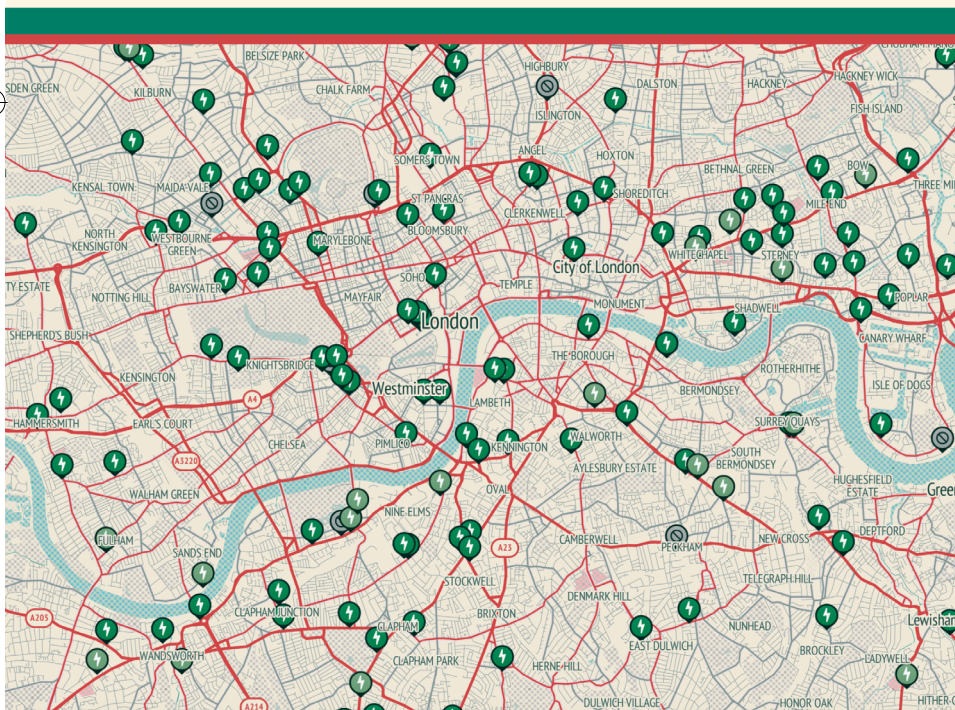




THE ROAD TO ELECTRIC

AZEV



In collaboration with



Executive summary

The United Kingdom's Zero Emission Vehicle (ZEV) mandate has established a critical framework for the nation's transition to electric vehicles, driving economic, industrial, and environmental progress. Rooted in the principles of economic realism, where stable, long-term policy creates the certainty required for private sector investment, the mandate has proven essential in aligning market forces with climate goals.

Originally inspired by historical lessons from California's early emissions rules, the ZEV mandate ensures that manufacturers face clear, annual, and legally binding targets for zero-emission vehicle sales. This regulatory predictability has transformed decarbonisation from a consumer-led whim into a strategic investment signal, enabling manufacturers to commit billions of pounds to multi-year projects. By fostering competition and allowing for tradeable allowances, the mandate achieves least-cost decarbonisation, leveraging the profit motive to lower vehicle prices and accelerate technology adoption.

Economic growth

The mandate has anchored over **£41 billion** in private sector investment since 2020. It has turned the UK into a premier global hub for transport electrification, securing high-skilled manufacturing jobs, such as those at Stellantis' Ellesmere Port, and fostering a thriving domestic battery supply chain worth over **£8.5 billion**.

Consumer benefits

By increasing the volume of electric vehicles, the mandate helps drive down costs, offering households relief from high transport expenses. As EV prices remain competitive with petrol and diesel counterparts, **more drivers can access the long-term savings associated with electric motoring**.

Infrastructure expansion

The mandate provided the confidence required for the charging industry to scale rapidly, with the **public network doubling to over 120,000 chargers** in just a few years. Driven by the mandate's certainty, the industry has publicly committed **£6 billion in investment by 2030**. Over the next decade, the charging sector is forecast to attract **£30 billion in private investment and support 35,700 skilled jobs**, ultimately underpinning a wider EV economy worth **£385 billion** by 2035.

Energy security:

Transitioning away from imported oil is a matter of national resilience. With **58% of UK oil consumption dedicated to transport**, the ZEV mandate shields the economy from the volatility of global fossil fuel prices and geopolitical shocks, which significantly disrupt costs for UK businesses and households.

In the face of an increasingly competitive global market, the UK's commitment to the ZEV mandate is a strategic necessity. While other economies have wavered, risking stalled investment and lost industrial competitiveness, the UK's steadfast, evidence-based approach ensures that the nation remains at the forefront of automotive innovation.

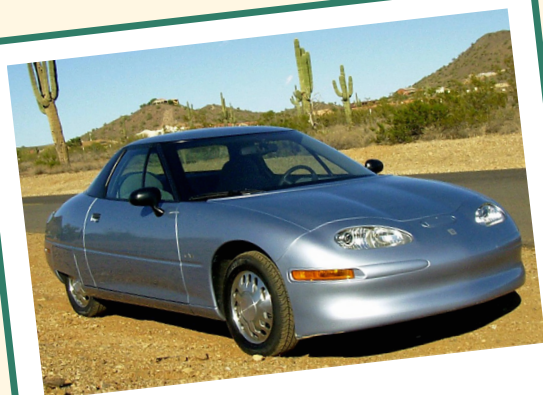
By staying the course, the UK not only safeguards its automotive heritage but also secures a resilient, high-growth, and competitive economy for the future.

CHAPTER 1

Background of ZEV mandate

New AutoMotive

The story of the UK's zero emissions vehicle (ZEV) mandate begins in a committee room in Sacramento, California in 1990. An obscure state body called the California Air Resources Board met and agreed rules telling the most powerful industry in America what sort of cars it had to build: by 1998, two per cent of them must have no tailpipe at all. This policy, and the car industry's reaction to it, set the mould for the policies and politics that have been at the heart of the transition to electric vehicles ever since.



1998

When California introduced those first EV targets, Detroit was furious. US carmakers spent six years lobbying the rule into oblivion. But one car

company, General Motors, did something different. While lobbyists from General Motors went to California to explain that building an electric car was physically impossible, its engineers were busy proving them wrong.

The car they invented, the EV1, went into production in 1996 with cleaner aerodynamics and a lighter chassis than most cars today, nought-to-sixty in eight seconds, 140 miles of range. Sadly the success of GM's engineers was matched by its government affairs team, the rule was junked and GM recalled every EV1, crushed them in the Arizona desert, and went back to selling V8s. Thirty-odd years later, swap California for Britain and CARB rules for the ZEV mandate, and you will hear very nearly the same industry making very nearly the same arguments. Too expensive, consumers don't want them, give us more time – yet the technology today is unrecognisable from the one it once insisted couldn't exist, and the investment at stake is orders of magnitude greater. This chapter is about how Britain got its own Sacramento rule, why Parliament passed it unanimously, and how we compare with the rest of the world.

The origins of the UK's ZEV mandate

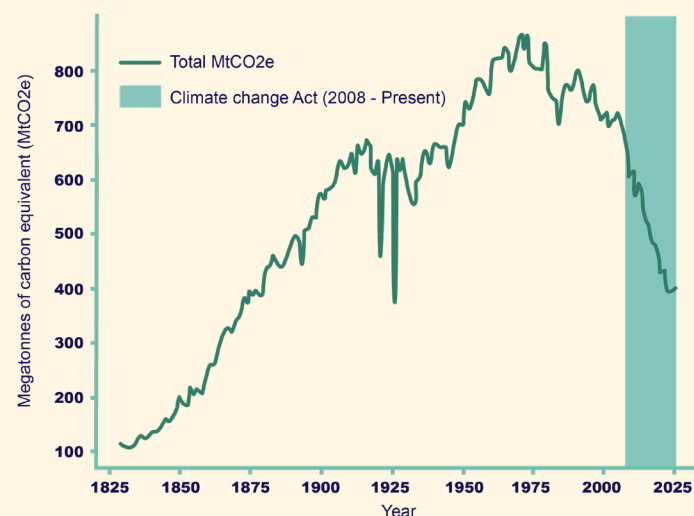
The UK's version of that 2% rule pioneered in Sacramento is the Zero Emissions Vehicle mandate. Its history dates from the mid-2000s. While GM was junking EV1s, the Government in London was passing its own pioneering climate legislation. Spurred on by growing scientific consensus, a campaign led by Radiohead singer Thom Yorke and 130,000 letters to MPs demanding legal targets, the Treasury commissioned former World Bank chief economist

Nicholas Stern to carry out a review of the economics of climate change, essentially asking him to find a way to cut carbon and keep costs under control. His conclusion was that there did not have to be a choice between protecting the environment and protecting the economy. With the right policy, both could be possible.

Stern found that climate change is the greatest market failure the world has ever seen. When the government introduced its Climate Change Bill. The legislation would do three things. First, it gave campaigners what they wanted: a long-term target, which has today become the UK's net zero target. It also established an independent body of experts in science, economics and public policy, the Committee on Climate Change, to review the government's progress, plans and report back to Parliament. Thirdly, it introduced a broad power for Ministers to actually combat climate change in the way that Stern advised was the most cost effective: introducing rules like the 2% rule of the 1990s.

UK Emissions Reductions

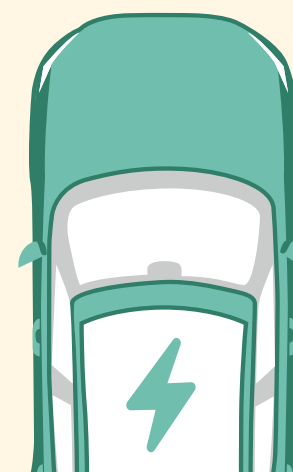
UK Carbon Emissions 1830 - 2025



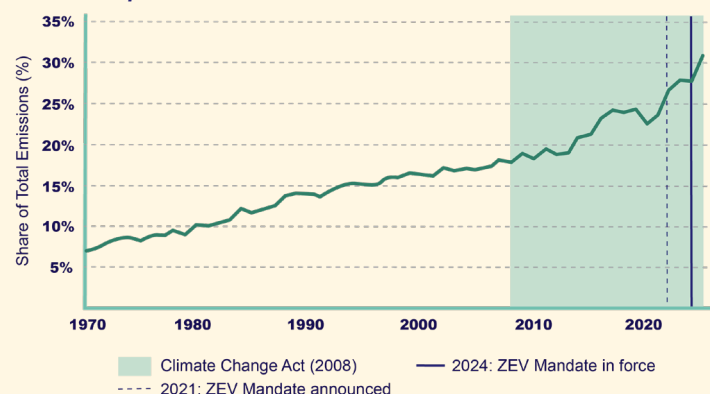
At the heart of the UK's approach to legislating on climate change was the idea that if politicians created the right conditions, the private sector would deliver net zero at the lowest possible cost. The conditions for this to happen, as identified by Stern, were:

- A long-term legally binding target,
- Medium-term (at least 12 years ahead) targets based on an evidence-based pathway,
- Independent oversight by a body, the Committee on Climate Change, that reports to Parliament,
- Effective policies that fix the underlying market failure that Stern identified, and
- Economic realism that planned, early intervention will help businesses and investors incorporate the targets into business plans and capital allocation.

For the automotive industry, the most valuable commodity is not steel or lithium, but certainty. Manufacturing a vehicle is a multi-year, multi-billion pound gamble. By embedding the ZEV mandate within the framework of carbon budgets, the UK provides a clear 'north star' for investment.



Road Transport's Share of Total UK Greenhouse Gas Emissions



When the Climate Change Act 2008 was passed, 17.8% of UK carbon emissions came from road transport. By the time the ZEV mandate was announced in October 2021, that figure had risen to 23.5% and today roughly a third of all the UK's carbon emissions come from road transport.

The Government therefore must enact policies to deal with transport emissions. And, as Stern tells us, the best approach is to implement a market-based mechanism, known as a ZEV mandate.

What is the ZEV mandate?

The Zero Emission Vehicle (ZEV) mandate is a market-based regulatory mechanism that requires car manufacturers to sell a rising proportion of electric vehicles each year. Rather than simply setting a distant end date for the sale of petrol and diesel cars, the mandate establishes annual, legally binding targets that dictate what percentage of a manufacturer's total sales must be zero-emission. This approach provides the automotive industry with long-term certainty, turning decarbonisation from a matter of consumer whim into a clear investment signal for multi-billion pound projects.

In practice, the mandate works by assigning tradeable allowances to manufacturers for every zero-emission vehicle they sell. If a company exceeds its percentage target, it can sell its surplus allowances to other manufacturers who have fallen short. This creates a flexible system where the industry as a whole meets national climate goals, but individual companies have the freedom to choose whether they want to lead the market through rapid innovation or pay to support the transition through the purchase of credits.

By using this trading system, the mandate aims to achieve least-cost decarbonisation across the entire economy. It follows the "economic realism" proposed by the Stern Review, which argues that market failures—like the hidden environmental costs of fossil fuels—are best fixed by policies that encourage private sector competition. Instead of the taxpayer picking up the entire bill for the transition, the mandate uses the profit motive to drive down technology costs and improve efficiency. This ensures that the necessary shift away from road transport emissions—which now account for roughly a third of the UK's total—happens as cheaply and effectively as possible.

International comparisons

The UK's ZEV mandate is not a legislative quirk or an isolated experiment; it is a fundamental component of a global regulatory landscape that is delivering action on climate change. The ZEV mandate keeps the UK aligned with Europe, preventing EV uptake from falling behind our peers. Whether through China's 'Dual Credit' system, California's ZEV mandate, or the European Union's emissions standards, the international community has reached a consensus

that the internal combustion engine is in the twilight of its years, and that carmakers must make the shift to making and selling zero emissions vehicles.

This shared regulatory DNA ensures that the automotive industry faces a consistent set of expectations. For manufacturers, the mandate provides the clear signal required to justify multi-billion pound investments in new technology. For the UK, it represents the practical delivery of the 'economic realism' first championed in the Stern Review. It fixes the historic market failure by using the profit motive to drive down costs for consumers.

As the story of EV1 demonstrated three decades ago, regulation can be a powerful catalyst for innovation - and the regulation in that case never even came into force. By using supplier obligations to map out the transition, the UK is doing much more than just addressing the third of UK carbon emissions that come from road transport. It is providing the guarantee required to unlock massive private capital. When manufacturers and infrastructure providers know the guaranteed trajectory of the market, they can confidently invest ahead of time. This regulatory mechanism is what builds new battery gigafactories, expands nationwide charging networks, and drives the economies of scale that will ultimately make electric driving cheaper for everyone. The ZEV mandate, therefore, is not merely an environmental safeguard; it is a foundational driver of industrial growth, setting the stage for the technological and economic transformation that will be detailed in chapters to follow.

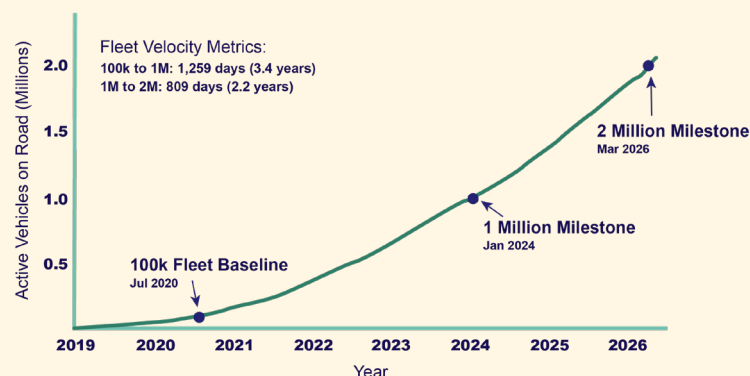
CHAPTER 2

The ZEV Mandate's Achievements

New AutoMotive

The transition to electric vehicles is rewriting the UK's economic playbook. Moving far beyond the exclusive preserve of wealthier suburbs, battery electric vehicles (BEVs) are rapidly becoming mainstream across all parts of the United Kingdom, playing a pivotal role in easing the cost of living for millions of households.

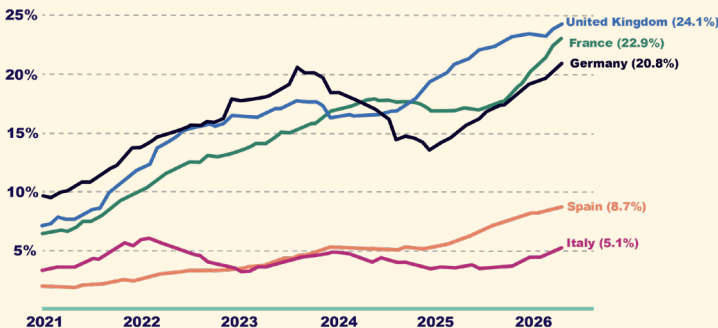
This widespread adoption is no accident. It has been driven by a deliberate policy framework—the Zero Emission Vehicle (ZEV) mandate—designed to minimise costs to taxpayers while unlocking billions of pounds in private sector investment. From putting money back into the pockets of working families to securing high-skilled manufacturing jobs, this chapter explores the profound impact the ZEV mandate is having on the UK economy.



In March 2025, the UK celebrated the millionth battery electric car being sold. It took three and a half years to get from 100,000 electric cars on the roads to 1 million, a milestone which was passed just at the moment the ZEV mandate came into force in January 2024. The time it took to pass 2 million electric cars was a third faster, at just over two years.

The acceleration in EV sales that took place under the ZEV mandate was no accident, nor was it a triumph of technology, it was a direct consequence of the introduction of the mandate. The ZEV mandate spurred the UK well ahead of other large European markets in terms of EV uptake. This has driven a variety of benefits for UK consumers.

Battery Electric Vehicle (BEV) Market Share



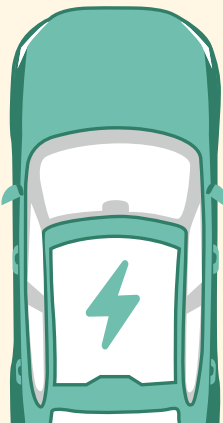
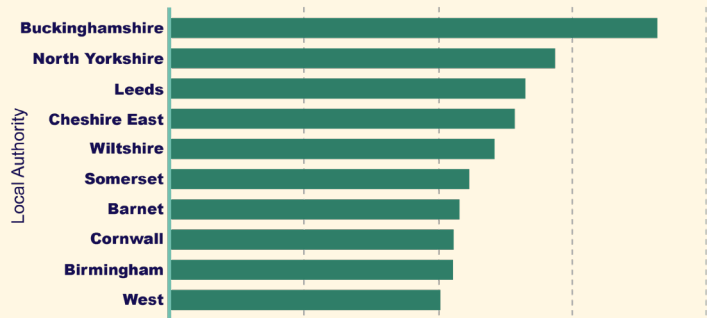
Savings for Households and Communities

More electric cars on the roads means more households saving money, but the benefits of this are broader and particularly important for the UK. The typical UK household spends £4,681 a year on transport costs - 14% of all spending¹. Switching to an EV can save a typical household in the order of £900 a year². The UK's high rate of EV uptake means more households will have access to these savings faster.

But electric cars have a broader benefit for communities in the UK. The small business owner - perhaps a highstreet cafe or restaurant - benefits when more people in the local area have more disposable income. UK motorists spend around £40bn a year on fuel costs - an expense which is significantly reduced by electric cars. This particularly benefits the UK, since 60-65% of GDP is based on consumer spending, compared with 52% in Germany and 54% in France.

The UK's 2 million electric cars are already helping boost disposable income across the UK. Our analysis of data on English EV uptake and usage data suggests that the benefits of the transition to electric vehicles are accruing to both urban and rural, and northern and southern areas of the country.

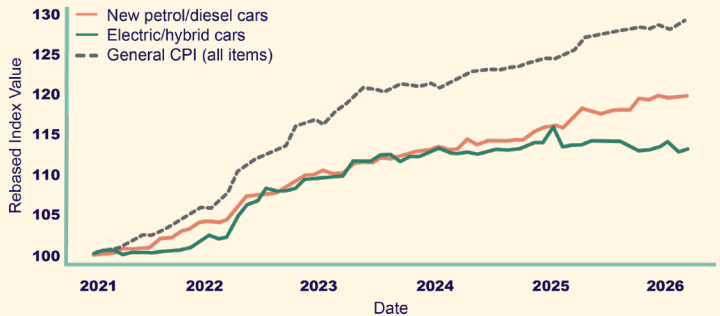
English Local Authority Areas Benefiting Most From EV Uptake



Bearing Down on the Cost of EVs

By creating a competition to sell the most electric cars, the ZEV mandate bears down on the cost of those cars. As the cost of raw materials and batteries fall, it is important that this translates into cheaper cars available in large volumes. The ONS collects monthly data on new car prices for petrol and diesel cars, and for electric and hybrid vehicles. Since the mandate's introduction, electric vehicle prices have remained suppressed relative to their petrol and diesel counterparts. The data suggests that electric cars are cheaper in both nominal and real terms in early 2026 than they were in early 2025.

Car Price Inflation vs. General Cost of Living
(Base Jan 2021 = 100)



Investment & Reindustrialisation

The ZEV mandate does more than just lower everyday driving costs; it acts as a massive catalyst for domestic industrial growth. The United Kingdom has quickly established itself as a premier global hub for transport electrification outside of China, anchoring vital manufacturing and supply chain operations on British soil.



EV Manufacturing Excellence

A jewel in the crown of British battery electric vehicle (BEV) manufacturing is Stellantis' Ellesmere Port, which following an initial £100 million investment now produces a number of Stellantis' electric offerings including the Vauxhall Combo Electric and Citroën ë-Berlingo. This switch to all electric production was described as a "visible demonstration that this Government has got the right plan for the UK's automotive sector"³ and would ensure that the UK would remain "at the forefront of automotive innovation" by the then Secretary of State for Business and Trade, Kemi

Badenoch. In March 2026 this initial investment was backed-up by a further £50 million to expand the range of offerings to the electric van market produced at the site⁴.

Securing the Battery Supply Chain

Thanks to its skilled labour force and the ZEV Mandate, a leading transition policy framework, the UK currently hosts 14 active battery supply chain projects, from mining to recycling, that contribute across five different parts of the battery supply chain⁵. Half of these projects are already in operation and the majority of the remainder are currently under construction and looking to be operational within the next two years. These projects represent an investment of over £8.5 billion to the UK economy.

The UK ranks sixth among European countries for number of active projects, highlighting the clear potential that the industry can see in investing in the UK for transition related projects, bringing both financial capital as well as significant numbers of new jobs across the country. These jobs are of paramount importance as they represent not only jobs of today, but also of the future and provide ample opportunity for a workforce that is seeing thousands of apprentices being trained in the key technologies behind electrification.

Growing Exports

From tractors to cars and motorised bicycles to vans the UK exported more than £1.5 billion worth of electric vehicles globally in 2025⁶. This figure comes before we even factor in the many parts used in BEVs that the UK also exports. With the

global lithium-ion battery market growing 20% year-on-year in 2025 to more than \$150 billion⁷ there is a rapidly growing market that the UK should aim to tap into.

The evidence makes one thing clear: the ZEV mandate is a decisive cornerstone of the UK's modern economic strategy. Since 2020, the mandate has successfully anchored more than £41 billion in pledged private sector investments. By simultaneously slashing household fuel bills , driving down retail vehicle prices through healthy market competition , and stimulating billions in high-tech manufacturing, the ZEV mandate is delivering on its objective. It is supporting the creation of a high-growth, competitive, and resilient British economy for decades to come.

CHAPTER 3

The View from the Driving Seat

EV UK

At the end of every business, every commercial model in the e-mobility sector is an end user. A driver.

Whatever the business - charging, fueling, selling or leasing electric vehicles - drivers are critical to your success. Not one component of the complex architecture of the e-mobility sector can stand up unsupported without cars. And, at least for the time being, those cars are driven by individual



drivers.

Law, policy and regulation don't always work in this way. The end user - the entity on whom the law is imposed - is not always a person. It could be a government body, a corporate organisation or an industry sector.

Many of the regulations and laws placed on corporations are designed for the benefit of society - us individuals as a collective whole, but for the most part they are not designed to be made visible or noticeable to us as individuals.

Most of us can function perfectly legally and go about our daily business without knowing the finer detail of, say, the Companies Act, or the Competition Act. Yet collectively, we as UK citizens feel the glow of their benefit. They shape markets, encourage competition and create safeguards, all largely without demanding our attention.

The ZEV mandate is much like this.

Day-to-day, as drivers, we don't need to be aware of its finer details because as individuals we're not required to comply with it. It does not determine where we drive, how we fuel our vehicles, or what cars we choose to buy, lease or drive. It's there, but it's companies - car manufacturers - who are the regulated party.

So if it doesn't affect how we go about our daily lives as motorists, and we're not being regulated, why does it loom so large in the public consciousness?

Why are we being led to believe it will affect the car we drive today? Why has it become part of a narrative that makes drivers feel beholden to electrification targets?

Like so much of what modern governments do, the

issue is one of communication.

There are countless ways government could communicate more clearly with citizens. The ZEV mandate is just one example. Better communication could significantly improve drivers' understanding of motoring policy and their relationship with it.

What on earth is it?

ZEV mandate is a convenient industry shorthand that is meaningful only to people who have the dubious honour of working in the finer details of e-mobility regulation.

To anyone else, a mandate is a requirement, a command. In a political sense, some people I speak to are struck by it having a faint whiff of American state politics - perhaps a call-back to the Californian roots of our UK ZEV mandate.

Over here in the UK we mostly hear about mandates at general elections, after which they promptly fade into nothingness and resurface 5 years later as we approach the next general election.

And a ZEV? Another spoonful of e-mobility alphabet soup, along with BEV, PHEV, ULEV, HEV and so on. A ZEV Mandate? Not known, not clear and far from understood.

Into that absence of understanding steps a steady diet of headlines suggesting that motorists, families and drivers will somehow be "hit" by the ZEV mandate, or by increases and decreases in its targets.

The result is confusion about what the policy actually is and, more importantly, who it applies to.



Who's it for?

Whatever your view of the ZEV mandate, the requirement sits with vehicle manufacturers. It is not a requirement for drivers to do anything whatsoever.

Today, the government's endless policy prevarication on the ZEV mandate at the behest of a minority of companies selling cars in the UK doesn't offer us drivers anything other than confusion.

There is little room for a more nuanced conversation about escalating targets, credit trading mechanisms, compliance flexibilities or technical trade-offs. To be fair, there probably shouldn't be. These are industry and regulatory matters with little direct bearing on what car most people will buy or lease next.

Uncertainty discourages consumer investment and leaves us drivers waiting for a better moment that may never arrive. The real enemy of commercial growth and success for a UK car company is not the ZEV mandate. It's lack of sales - drivers choosing the status quo and sticking with their car for another year - whatever the powertrain. And the most sure-fire way to guarantee uncertain consumer sentiment is if the government embodies it from the top with uncertain policy.

Meanwhile, all this discussion about the mandate itself occupies space that could be used to communicate the government's broader objective - they do actually have one.

The government's long-term ambition is for road transport to become fully electrified.

And critically, this ambition is tied to legally binding climate obligations that the government is required

to meet. Yet amid all the debate about weakening targets and adjusting compliance pathways, that overarching objective fades from view.

Why are we talking about it?

Reading the online coverage of the ZEV mandate, the average driver would be led to believe that ZEV mandate is a binary win lose, stop go, all or nothing impossible requirement.

It's anything but. The government has built in - and can build in more - flexibilities

As drivers - what's our win-lose? Clarity.

Some of the reason for this poor communications is affected parties - those selling cars - airing its regulatory disputes in front of its customers. It does not inspire confidence.

If some manufacturers struggle to meet obligations they have agreed with government, that is ultimately a discussion between those manufacturers and government. It's not an unprecedented dynamic and it's not a problem. It's also nothing to do with drivers, to be brought into the arguments which are not about their next car, but are about corporate-level compliance flexibilities targets and exemptions.

It's not good lobbying practice, negotiating on the pages of a newspaper. It's desperate, flailing lobbying and poor commercial practice. Why? Because drivers - those buying whatever cars OEMs are putting on sale - are confused. The manufacturers' enemy is not EV sales, it's no sales at all from a confused and disillusioned driving public.

The government needs to get back to basics - communicating the central ambition of fully

electrified transport.

The resale market is also important for drivers who buy new vehicles. A healthy used EV market supports stronger resale values because demand remains active. Buyers are more likely to invest in a vehicle when they believe it will hold value over time. Weakening the mandate introduces uncertainty into this process. If buyers fear slower adoption or reduced infrastructure investment, they may worry about future demand for electric vehicles.

For motorists, the ZEV mandate is not an abstract regulation. It is a framework that encourages manufacturers to compete harder, invest more, and deliver better value.

Protecting it means protecting a future where buying and running a car becomes more affordable, flexible, and convenient for all of us.

CHAPTER 4

Britain's EV Charging Revolution

ChargeUK

“If you build it, they will come” is the mantra the EV charging industry must follow. Unlike other sectors which can flex their flow of supply, a charge point operator has to commit capital to a fixed site and then wait for the customers to arrive. The ZEV

mandate is what assures that they will arrive –it is the framework providing operators with the confidence to invest well ahead of demand.

In 2023, the industry publicly committed £6 billion in investment in charging infrastructure by 2030. Since then, it has doubled the size of the public charging network to more than 120,000 chargers, with a new charger being installed approximately every thirty minutes.

That is the mandate working as intended. The confidence it provides to the charging sector has turned into real infrastructure – on forecourts, in car parks and along residential streets across the country, ready for local drivers to make the switch to EVs.

Building that network is complex and highly capital-intensive work. Before a charger is switched on, operators must find a site, secure agreements with landlords or the local authority, obtain a grid connection and work through the planning system. Charge points can take 1-2 years to deploy, and once built they are expected to operate for ten to twenty years. Operators go to that effort and expense to deploy charging infrastructure because they can see the demand the coming decade will bring, and the mandate is what gives that future market a clear shape.

Over the next decade the sector is forecast to generate £15.5 billion in direct economic value and to attract £30 billion of private investment, from early-stage capital through to the pension and infrastructure funds that finance long-life national assets. It is on course to support 35,700 skilled jobs by 2035, in roles spanning installation, manufacturing, software and network operation, at an average wage of £59,000 against a UK average of £48,500. The network is also the

keystone for a far larger prize: by underpinning electric vehicle manufacturing, retail, servicing and battery supply chains, it enables a wider EV economy several times its own size, worth £385 billion by 2035.

This scale of growth was not inevitable just ten years ago. Charging and vehicle uptake have always been locked together, with drivers reluctant to switch without a dependable network and operators unable to justify a network without confidence the drivers will follow. The mandate helped to break that deadlock by committing the country to the vehicles, which gave operators the confidence to invest and drivers the confidence to make the change. Battery-electric cars now account for around a quarter of new car sales, and the public network has grown alongside them.

Charging operators are already investing over half a billion a year in capital expenditure, expected to rise to close to a billion annually within the decade. Investment on this scale depends on a stable, predictable signal. Infrastructure is financed over decades, and the certainty the mandate provides is what lets operators and their backers commit capital today for returns that arrive years later. That certainty also keeps costs down, because investors price the risk of policy shifting into the cost of capital they require, so a steadier signal means cheaper finance and more affordable charging.

The mandate has done – and is doing - what it was designed to do. It has created a charging industry that did not exist a few years ago and drawn in billions of pounds of long-term investment, building before the cars come. The UK has got this far because policy, investment and infrastructure have moved together. Keeping them

aligned is the best way to give drivers the network they need and to keep building the homegrown industry the mandate has created. That is why we back it, and why we want to see it hold firm.

CHAPTER 5

Becoming an Electrostale

Octopus EV

The UK has an incredibly positive story to tell about electric vehicles. We were the home of the first mass-production EV in Sunderland, we spearheaded ambitious petrol and diesel phase-out dates in 2018, we made EVs a centrepiece of our Presidency of the Glasgow COP, and we passed the ZEV mandate in 2024. We should be proud of this, and yet with all of this history of leadership, we risk flinching at the most crucial moment of the transition.

The ZEV mandate remains the strongest government signal for consumers, OEMs, supply chains and charging operators of the direction of travel. It provides clarity for OEMs on the speed of transition, helps charging companies make the business case for ‘ahead of time’ investment, and gives consumers the confidence to make the switch. This certainty drives investment, which in turn drives uptake and ultimately delivers the wider system and economic benefits of electrification.

The effectiveness of the ZEV mandate, however, is weakened by the constant tweaking of the policy, often in reaction events rather than strategic changes, which undermines one of its most important features: long-term confidence.

As things stand, the ZEV mandate has been a success story. Within the past decade, EVs have gone from a tiny niche industry, with fewer than 50,000 plug-in cars, to over 2 million vehicles today, with pure battery-electric vehicles accounting for one in four new cars sold. This is comfortably above our ZEV targets and marks the UK as a leading country among major economies.

The long term fundamentals

At Octopus, we remain very positive about EVs. This is backed up by increasing sales, high levels of driver satisfaction, and rapidly falling upfront costs. Indeed, we now see the point of cost parity with petrol and diesel already being surpassed. This underlines the central point that electric cars are now inevitable; the technology is simply better and continues to improve. The only question that remains is whether the UK will secure the benefits of the transition.

These benefits are numerous, with industrial and manufacturing perhaps the biggest prize. Yet the longer we wait, the more likely we are to waste our first mover advantage. We cannot afford to wait for laggard car makers to catch up—we need to be supercharging this transition and doing everything we can to win investment in EVs, batteries and the wider supply chain.

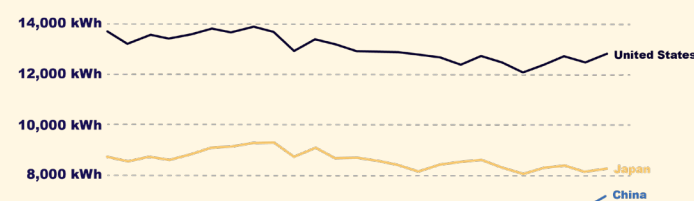
Short-term actions will only lead to short-term relief, and will ultimately result in greater loss of jobs in the long run.

The move to electrification and cheaper bills

The efforts to decarbonise the UK's electricity supply have been hugely impressive, as demonstrated by the complete removal of coal

from the grid for the first time in almost 150 years. This has left us with a very clean system, creating two major opportunities. First, we can decarbonise further by electrifying sectors such as heat and transport. Second, increased electricity demand can help lower prices by spreading the cost of nuclear plants, wind turbines, solar panels, and grid upgrades over more units of consumption, which in turn encourages further electrification and drives bills down even more -a virtuous cycle.

Per capita electricity demand: international comparisons Source: Our World in Data, using data from Ember (2026)



Unfortunately, the opposite is also true—and one that the UK is sleepwalking into. UK electricity demand is decreasing, continuing a worrying long-term trend. Compared internationally, our per capita electricity demand has dropped significantly - 20% in 20 years. We are in the same league as countries hit by war (Syria) and extreme weather events (Jamaica). This is coupled with two other warning signs: higher electricity bills and a system increasingly dominated by fixed costs.

In large part, this is due to the move towards high upfront capital investment. Wind farms cost money to build but generate and sell power basically for free, so they need fixed prices to

cover their construction costs. . These costs are then recovered through policy levies and network charges, spread across bills on a per-unit basis. With higher electricity demand from more electric cars, these costs would be shared across a larger base, lowering unit costs and reinforcing the virtuous cycle we want—rather than the doom loop we are heading towards.

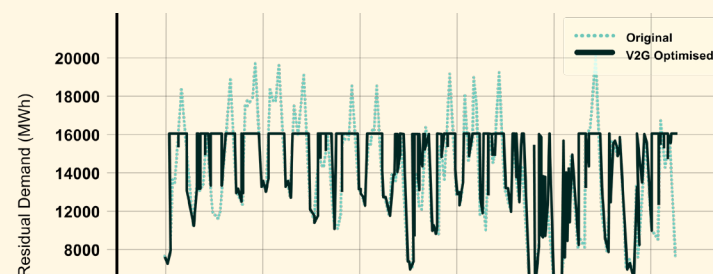
The ZEV mandate, and the increase in electricity demand it will bring, is one of the most important ways to reverse this trend. Any reduction in EV ambition risks undermining that demand growth, with direct consequences for household electricity bills and system cost assumptions.

The government is building the grid and wind farms expecting EVs to take off, partly because of the ZEV mandate being in place. If the demand does not materialise, we will have higher charges spread over a lower-than-anticipated base. Lower EV uptake reduces electricity demand. Lower demand increases unit costs. Higher costs weaken the economic case for EVs, increasing charging costs and reducing demand further. The dreaded doom loop.

The further benefits of EVs to the grid – More EVs, fewer power stations

EVs offer significant benefits to the operation of the grid, using the electricity we produce more efficiently, and reducing the need to build additional infrastructure and generation capacity. This means that with recent advancements in charging technology, EVs relieve grid pressure rather than add to it.

The biggest gains come from vehicle-to-grid



(V2G). This is where the car and charger are bi-directional, meaning the vehicle is, in essence, a large battery that can feed power back into the grid - reducing demand during peaks and absorbing excess electricity when supply is high. Octopus Energy analysis shows that 5 million V2G-enabled cars could reduce maximum residual demand from 40 GW to 32 GW—a 20% reduction. This is equivalent to removing the need for around five of the largest gas power stations in the UK. This is great for the energy system, but also means drivers will be getting huge rewards, in many cases they will effectively be driving their cars for free.

Beyond this, the system-wide benefits compound quickly as EV numbers grow. Even without V2G technology, smart charging can shift large volumes of demand away from peak times into periods of excess renewable generation, reducing constraint costs and curtailment, and making better use of the clean power we are already paying for. In effect, EVs turn what would otherwise be wasted wind and solar into usable, dirt cheap energy for consumers, while everyone else's bills would be lowered too.

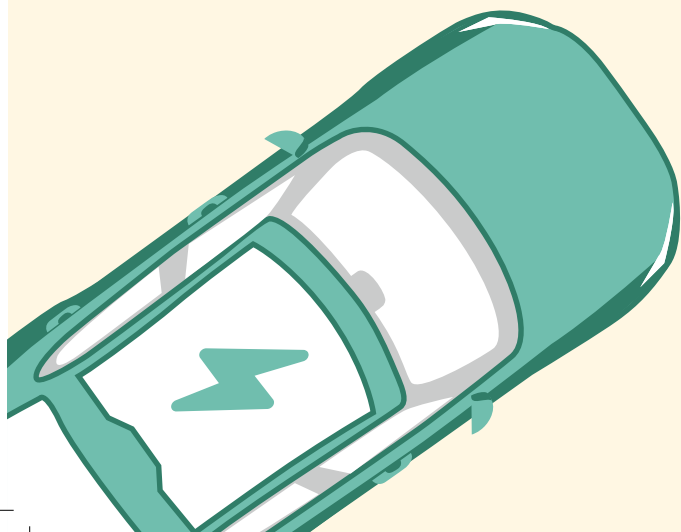
This flexibility also reduces pressure on the networks themselves. By smoothing demand and avoiding sharp peaks, EVs can defer or even remove the need for costly grid reinforcement, lowering the overall cost of the system for all bill

payers. Rather than building infrastructure for a handful of peak hours each year, we can use the flexibility sitting in millions of vehicles to balance the system more efficiently.

EVs can also provide system services such as frequency response and balancing, helping to stabilise the grid in real time as renewable penetration increases.

Taken together, this fundamentally changes the role of transport in the energy system. EVs are not simply an additional load, but a distributed energy asset—one that can store, shift and supply power when needed. As uptake increases, they will act as a buffer for renewable generation, a provider of grid services, and a key tool in reducing overall system costs. What is more, it massively reduces our need for imported fuel, and in an ever more complicated world this could be one of the most valuable benefits.

In short, more EVs do not mean more strain on the grid—they mean a smarter, more flexible and ultimately cheaper energy system, exactly the outcome the ZEV mandate is designed to deliver.



CHAPTER 6

Driving stability in an increasingly unstable World

T&E UK

The need for greater energy security

The UK currently spends around £43 billion each year importing oil, with 58% of that consumption used in transport⁸. This leaves households, businesses and supply chains highly exposed to global price shocks over which the UK has little control.

Recent instability in the Middle East has once again demonstrated how geopolitical crises translate directly into higher costs for UK consumers. Oil prices have risen above \$100 per barrel, with the impact immediately felt at the pump. Petrol prices are now 24.3p per litre higher than at the start of the crisis, adding £13.36 to the cost of filling a typical 55-litre tank. For diesel drivers, the increase exceeds £25 per tank⁹. At a time when cost-of-living pressures remain acute, this is driving up the cost of commuting, school runs and everyday travel.

This exposure is not hypothetical. Analysis from the Climate Change Committee shows that a single fossil fuel price spike, such as that experienced in 2022, could cost the UK economy as much as the entire additional investment required to reach Net Zero by 2050. It suggests that for every pound spent on Net Zero, the benefits will outweigh the cost by 2.2 to

4.1 times¹⁰.

It is increasingly clear that the transition to electric vehicles is not only a climate or industrial policy, but a matter of economic resilience. Reducing reliance on imported oil protects UK consumers from geopolitical volatility and strengthens national energy security. There are already over 2 million fully electric cars on UK roads, shielding drivers from oil price spikes, and this number will grow rapidly over the next few years.

State of play around the world

The UK's ZEV mandate has provided certainty to industry and consumer markets, which is now being realised by real-world growth. In 2025, battery electric vehicle BEV registrations reached approximately 470,000, nearly double pre-mandate levels, with 23.4% share of new car sales.

This places the UK among the leading European markets, with EVs accounting for around 20% of new car sales on the continent. But, several comparable markets, such as Belgium and the Netherlands, have already surpassed 30%, demonstrating that faster transitions are achievable. Globally, the pace is even more striking. Markets such as China, Thailand and Vietnam are rapidly scaling EV adoption, with some exceeding 40% BEV market share.

Meanwhile, policy uncertainty in other major economies highlights the importance of consistency. In the United States, shifting regulatory signals, including not only the removal of mandates but the weakening of emissions standards altogether, have led to stalling EV momentum. New EV sales for the first three

months of this year have already fallen by 28%¹¹ and changes are already dampening billions of dollars of investment, with Ford alone cancelling \$8.5bn in planned EV manufacturing¹², hurting the long-term competitiveness of automakers and U.S. manufacturing.

In the European Union, the ongoing review of the bloc's headline CO2 emissions standards risk dampening ambition at a critical moment. Weakening these frameworks would leave European manufacturers more exposed to intensifying global competition, particularly as Chinese firms expand aggressively into European markets.

Crucially, any weakening will hurt consumers, locking drivers into using expensive imported petrol and diesel for much longer. Analysis by T&E shows that recent industry calls to dilute the EU regulation would result in an additional €74 billion in oil imports, at a time when consumer interest in electric vehicles is reaching record highs¹³. Such proposals would delay the rollout of more affordable EV models, just as high petrol prices are increasing demand for alternatives, and would significantly deepen Europe's dependence on imported oil, increasing exposure from volatile international situations.

Global competition

Broadly the picture is clear: the global automotive market is rapidly electrifying. The trickle has turned into a flood and it is clear that EVs are the future. The question now is, 'who will lead this'? For the UK to remain competitive, protect its century-old automotive heritage and jobs, it must keep pace with an increasingly intense international race.



Competition is accelerating, particularly from Chinese manufacturers who moved early to scale electric vehicle production. As recently as 2021, every small and medium sized electric car sold in the UK under £30,000 was produced by Chinese firms. These companies have since built a strong advantage, offering a wide range of vehicles that are affordable, high-quality and produced at scale¹⁴.

The expansion into Europe is already well underway. In the UK alone, one major manufacturer, BYD, grew its dealership network from a single site to around 100 locations in less than three years, with others pursuing similar strategies. This signals clear long-term intent to capture market share across Europe.

Without policies such as the ZEV mandate and EU CO2 standards, UK and European carmakers would not have invested in EVs and would already be out of the global electric race. As a result of these crucial policies, UK and European manufacturers are regaining ground, accounting for 52% of sub-£30,000 EV sales in the UK last year¹⁵. This progress, however, is not guaranteed as international competitors continue to scale rapidly. Sustained policy certainty is key to ensuring that UK and European manufacturers continue to invest in bringing great electric products to the market in order to remain globally competitive. The ZEV mandate is key for providing that assurance and enables manufacturers and the wider ecosystem to continue to invest in the UK transition, thus ensuring a future for UK automotive manufacturing.

Looking Ahead

It is clear that the next decade will mark a permanent shift to electric vehicles; what remains in play is the speed of that transition, the extent of the benefits delivered to drivers, and the UK's ability to sustain a competitive automotive industry.

While fossil fuel prices spike, battery costs continue to fall, improving the affordability of EVs and making the case ever stronger compared to petrol and diesel alternatives. At the same time, production is consolidating in regions that offer strong policy certainty, creating a global race for market share, investment and jobs.

In this context, policy clarity and ambition will be decisive. Countries that provide stable, long-term frameworks will attract manufacturing, innovation and jobs. Those that waver will lose out, becoming importers of both vehicles and the technologies that underpin them.

It is also increasingly clear that the transition to EVs is critical to strengthen the UK's energy security and resilience. It is not an option to remain heavily reliant on international fuel markets that leave drivers and businesses directly exposed to global shocks.

By 2035, the countries that succeed will be those that moved early and decisively. The UK has made a strong start, the question now is whether to erode that ambition, or to stay the course and recognise that regulatory certainty must truly mean certainty.

As one CEO of Volvo warned recently: 'If Europe does not lead this transformation, others will do it instead.'

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