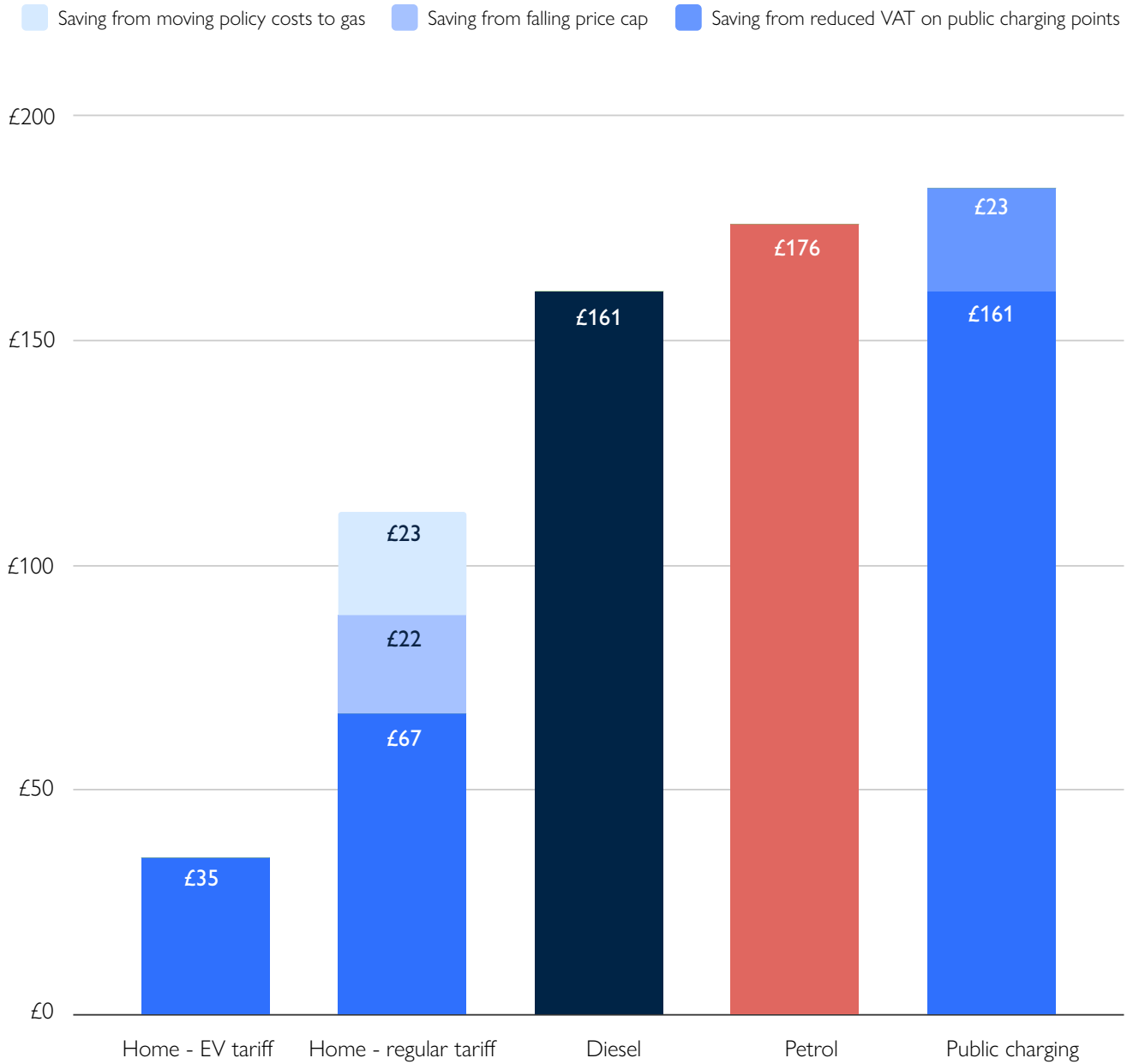
Whilst charge points operators need to earn back significant up front investments there is as yet little sign of costs coming down through competition or falling electricity costs. Without both Government action on VAT and close regulator oversight on public charge point operator costs, the financial benefits of switching to an EV are likely to remain largely shut off from those without access to off-street charging.

¹⁴ Ofgem. *Final levelised cap rates model, April-June 2024 - consumption adjusted levels*.

¹⁵ BEIS. *Net zero strategy: build back greener*.

¹⁶ HM Government. *Responding to the Independent Review of Net Zero's Recommendations*

Figure 10: Current costs of charging or refuelling, and the potential for reductions in charging costs / £ per 1000 miles travelled¹⁷



¹⁷ Public charging rates uses February 2024 average of BP, Ubitricity, Charge Place Scotland and Podpoint

Recommendations

- 04 Government should lower VAT on public charge points to 5%, equalising the rate of taxation with charging at home.
- 05 Government and regulators should work together to ensure public charge point operators pass on the saving from the VAT reduction, and closely monitor public charge point pricing to ensure that it remains fair.
- 06 Government should also accelerate progress on transferring the policy costs from consumer electricity bills to gas bills, to lower the cost of domestic charging

INDICATOR 4

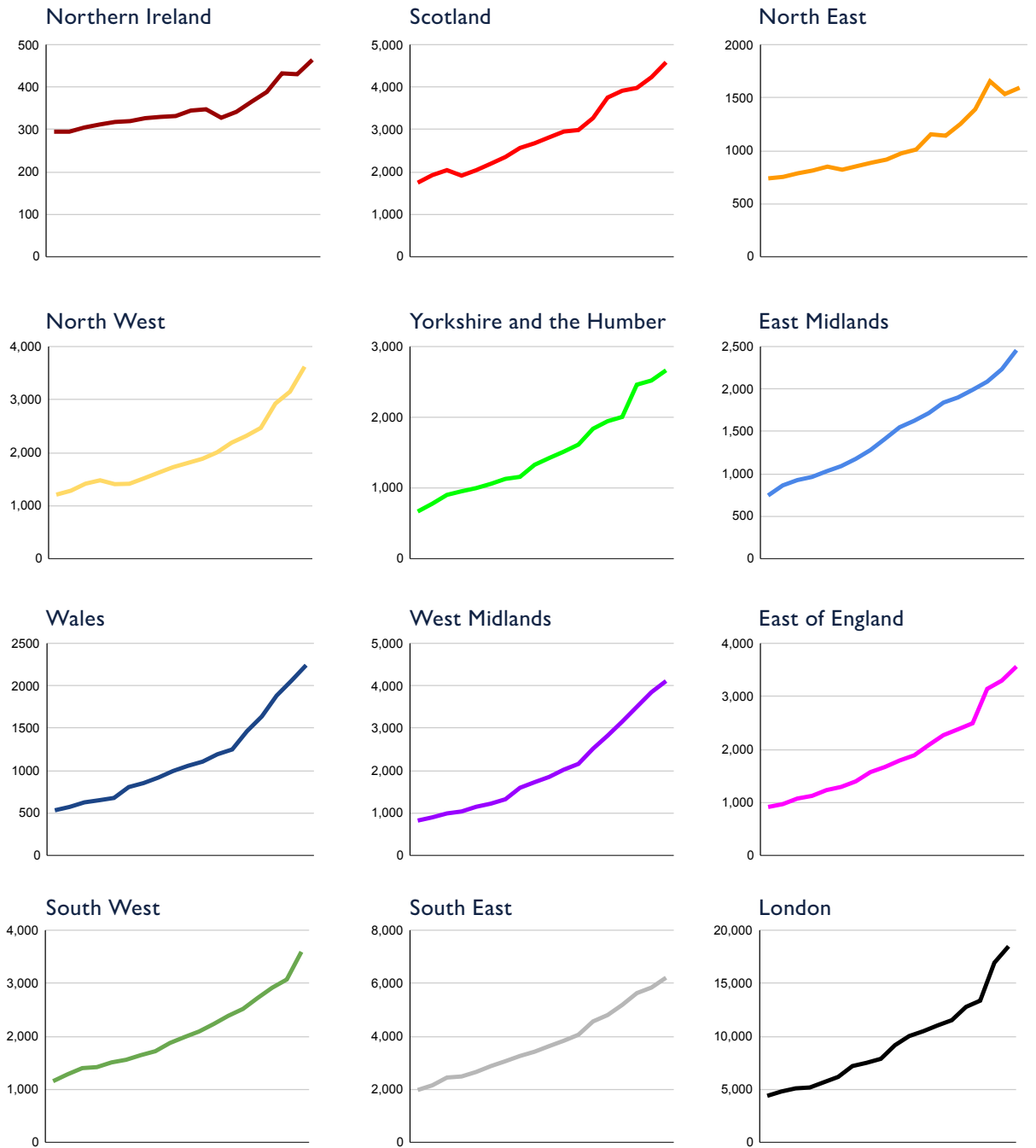


EV CHARGING NETWORK

STATE OF THE SWITCH 2024

EV Charging Network

Figure 11: Charge point numbers by region 2019-2024



According to DfT statistics, supplied by ZapMap, as of January 1st 2024 53,677 public electric vehicle charging devices had been installed in the UK, representing a growth of 45%. A total of 16,622 chargers were installed over the course of 2023, up from 8,680 installed the previous year. This significant increase in charger installations indicates that the infrastructure sector is ramping up as demand grows and the number of BEVs on UK roads increases. As figure 11 shows, every region in the UK has expanded its public network up to and including 2023 by considerable margins.

The perfect ratio?

The EU has stated that members should aim for around 10 BEVs for every publicly available charger – however this ratio does not tell us the whole story. For example, if we were to take this ratio to ascertain which countries were succeeding in the transition we would view Norway, whose charger to EV ratio is 30:1, as a country failing to keep up, when we know that they are the country expected to reach 100% BEV sales first. However Norway has almost 1 domestic charger for every home, reflecting the high number of houses with off-street parking.

In contrast, the UK currently has approximately one public charger for every 19 BEVs on UK roads - however, these motorists are also supported by a private and semi-private network of well over 400,000 work and home chargers, meaning that the UK has almost 15 times as many chargers as fuel pumps¹⁸. As two-thirds of all households in the UK have driveways, the number of public chargers is only one part of the equation when looking at whether there is adequate charging infrastructure to support the transition. There is more than one way to transition.

¹⁸ As of May 2020, Experian reported that there were 33,948 fuel pumps in the UK.

Quoted in GOV.UK [Taking charge: the electric vehicle infrastructure strategy](#).

The types of chargers on UK roads vary significantly. 19% had a charging capability of 50kW or more. These rapid chargers are the most useful to those travelling long distances in a day, and are generally capable of charging a vehicle to 80% power in between 20 minutes to an hour. The slower chargers are more suitable for residential 'on-street' chargers which mainly cater to those without off-street charging facilities, such as those living in housing without a driveway, or multi-occupancy buildings.

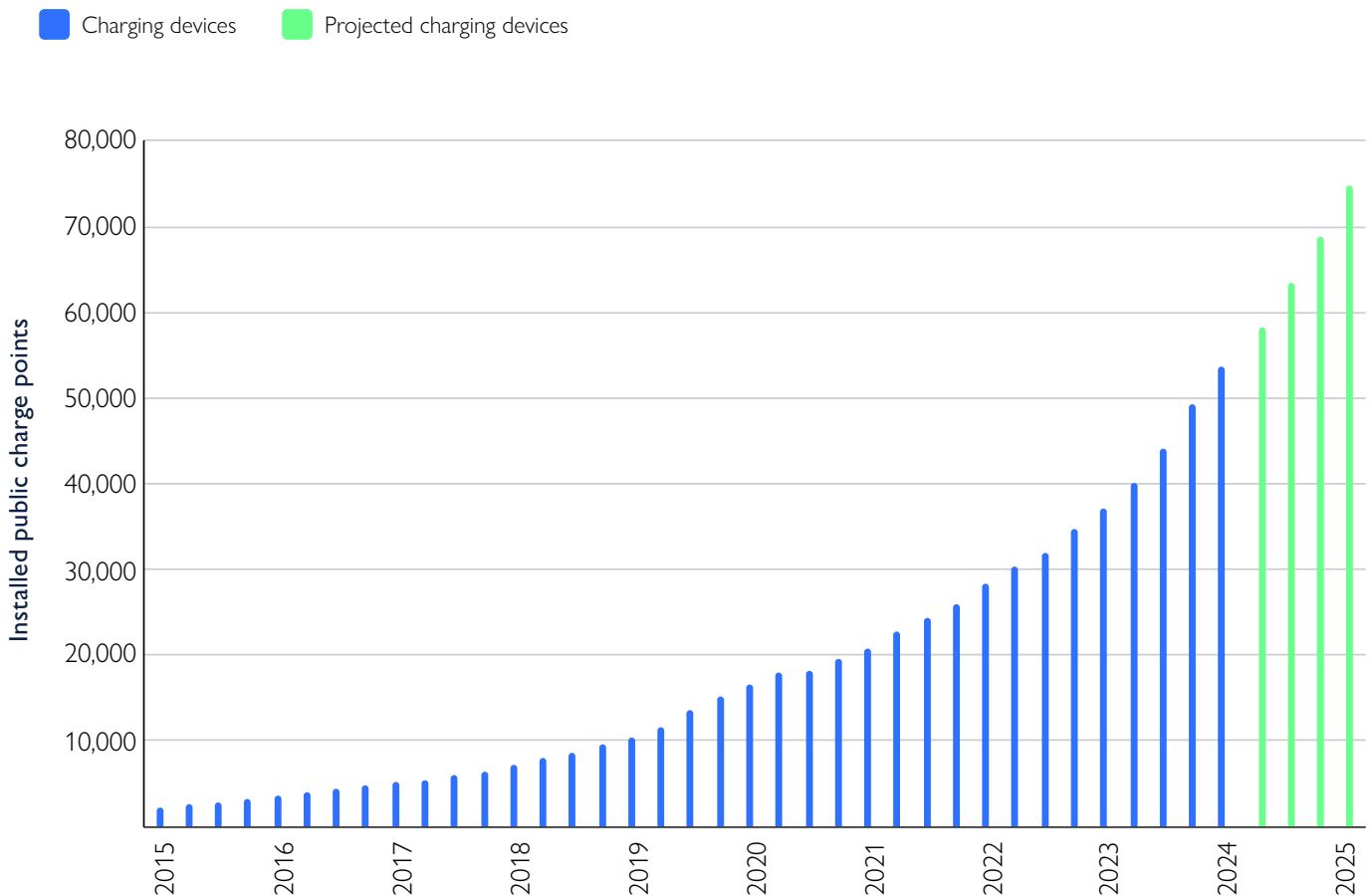
Looking at public charging devices per 100,000 of population we do see the London region far out in front with 210 devices per 100,000, significantly higher than second-placed, Scotland, at 84. However, when looking at rapid chargers only, London falls to the second lowest region at 11.9 per 100,000, compared to the leader Scotland at 21.1. Reflecting the concentration of housing without off street parking in London, the numbers are higher for slower chargers than the rest of the country, but lower for the rapid chargers that are more necessary for long distance journeys. This is a positive indication that the market is naturally shaping itself based on the type of demand.

Predictions for 2024

Some have expressed concerns that because the number of charge points currently stands at just under 54,000, and 16,600 have been installed in the year to January 2024, the UK is off course from its ambition of having 300,000 public charge points by 2030.

However, it is clear that the pace of installation is accelerating. Assuming the long term trend rate is maintained, **we predict that there will be 70,000 to 75,000 public charge points** in place by the end of January 2025. And if the continued growth rate is maintained the UK will comfortably reach the 2030 target, potentially even doing so by mid-2029.

Figure 12: Public charge points over time to end of 2024



Nevertheless the installation and operation of public charge points is wholly dependent on private sector operators, so maintaining momentum is dependent on avoiding further rollbacks in policy, and continuing public confidence in electric vehicles, sustained by Government and industry working together to dispel myths and misunderstandings (see Indicator 1).

As long as these conditions are met, we predict that concerns about charge point availability will ease during 2024 as the rollout of charge points keeps pace with electric vehicle sales.

However charge points do need to be in the right place. A few local authorities are obviously lagging in the rollout of public charge points - the table below uses the latest available Department for Transport statistics to show the 10 councils with the fewest public charge points per privately-kept battery electric vehicles (for which the location of the vehicle is known, unlike company-kept vehicles). Each council has a density of charge points which is less than 20% of the national average.

Local Authority	Privately kept BEVs	Public charge point	Privately kept BEVs per charge point
Castle Point, Essex	377	3	125.7
Isle of Wight	6,007	99	60.7
Fareham, Hampshire	887	22	40.3
Epsom and Ewell, Surrey	728	19	38.3
Fenland, Cambridgeshire	404	11	36.7
Reigate and Banstead, Surrey	1,399	39	35.9
Staffordshire Moorlands	488	14	34.9
Melton, Leicestershire	370	11	33.6
Ards and North Down, County Down	739	22	33.6
Rother, East Sussex	661	20	33.1
UK-wide total	360,482	53,677	6.7

The rollout of charge points at motorway service areas remains well behind schedule, exacerbated by limited grid capacity, delays to the launch of the Rapid Charging Fund, and a continuing monopoly agreement between one charge point operator and three of the largest service station operators, which is set to remain in place until November 2026, to the detriment of consumers and provision of new capacity¹⁹. Whilst Government set a target of 6 ultra-rapid charge points by the end of 2023, only 49% of such sites now have this number²⁰, whilst 3 have none at all²¹. However there is now an average of 5 ultra-rapid charge points across all service areas, suggesting that a minority of sites are now well-served.

Recommendations

07 Government should take “backstop” powers to issue directions to lagging local authorities which are not providing sufficient public charge points.

08 Government should set a new deadline for an increased target in the number of ultra-rapid charge points at motorway service areas. Government should bring forward primary powers to statutorily override exclusivity arrangements obtained by some charge point operators, to allow other firms to develop public charge points at service areas, and stimulate price competition.

¹⁹ Competition and Markets Authority. [Investigation into the supply of electric vehicle chargepoints on or near motorways](#). The CMA expressed continued concern on charge point operator behaviour at the end of last year ([CMA open letter to electric vehicle chargepoint operators and motorway service area site operators](#)), highlighting concerns that some charge point operator behaviour could “result in a small number of CPOs controlling access to electricity grid capacity ... which could limit competition from new entrants and lead to one or a few incumbent chargepoint operators at motorway service area sites. ... [which] could breach competition law.”

²⁰ [Response to Written question from Lord Birt by Lord Davies of Gower, UIN HL2356](#).

²¹ [Response to Written question from Lord Birt by Lord Davies of Gower, UIN HL2317](#).



INDICATOR 5 

POLICY
TRENDS

STATE OF THE SWITCH 2024

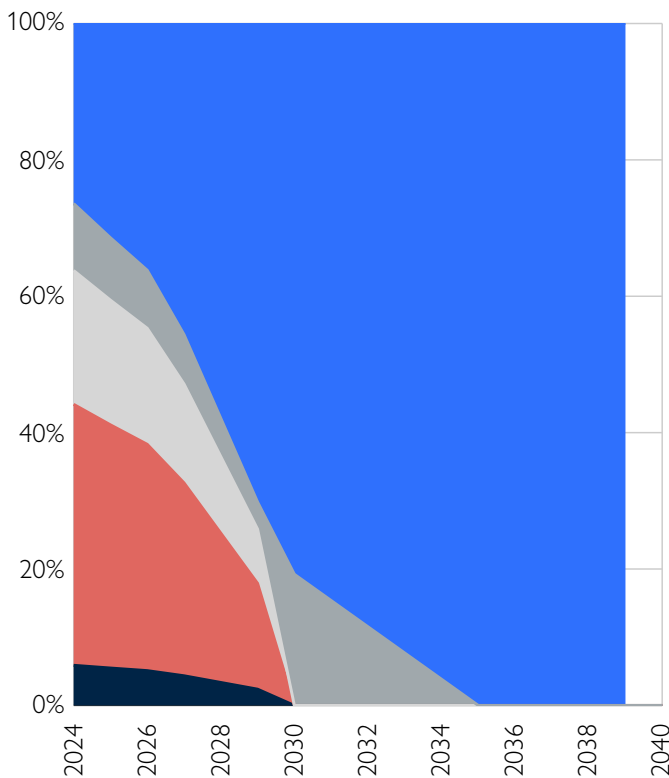
Policy Trends

2023 was a pivotal year for policies in this area with the flagship ZEV mandate being enacted, as well as consumer protection for the public charging network. Despite these landmark policies, an inescapable headline from last year was the announcement in September that the planned petrol and diesel phase-out in 2030 would be pushed back by five years to 2035. The UK was one of the only countries that was having a ‘staged’ phase-out - however this policy change means that all ICE vehicles, including plug-in hybrids, will now be phased-out at the same time. This now puts it in line with the EU’s phase-out date and the COP26 pledge. Any further delays to the transition would be detrimental to the UK’s ability to reach net zero by 2050.

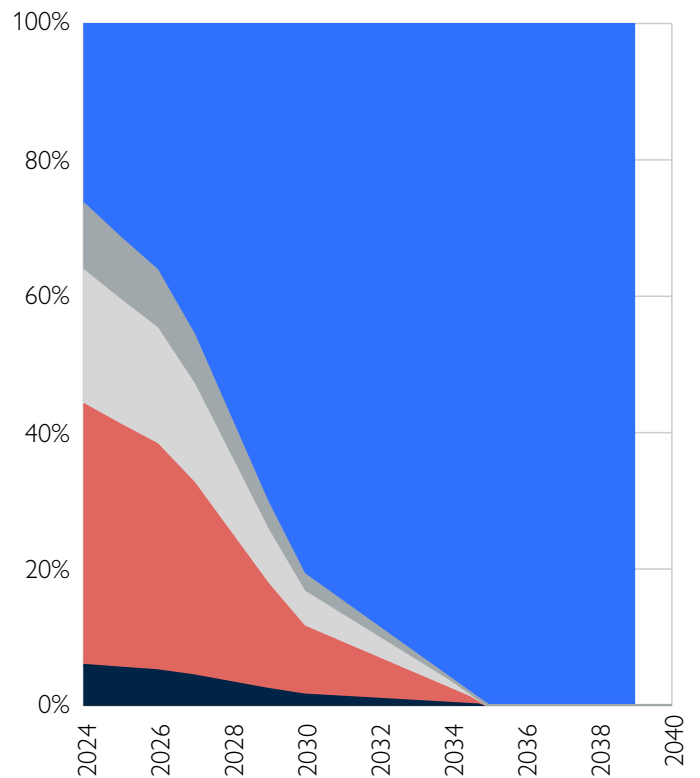
Figure 13: Car sales under a 2030 and a 2035 switchover to all electric

■ Electric
 ■ Plug-in hybrid
 ■ Hybrid
 ■ Petrol
 ■ Petrol

13a: Original 2030 proposals



13b: Revised 2035 switchover following the PM’s announcement



This step back in policy is disappointing and sends a mixed message to both industry and motorists about the government's commitment to the transition.

However, the effects of this push back were greatly dampened by the announcement later in the same month that the government was still implementing the ZEV mandate with a planned start date of January 2024 and unchanged targets. This meant that although petrol and diesel vehicles will still be sold, 80% of all sales must be ZEVs by 2030. This means 20% of the market will be made up of hybrid, petrol and diesel vehicles (see Figure 13).

This helps to mitigate the damage that delaying the transition has had. Nevertheless New AutoMotive has estimated that the delay will cost consumers £6.5-10bn in additional refuelling costs, and increase UK demand for oil by an amount equivalent to all the additional supply which would be extracted from the North Sea under new licences and refined and consumed in the UK between now and 2050. It will also result in an extra 35 million tonnes of CO₂ being released. Although this is avoidable, without the ZEV mandate, that figure would likely be much higher.

The final major policy relating to BEVs in the past year were the welcome public charge point regulations made in November 2023. These set out a timetable for a number of measures which seek to improve the consumer's experience of using the public charging network. The regulations already require charge point operators to offer full price transparency. From November of 2024 operators will additionally be required to provide open data on charge points including on availability, reach 99% reliability on chargers above 50kW, offer contactless payments on new public chargers above 8kW and existing chargers above 50kW and provide a 24/7 helpline. Finally, from November 2025, consumers may opt for "payment roaming" to pay for all charging through a single app, although the regulations are widely seen as not fully delivering this.



SUMMARY OF
RECOMMENDATIONS

STATE OF THE SWITCH 2024

Summary of recommendations

01

Launch an online calculator at GOV.UK to help consumers compare the current real-world costs of running their petrol and diesel vehicles, and how much they could save by switching to a range of electric models.

02

Working with industry experts, expand and promote information on the realities of electric vehicle costs, charging and infrastructure via GOV.UK. Ministers and manufacturers should take an active role in publicly challenging misinformation in hostile media reporting.

03

Identify low or zero cost measures to specifically encourage higher mileage drivers to switch to battery electric vehicles.

04

Lower VAT on public charge points to 5%, equalising the rate of taxation with charging at home.

05

Working with regulators, ensure public charge point operators pass on the saving from the VAT reduction in recommendation 4, and closely monitor public charge point pricing to ensure that it remains fair.

06

Accelerate progress on transferring “policy costs” from consumer electricity bills to gas bills, to lower the cost of domestic charging.

07

Take “backstop” powers to issue directions to lagging local authorities which are not providing sufficient public charge points.

08

Set a new deadline for an increased target in the number of ultra-rapid charge points at motorway service areas. Bring forward primary powers to statutorily override exclusivity arrangements obtained by some charge point operators, to allow other firms to develop public charge points at service areas, and stimulate price competition.

Contact

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