



BRIEFING - July 2024

Successful transport decarbonisation

A handbook for the decisions needed in this Parliament to tackle emissions and seize the economic benefits of decarbonisation

Summary

Transport is now the biggest greenhouse gas emitting sector in the UK. The Government will be in the spotlight in this Parliament to deliver the emissions savings promised from existing policies on cars and vans, to rapidly set out similar policies for trucks and to set up the frameworks for shipping and aviation decarbonisation, with international shipping and aviation being included in UK carbon budgets for the first time from 2033.

Incoming ministers will be faced with immediate decisions to take forward decarbonisation policy for transport. This briefing is a handbook to how to make sure those decisions reduce emissions in line with carbon budgets while enabling the UK to benefit economically from the transition.

By the end of 2024, the new Government should do the following in each corresponding area:

Net zero and industrial strategies:

- Ensure any new governance arrangements and targets for climate policy and industrial strategy actively include the transport sector
- Rewrite the UK battery strategy to increase investor confidence and support the UK battery supply chain

Cars and vans:

- Convene stakeholders to agree how to boost consumer confidence in the transition to electric vehicles, provide targeted support for consumers and tackle misinformation
- Keep the Local Electric Vehicle Infrastructure (LEVI) funding but refresh the electric vehicle infrastructure strategy to accelerate and level up charging across the country
- Commission a review of how to tackle rising emissions from petrol and diesel cars
- Keep Benefit-in-Kind tax incentives for electric vehicles but review rates to avoid plug-in hybrid cars and petrol and diesel SUVs from undermining emission reductions
- Set out a plan for increasing roll-out of electric vans, including an electric van charging strategy

HGVs:

- Accelerate the work being done on policy to regulate an increase in the supply of zero emission HGVs and consult as soon as possible on proposals, including requirements on large fleets to boost demand for zero emission HGVs

- Publish the response to the recent call for evidence on zero emission HGV charging infrastructure to develop the charging infrastructure necessary to support roll-out of zero emission trucks in this decade

Shipping:

- Use the response to the May 2024 Environmental Audit Committee report on shipping decarbonisation to set out a more ambitious approach on shipping decarbonisation in line with Paris climate goals
- Publish the updated Clean Maritime Plan (promised since 2022) to set out targets for emission reductions and to include policy actions for the UK's share of international emissions
- Engage with devolved administrations to reach agreement that the UK Emissions Trading Authority will bring all shipping into the UK ETS (not just very large domestic vessels as under current plans)
- Start work on a shoreside electricity plan for ships berthed in port

Aviation:

- Review taxation on aviation
- Sign-off the sustainable aviation fuel mandate but set out policy intent to increase ambition for future requirements on hydrogen-based fuels and limits on unsustainable fuels

Contents

1. Transport and the UK's net zero and industrial strategies

- 1.1. Transport and the carbon budget delivery plan
- 1.2. Transport decarbonisation and industrial strategy

2. Cars and Vans

- 2.1. Boosting consumer confidence in EVs
- 2.2. Levelling up charging
- 2.3. Reducing emissions from petrol and diesel cars
- 2.4. Company cars
- 2.5. Vans

3. HGVs

- 3.1. Introducing an HGV ZEV mandate
- 3.2. HGV charging infrastructure
- 3.3. Supporting demand for zero emission HGVs

4. Shipping

- 4.1. Including the majority of shipping in the UK Emissions Trading Scheme
- 4.2. Using the Clean Maritime Plan update to set course for decarbonisation
- 4.3. Addressing port emissions

5. Aviation

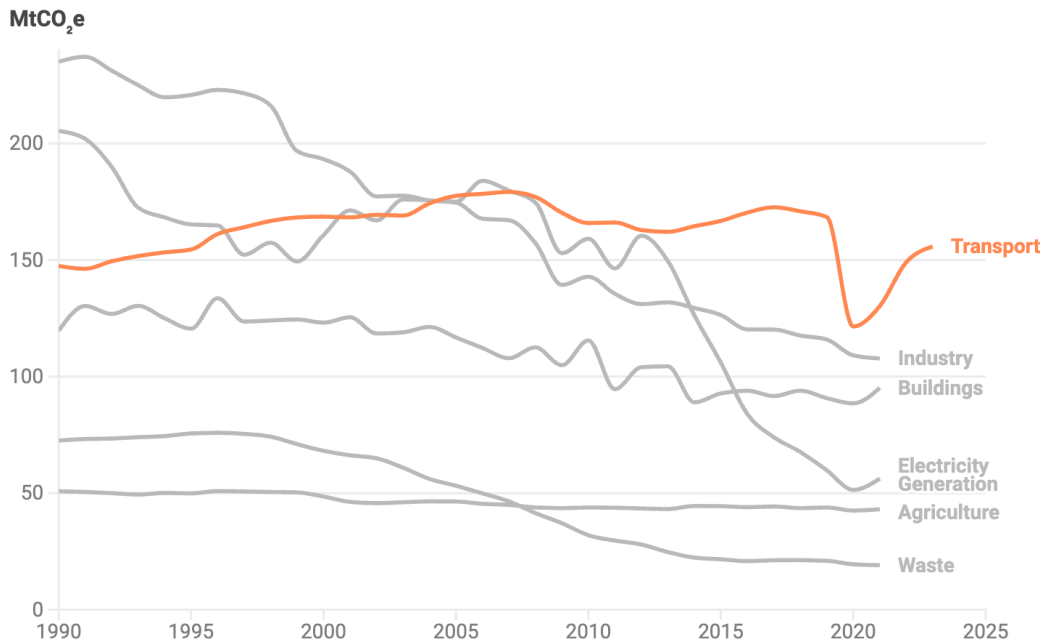
6. Hydrogen

7. Conclusion

1. Transport and the UK's net zero and industrial strategies

Transport is the highest emitting sector in the UK. Transport's emissions have barely shifted over the past three decades. Although policies are now in place to decarbonise cars and vans, policies to decarbonise trucks, shipping and aviation are miles away from delivering the emissions reductions needed.

Greenhouse gas emissions by sector in the UK



Source: UNFCCC GHG inventories, EEA, Stratas Advisors • Transport includes international aviation and maritime emissions. Public electricity includes heat generation



Additionally from 2033, the UK's carbon budgets will include our share of international shipping and aviation. In 2019, international shipping and aviation emissions totalled 44 million tonnes of CO₂ equivalent (MTCO₂e) compared to domestic transport emissions of 123 MTCO₂e.¹ Managing those additional emissions in the UK's sixth and seventh carbon budgets means putting in place policies now in this new parliament.

Getting policy right also offers the potential for the UK to lead the new green industries which will dominate future global markets, growing the UK economy and delivering jobs. The UK has already seen the highest levels of investment in Europe between 2021 and 2023 in EV manufacturing, battery supply chain and charging², on the back of the policy certainty provided by the zero emissions vehicle (ZEV) mandate and funding from the Automotive Transformation Fund. Funding from the Zero Emission Bus Regional Areas (ZEBRA) fund means the UK is now

¹ Department for Transport (2023) *Transport and environment statistics: 2023*. 2019 figures are given as the Covid pandemic affected figures for 2019-2022.

² Transport & Environment (2024) [Carmaker's EV investments: Is Europe falling behind?](#)

the largest market in Europe for zero emission buses, most made in the UK. Now, we need to take the next step and provide policy certainty to benefit from being first movers on zero emission HGVs, low carbon fuels for shipping and aviation, and zero emission ships and planes.

1.1 Transport and the carbon budget delivery plan

In May 2024, the High Court found that the Government's Carbon Budget Delivery Plan (the detail to deliver the UK's Net Zero Strategy) did not meet its obligations under the Climate Change Act as it relied on achieving all the carbon savings from the quantified proposals and policies without assessment of the risks of delivery. The new Government has to rewrite the plan by May 2025.

The Carbon Budget Delivery Plan (CBDP) has policies in place for cars and vans through the ZEV mandate and for sustainable aviation fuel (SAF) through the SAF mandate (although rising demand for aviation will wipe out nearly all carbon savings from the use of SAF). However, there are no detailed policies included to achieve the CBDP's quantified CO₂ reductions arising from the plan's "deployment assumptions". Crucially, that 37% of the HGV fleet will be zero emission by 2035 and that the uptake of low carbon fuels jumps to 42% of all fuel use by domestic shipping & 28% for international shipping by 2035. In addition, the CBDP also counts emission reductions from better van/HGV logistics, accelerated scrapping of petrol/diesel cars, incentives for more efficient ICE cars, and increasing vehicle occupancy but has no suggestions of the policies to achieve these reductions.

The rewriting of the Net Zero Strategy/Carbon Budget Delivery Plan by May 2025 is an opportunity to ensure detailed policies are set out to decarbonise these lagging transport sectors.

1.2 Transport decarbonisation and industrial strategy

The new government has an ambitious industrial strategy. This is needed to accelerate business investment into the UK, grow the UK's green economy and deliver jobs as the global race for clean technology leadership takes off.

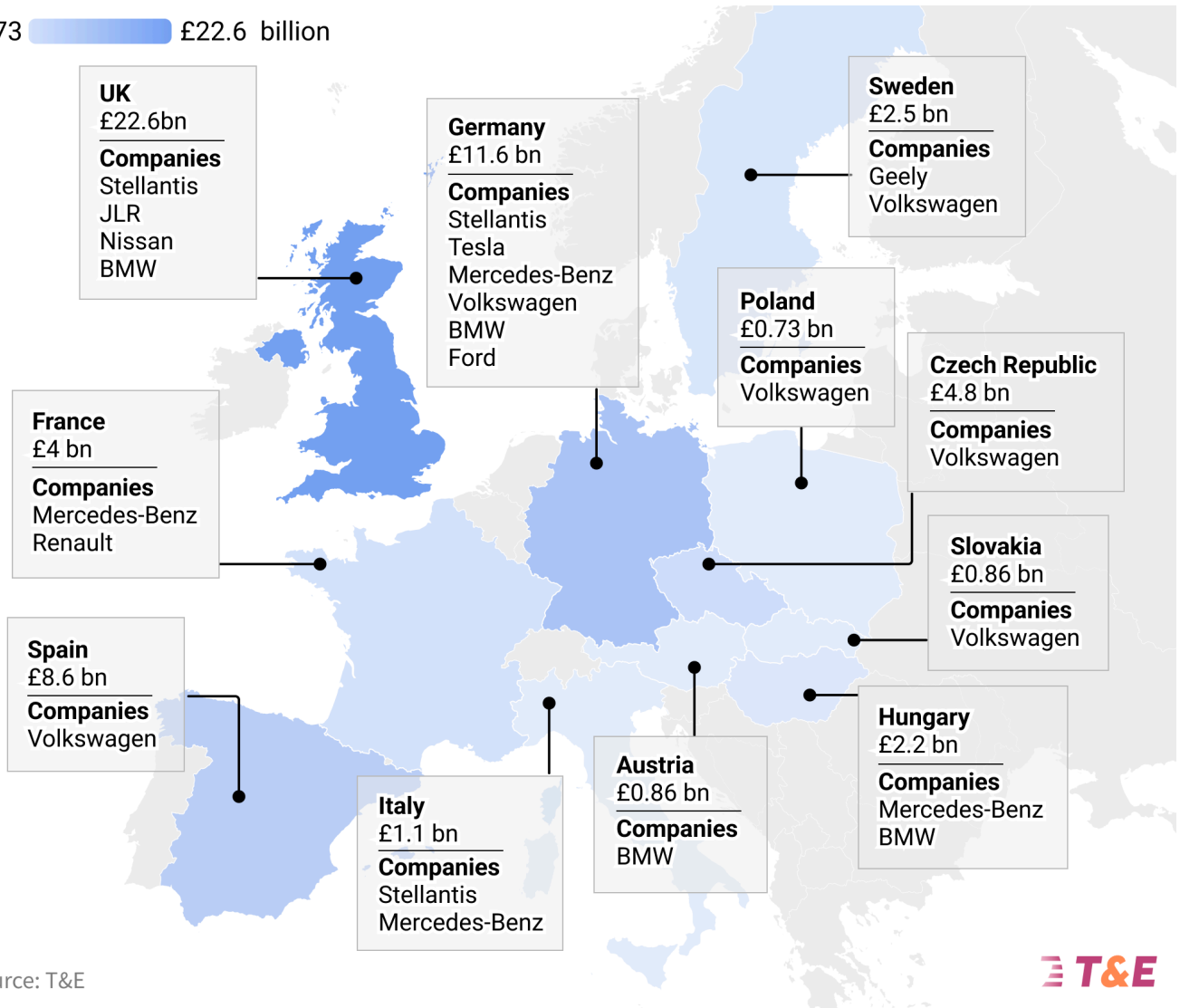
This briefing does not cover all industrial strategy decisions but there are two key areas related to transport and climate change. The first is providing policy certainty which is key to de-risking and attracting green investments and jobs. The ZEV mandate has provided policy certainty for cars and vans and, coupled with investment from the Automotive Transformation Fund, has meant the UK has attracted the most investment in Europe in electric car manufacturing, supply chain and charging in recent years. In total between 2021 and 2023 £22.6 billion has been invested by car makers.³

³ Transport & Environment (2024) [Carmaker's EV investments: Is Europe falling behind?](#)

EV, battery and charging investments in Europe

Investments announced by carmakers between 2021-2023

0.73  £22.6 billion



Source: T&E



Strong commitment to the ZEV mandate is still needed. Similar ambition and policy certainty is needed for other transport sectors like HGVs, shipping and aviation. However, the Government needs to learn lessons from the ZEV mandate where inter-departmental disputes delayed its final approval. The incoming Government is expected to introduce new governance arrangements to deliver its key missions. Governance of a mission-led approach should ensure that disputes between government departments must not be allowed to slow up essential policy development. **Transport must be a core part of new mission programme governance on economic growth and clean energy.** With limited opportunities to increase public spending, private investment will be key. The ability to deliver policy certainty in a timely manner will be key to unlocking that investment.

Secondly, batteries are a core and necessary part of transport decarbonisation across virtually all modes, particularly the road transport sector (as well as energy decarbonisation). They are also the most expensive and valuable component of an EV vehicle and are a high value

manufacturing output. T&E analysis⁴ shows that the UK has the fifth largest announced battery capacity production in Europe, enough to build 2.2 million battery electric vehicles (BEVs) annually⁵ showing that the UK has so far been successful in attracting battery investment. However, nearly all of this is assessed at medium risk, a higher rate compared to other European countries, due to a lack of investor commitment.

Further upstream, industrial plans in the UK around recycling and lithium processing in particular stand out as clear opportunities but almost no investment is planned in the midstream (cathode active material) making securing of the lithium battery value chain locally difficult.

This means that steps need to be taken to increase investor confidence in the UK across all steps of the value chain from cells to components to minerals. This is critical for ensuring that these projects move ahead as planned. **The UK’s current battery strategy and critical minerals strategy are inadequate for this purpose and need to be revised.** The present strategy does not guide the choices that government will need to make, marshal resources or provide clarity about direction of the industry which are needed to de-risk battery or supply chain investments in the UK (see below).⁶

UK battery strategy

The UK’s battery strategy was published in November 2023.⁷ Our analysis of its strengths and weaknesses is below.

What we’d like to see	What the government strategy says
A clear ambition and target - eg meeting 80% of domestic need for batteries from UK	No SMART objectives
Covers upstream (extraction of raw materials), midstream (processing and refining) and downstream (assembly of the battery cells into modules)	Describes some upstream and downstream activity but disappointingly brief on midstream

⁴ Transport & Environment (2024) [An industrial blueprint for batteries in Europe](#)

⁵ Based on an average capacity of 65 kWh per car.

⁶ Foreign Affairs Committee, House of Commons (2024) [Government must put its foot on accelerator to address the UK’s critical minerals vulnerabilities](#)

⁷ Department for Business and Trade (2023) [UK Battery Strategy](#)

Funding commitment with clear and transparent criteria and process. Funding to battery makers should be conditional upon some sourcing of local materials	The funding is significant (eg R&D tax reliefs, £2bn for automotive sector in Advanced Manufacturing Plan) but funding criteria are not transparent
A target for recycling 90% of nickel and cobalt used should be set for 2027, rising to 95% in 2031. For lithium the target should be 50% in 2027, rising to 80% in 2031	A Defra consultation on recycling regulations has been promised since 2022 and is still delayed
Tariff free access to EU in the form of the UK-EU Strategic Battery Partnership (UK EVs will be subject to tariffs from 2027 unless their batteries are made in UK/EU)	Not addressed
Provides a process for offtaking guarantees for battery production or other elements in the supply chain. Scale-up efforts should in particular target cathode active material	Not mentioned
Sets out a clear approach for securing critical raw materials, including global efforts such as the Minerals Security Partnership	Outlines the broad approach but little on specifics
Needs to include a plan for re-skilling workers and provide training, schooling and university degrees which are required by the batteries and raw materials industries	UK has strong automotive skills and research base but little in the strategy on how to transfer skills in the transition to electrified transport
Should set out how companies will prevent environmental, human rights and labour abuses in supply chains. This should include the introduction of a battery passport which provides information on sustainability, human rights and environmental due diligence requirements to ensure that only clean, ethical and circular batteries are sold in the UK	Covers how UK is seeking to align international standards through WTO but little on responsible sourcing
Sets out long-term support for R&D, including UK being leaders in the current as well as next generation technology	The strategy is strong on R&D, including <ul style="list-style-type: none"> • £2bn of new capital and R&D funding to 2030 (Automotive Transformation Fund and Advanced Propulsion Centre) • £38m for the UK Battery Industrialisation Centre • £12m for the Advanced Materials Battery Industrialisation Centre • £11m in 20 competition winners developing technologies across the battery value chain

Should cover government structures / processes to help land assembly and tackle planning or improve grid access

Freeport and investment zones should provide opportunities but the strategy does address lack of capacity and capability in local bodies and the planning system

2. Cars and vans

Road transport is the biggest contributor to the UK's transport emissions. Cars account for over half of transport emissions and vans about 16%. The zero emission vehicle (ZEV) mandate is now in effect and is expected to save 28, 77 and 411 MtCO₂e in carbon budgets 5 (2028-32), 6 (2033-37) and from 2024-2050, respectively.⁸

The mandate requires automakers to hit annual targets for the share of new sales that need to be zero emission, increasing to 80% of all new cars and 70% of all new vans by 2030. The ZEV mandate is the biggest single carbon-cutting measure in the UK's arsenal - its expected emissions reductions will be slightly more than the total UK emissions in 2023.⁹ Without the mandate, the UK will either not be able to meet its statutory carbon budgets or will have to find massive additional carbon savings from elsewhere in the economy.

2.1 Boosting consumer confidence in EVs

The Government has an important role to play to give car buyers the confidence they need to switch to an electric vehicle. Currently, however, a combination of mis- and dis-information alongside legitimate concerns and uncertainties about how the transition is being supported is stifling demand. This is particularly impacting private buyers, for which EVs only account for just over 8% of new sales, compared to 22% for corporate buyers. While corporate buyers, incentivised by favourable benefit in kind (BiK) tax rates, can deliver the majority of demand for EVs in the first couple of years of the ZEV mandate, private buyers need to switch to EVs in significant numbers towards the later 2020s to achieve ZEV mandate targets. To grow EV uptake among private consumers mis and dis-information has to be tackled now, if left unchecked it risks significantly hampering future private EV uptake.

The DfT should convene stakeholders to rapidly draw up a strategy for boosting private demand. This should include:

⁸ Department for Transport (2023) [Zero Emission Vehicle Mandate and CO₂ Regulations Joint Government Response Cost Benefit Analysis](#)

⁹ Department for Energy Security and Net Zero (2024) [Provisional UK greenhouse gas emissions national statistics](#)

- **Providing targeted support for the switch to EVs:** While the ZEV mandate will compel manufacturers to increase the range of cheaper EV models and bring upfront prices down, the Government should introduce targeted measures to support the EV transition to ensure fair and equal access to e-mobility. This should include measures such as
 - Social leasing schemes for careworkers and other low-income, high mileage groups. These provide affordable leases for those who would otherwise struggle to afford an EV. Such a scheme launched in France in 2024, the initial 25,000 EVs sold out with over 90,000 applications and availability was increased to 50,000 leases which also sold out rapidly
 - Reintroduce the home charge grant for used EV buyers. This would help with the high upfront cost of a home charger for used car buyers, especially for those on lower incomes
- **Coordinating and investing in a government-backed communications campaign** highlighting the key information things people and businesses should know about switching to an EV, as well as tackling persistent mis-and-disinformation in the media.¹⁰
- **Introducing a “consumer guarantee” for EVs:** To help give confidence to prospective private and corporate EV buyers, the Government should package up existing measures (eg the requirement for all new zero emission vehicles to come with eight year or 100,000 mile warranties and requirements on operators to meet 99% reliability targets on public charge points) into a “consumer guarantee” which should be included as part of the communications campaign. Alongside these existing measures, the Government should also
 - Require standardised battery health information to be accessible by drivers, for example by adopting UN Global Technical Regulation 22¹¹
 - Speed up the EV reskilling of car maintenance and repairs workers, to ensure that EV repair and maintenance can be undertaken without delay.
 - Tackle high insurance premiums on EVs which are a barrier to faster adoption

2.2 Levelling up charging

While the UK’s public charging network is growing at a considerable speed (43% year on year¹²), coverage is patchy across the country. To date the primary way that charging rollout is measured nationally and regionally in the UK is by the total number of chargers installed. This has largely been influenced by the Government’s EV Infrastructure Strategy which set an expectation that there will be 300,000 public charge points by 2030, setting a de-facto target.

However, to ensure good access to charging across the country one big target is not sufficient as it fails to account for regional variations such as population density, share of car ownership,

¹⁰ Transport & Environment / SKIM (2024) [From Early Adopters to Early Majority: Accelerating the Electrification of Cars](#)

¹¹ [UN Global Technical Regulation on In-vehicle Battery Durability for Electrified Vehicles.](#)

¹² Zap-map (2024) [EV charging statistics 2024.](#)

share of properties with driveways, average distances travelled by car, among others. T&E has developed a framework to measure public chargepoint rollout vs need for every region across the UK. This framework is centred around three core metrics: required power; opportunities to charge; and number of locations to ensure charging is rolled out where it is needed, not simply where it is easiest to do so.

To ensure efficient charging roll out across the country the **Government should continue the Local Electric Vehicle Infrastructure (LEVI) funding for local councils but refresh the EV Infrastructure Strategy**. Government should :

- Oversee centrally coordinated, locally delivered chargepoint rollout across the country, working closely with local authorities and the charging industry. As part of the deal for LEVI funding, the DfT should agree what metrics should be used to guide local provision of charging, whilst ensuring it is rolled out efficiently and inclusively
- Reform current planning rules and grid connections processes to enable chargepoint operators to continue accelerating installations
- Work to make charging pricing fair, giving drivers access to cheaper EV charging solutions at or near their homes including by
 - Expanding off-peak tariff trials¹³ for on-street charging with the aim to provide UK wide affordable charging access for drivers without a garage or driveway
 - Reintroducing the home charger grant for people buying second hand EVs
 - Introducing a “chargewatch” scheme to compare prices, similar to the “pumpwatch” scheme¹⁴
- Take action to improve the consumer experience and accessibility of public charge points, including for commercial vehicles. As a priority this should include
 - 48-hour repair targets for charge point operators with publicly available information on compliance to improve consumer confidence in the charging network
 - Mandate the charger accessibility standards developed by British Standards Institute on CPOs to ensure inclusive charging infrastructure¹⁵
 - Improve signage on main roads identifying charging stations to improve the visibility of the network

2.3 Reducing emissions from petrol and diesel cars

While the ZEV mandate will drive increasing BEV sales, based on current policies, petrol and diesel internal combustion engine (ICE) cars will continue to be sold until at least 2035. Those cars will stay on the road an average of 17 years so an ICE car sold in 2034 will continue

¹³ Energy Saving Trust (2022) [Agile Streets – the future of flexible charging](#)

¹⁴ Pumpwatch will gather pricing data, from all petrol filling stations in the UK, with stations being required to report pump price movements in close to real time.

¹⁵ BSI (2022) *Electric Vehicle Accessible Charging Specification - PAS 1899*

emitting CO2 until 2051.¹⁶ In order to reach the UK's climate targets, action must be taken to reduce emissions from the almost 7 million ICE cars that will be sold over the next decade. The key policies needed are:

- **Amending Vehicle Excise Duty to include vehicle weight in the banding criteria alongside CO2 emissions.** Data shows that over the last twenty years the average weight of cars has increased by 272kg (20%)¹⁷ resulting in growing CO2 emissions from the ICE fleet. According to the CCC, "improvements in engine technologies are being offset by trends towards larger vehicle sizes".¹⁸ In the UK, cars with high CO2 emissions are undertaxed compared to other European countries, resulting in a much higher proportion of high emitting cars in the UK.¹⁹ Including weight criteria for VED would give the right signal to car buyers to purchase smaller and less polluting cars which is needed to reduce emissions from new ICE cars.
- **Set maximum dimensions at type-approval for cars and vans.** The new UK type-approval provides the opportunity to set a maximum limit on the size of cars, which has been growing by 1cm every two years. Over half of cars sold now are too big to fit the minimum street parking space size.²⁰ Aside from increased emissions, the growth negatively impacts the space left on the road for cyclists, increasing collision risk and making active mobility a less attractive option. Setting a width limit is a crucial market signal to prevent further unsustainable growth especially in the luxury SUV market
- **Update the CO2 values of all cars with an internal combustion engine to reflect real world emissions.** Real world data shows that for ICE cars average emissions are now 20% higher on-road than official type-approval figures. For plug-in hybrids emissions are 2.5 times higher.²¹ This gap severely hampers the UK's ability to cut CO2 emissions from cars, especially from plug-in hybrid vehicles (PHEVs), and has already resulted in the raising of the UK's baseline emission projections for 2021-2040 in the CBDP.²² To prevent further growth in the gap and the UK's baseline emissions projections, the UK CO2 type-approval must be updated to account for the gap between on-road emissions and laboratory based CO2 values as soon as possible
- **Set quotas for the use of green steel and aluminium in cars.** Car production is responsible for 10% of ICE and 60% of BEV life-cycle emissions. Of those, steel and aluminium is responsible for around half of production emissions.²³ Setting quotas for the use of green, decarbonized steel and aluminium for car production is the most effective route to decarbonise the production footprint of the vehicle. To drive green steel

¹⁶ Based on average scrappage age of 17 in 2023 as reported in: Autotrader. (2023) [Ford Focus gains dubious honour as 'UK's most scrapped car'](#)

¹⁷ RAC. (2023) [Major organisation calls for changes to UK car parks to deal with weight of modern cars](#)

¹⁸ Climate Change Committee. (2023) [Progress in reducing emissions](#)

¹⁹ T&E (2024) [Reforming UK car taxation](#)

²⁰ T&E (2024) [Ever-wider: why large SUVs don't fit, and what to do about it](#)

²¹ European Commission. (2024) [Report on real world CO2 emissions](#)

²² UK Government (2023) [Carbon Budget Delivery Plan Technical Annex](#)

²³ 43% for BEVs and 60% for ICE. Polestar. (2023) [Polestar and Rivian pathway report](#)

use in cars a 40% green steel quota (covering both scrap and green primary steel) should be introduced for cars in 2030 increasing to 75% in 2035. By 2040 all steel used in cars should be green. A similar approach should also be taken for aluminium

2.4 Company cars

The UK's approach to supporting corporate car electrification through benefit-in-kind (BiK) taxation is playing a crucial role in driving BEV sales forward. 22% of new corporate car registrations in the UK were electric in 2023. Corporate car sales feed the second hand market (where most people buy their cars) with more affordable BEVs for consumers after 3-5 years and replace fossil fuel miles more effectively as company car drivers are, on average, higher mileage drivers.

However, to remain successful, policy needs to provide more long-term certainty on ongoing support for BEVs and ensure that environmentally damaging choices - such as disproportionate sales of PHEVs and SUVs in the corporate channel - are addressed, not incentivised. To do this, the Government should:

- Provide longer term certainty for preferential BiK rates for BEVs beyond 2027/28, maintaining a strong differential from other powertrains
- Regrade BiK rates for PHEVs to reflect their higher real world emissions
- Future-proof BiK in the long term by consulting on alternative ways to tax BEV company cars, with a preference to phase in BiK rates based on the efficiency of the car
- Explore further avenues to support wider corporate segments to move faster on BEVs, including changes to depreciation write-offs for company cars (similar to Belgium) or increasing VED specifically on corporate cars

2.5 Vans

While emissions from cars, taxis, buses and HGVs have fallen slightly, emissions from vans have risen significantly, increasing by 24% between 2001 and 2021 with a 64% increase of vans on our roads in the same period.²⁴ The sales share for battery electric vans is currently at 4.8%, lagging well behind the Netherlands, France and Germany.²⁵ While the ZEV mandate is in place for vans with targets for 10% in 2024 and 16% in 2025, ZEV van sales will lag behind cars unless further steps are taken to boost sales. To boost ZEV van sales the government should:

- Extend the plug-in van grant for small businesses and sole traders beyond 2025. The existing plug-in van grant expires in 2025 but small businesses require continued support to electrify. The grant should be extended beyond 2025 to provide targeted support where it is needed most. E-cargo bike loans should be supported for small businesses

²⁴ T&E (2024) [The white van can decarbonise](#)

²⁵ Year to date to May 2024. SMMT (2024) [Van market sustains growth but electric uptake must rise faster](#)

- Introduce a diesel van scrappage scheme for the self-employed and small businesses to accelerate the scrappage of the oldest, most polluting vans in the most polluted areas of the country. This will bring the dual benefit of cutting carbon emissions and maximising air quality improvements
- Development of a commercial vehicle charging infrastructure strategy with special attention to facilitating charging for those without access to depot or off-street charging
- Develop a covenant with businesses and Metro Mayors on the introduction of zero emission areas for freight, similar to the Dutch model starting next year, so that electric vans and e-cargo bikes are prioritised in polluted city centres

3. HGVs

HGVs are responsible for a fifth of UK transport's domestic greenhouse gas emissions. The UK is 11 years away from the phase-out date set for sales of new diesel trucks under 26 tonnes and 16 years for those above 26T. The current Carbon Budget Delivery Plan is premised on 9% of the HGV fleet being zero emission vehicles by 2030 and 37% by 2035.

At present, only 0.19% of the HGV parc is battery electric and there is only one public chargepoint for HGVs. The ZEV mandate for cars and vans is already set but despite the same initial phase-out date, no ZEV mandate has been set or consulted on for HGVs. Without urgent action from the DfT the UK will be unable to meet the current Carbon Budget Delivery Plan. The UK needs a HGV ZEV mandate to increase the supply of zero emission HGVs, support for the provision of charging infrastructure in depots, warehouses and public charging as well as measures to support demand.

3.1 Introducing an HGV ZEV mandate

The UK has fallen behind on HGV decarbonisation. In May 2024 the EU ratified new CO₂ HGV CO₂ standards with truck manufacturers needing to reduce CO₂ by 45% in 2030, 65% in 2035 and 90% by 2040. **The Department for Transport needs to rapidly set out proposals for consultation to increase the supply of zero emission trucks.** Truck makers will not prioritise the UK for zero emission HGV deliveries or investments if there is no incentive to choose the UK over EU countries.²⁶ Truck manufacturers will continue to sell ICE trucks to the UK to maximise profits made from internal combustion engines while ZEV production capacity will be reserved for the EU market.

The only way to ensure that the UK market is supplied with zero emission trucks is to introduce regulation to require their sale. Aside from accelerating electrification of HGVs, ZEV regulation will provide the investment certainty needed for the roll out of truck charging infrastructure by

²⁶ ICCT (2024) [Race To Zero: European Heavy Duty Vehicle Market Development Quarterly](#)

providing a clear trajectory for the ramp up of the BEV HGV fleet in the UK. Early investment certainty is needed to secure technological leadership in HGV charging by UK industry.

T&E's analysis shows that already this decade over 50% of HGV's could be electrified. Even for the largest 44t HGVs which drive the longest distances, more than 50% of new sales will be cost competitive with diesel HGVs by 2030 and the vast majority of use cases for HGVs can be met cost effectively by battery electric trucks from the early 2030s with 65-75% of Britain's rigid HGVs and 30-35% of articulated HGVs able to operate sustainably and productively with battery electric trucks in this decade.²⁷ The UK should therefore:

- Consult on introducing a ZEV mandate of 100% HGV sales in 2035
- This should be accompanied by intermediate targets. Our previous research proposed these should be 50% in 2030 and 15% in 2026, though slow policy development since may impact on the feasibility of earlier targets. T&E's analysis showed that the 15% target was feasible on city and regional rigid deliveries alone.²⁸ T&E modelling aligned with voluntary industry commitments suggest that 64% is now achievable.²⁹

The ZEV mandate for cars and vans provided the policy certainty for private investment by car and van makers and chargepoint operators. We now need the same for trucks.

3.2 HGV charging infrastructure

In October 2023, the DfT ran a call for evidence on charging infrastructure needs for HGVs and coaches. **The Government now needs to publish its strategy for HGV charging infrastructure as soon as possible.** Most charging will take place in depots and warehouses in the first phase of zero emission truck roll-out, which will focus on city and regional deliveries as these are the easiest to electrify due to the shorter distances driven.

The strategy should include:

- A "right to plug" – decarbonisation related infrastructure should go through the same accelerated permitting process as fibre cable laying for high speed internet or water mains, whereby the landowner must give consent within a fixed period of time
- Require all new warehousing to be built with HGV charging infrastructure as a requirement for planning permission
- Extending the Rapid Charging Fund (designed to help fund prohibitively expensive grid connections at strategic locations) to cover major warehousing areas would significantly enable battery electric truck adoption
- How to incentivise multiple stakeholders and landowners in warehousing areas to install shared infrastructure which could help overcome issues caused by low land availability in warehousing areas

²⁷ T&E (2023) [HGVs on the road to net zero](#)

²⁸ T&E (2023) [E-trucks: It's time for the UK to make the switch](#)

²⁹ T&E in-house EUTRM model (2024)

Over time, more public charging will be needed to support longer distance operations and the strategy should include the following:

- Planning and funding strategic grid infrastructure upgrades at key motorway junctions where motorway service stations, depot districts and warehousing districts cluster together and which are going to require major reinforcements. Distribution Network Operators (DNOs) should be required by Ofgem to deliver proof that they have a plan for delivering the level of grid reinforcement needed
- Installation of HGV charging infrastructure at Motorway Service Area (MSAs) and truck stops: A base network of 2 x 1 MW chargers at each MSA would provide basic national coverage and meet most of the MW charging requirement for battery electric HGVs in 2030. Any gaps left over will need to be identified by a review of national freight movements no later than 2025 and adequate charging provided at such locations
- The provision of low or zero interest loans towards installation of public charging infrastructure, with repayment rate dependent on utilisation, may help incentivise private sector investment by improving the risk-return profile
- This will need proactive planning of grid expansion without waiting for direct connections requests. To achieve this, the Government should quickly commission the National Energy System Operator to develop the Strategic Spatial Energy Plan by the end of 2024

3.3 Supporting demand for zero emission HGVs

Regulations to increase the supply of zero emission trucks should also be matched with short-term measures to boost demand. Purchase subsidies are needed to stimulate early uptake in many sectors due to high upfront costs but will only be needed for a few years as costs come down and confidence grows. These should be funded by a bonus-malus system which would make them revenue neutral for the Treasury.

- The UK should put in place a subsidy scheme for zero emission HGVs similar to that which has already been implemented in France and the Netherlands³⁰ as current support is insufficient to achieve the required rates of uptake. A subsidy of around £50,000 is temporarily needed for rigid vehicles performing regional deliveries, and £100,000 (which could be split between vehicles and depot charging infrastructure) for articulated battery electric HGVs on intensive duty cycles. The support could be less if other policies bridge the short-term total cost of ownership gap
- The Government should set mandates for larger fleets and shippers to have 100% zero emission fleets by 2040. This would place responsibility for decarbonising trucks on those best able to manage the change. Larger fleets are also the bulk of the market for new trucks (fleets of 20 trucks or more make up 4% of truck fleets but 52% of new truck sales³¹), so fleet requirements will help to get zero emission trucks into the market,

³⁰ T&E (2022) [How to buy an electric truck](#)

³¹ Unpublished analysis by T&E

feeding them then into the used market which smaller hauliers are likely to buy from. The requirement would be on their overall fleet, not purchases, which would also accelerate demand for zero emission vehicles

4. Shipping

International shipping will be included in the UK's carbon budgets from 2033. The Climate Change Committee concluded in their 2023 progress report that "there are currently no credible policies in place to meet the required [shipping] emissions reduction" by the sixth carbon budget from 2033.³²

The UK government has endorsed the Science Based Targets initiative (SBTi) at the International Maritime Organization (IMO), an emissions reduction pathway compatible with the climate goals of the Paris Agreement. SBTi requires emissions cuts from shipping of 36% by 2030 and 96% by 2040. The Carbon Budget Delivery Plan is premised on the uptake of low carbon fuels for domestic shipping rising to 42% and to 28% for international shipping by 2035, yet even these targets would only deliver 1% CO₂ reduction by 2030 and 31% in 2035³³. There are no policies in place capable of delivering an emission pathway compatible with the SBTi nor deliver the uptake of low carbon fuels required by the CBDP. Without providing more certainty for such a significant sector, the Carbon Budget Delivery Plan could be challenged in the courts. The UK also has duties under the UN Convention on the Law of the Sea to tackle marine pollution, and the Government's view is that this includes greenhouse emissions.³⁴ Again, lack of action risks legal challenge.

The Environmental Audit Committee report on maritime decarbonisation in May 2024 also warned that shipping decarbonisation policy was in danger of drifting with ministers failing to set overall or interim targets.³⁵ A Government response would have been due by the end of July if the election had not been called. **The new Government should use its response as an opportunity to set a new confident course on shipping which reflects the urgency needed.** The response should give a clear timetable for when the Clean Maritime Plan will be updated.

Current policy has been to use the updated Clean Maritime Plan (first promised for 2022 and still unpublished) to set out a strategy to decarbonise UK domestic shipping whilst relying on the International Maritime Organization (IMO) for international emissions (80% of total UK shipping emissions). This approach will fail. Domestic targets will be only indicative, and the IMO has proven itself incapable of effectively regulating international shipping emissions. IMO decision-making requires consensus between member states and the 2050 strategy for greenhouse gas emissions is not binding or aligned to Net Zero.

³² Climate Change Committee (2023) [2023 Progress Report to Parliament](#)

³³ T&E. (2023) [UK shipping needs a renewable fuel mandate](#)

³⁴ Transport & Environment (2022), [UK legal obligations on international shipping](#)

³⁵ Environmental Audit Committee (2024) Retrieved from <https://committees.parliament.uk/work/1408/net-zero-aviation-and-shipping/news/201771/committee-publishes-report-on-net-zero-and-the-uks-maritime-sector/>

The development of scalable, zero emission technologies is at an early stage with some uncertainty remaining around options for different use cases. Strong policy signals from the Government are therefore essential to drive decarbonisation of the sector. The most important measures needed are set out below.

4.1 Including the majority of shipping in the UK Emissions Trading Scheme

Current policy proposes to extend the UK Emissions Trading Scheme (UK ETS) to include domestic shipping above 5,000 gross tonnage (GT) from 2026. This is currently the only regulatory measure planned for greenhouse gas emissions from shipping.

But limiting the UK ETS to only domestic shipping and then only to those ships above 5,000 GT means that the ETS will only cover around 10% of all UK shipping emissions (5,000GT would roughly be a mid-sized domestic ferry³⁶). To ensure a more even application of the polluter pays principle to all UK shipping emissions, the UK and devolved governments (who collectively make up the UK ETS Authority) should:

- Expand the UK ETS scope to include all vessels above 400 GT and include 50% of emissions from international voyages starting or ending in the UK with a view to increasing to 100% by the end of the decade if there is no similar action by other countries³⁷

4.2 Using the Clean Maritime Plan update to set course for decarbonisation

The Government **should use the update of the Clean Maritime Plan to set future policy and a regulatory framework to decarbonise all UK shipping**. The measures below can be enacted through secondary legislation under the Merchant Shipping Act 1995.

Measures³⁸ should include:

- Legally-binding, net zero aligned targets, including a 36% emissions reduction on 2020 levels by 2030, increasing to 96% in 2040, in accordance with the SBTi pathway
- A greenhouse gas emission standard for shipping fuels³⁹, to progressively increase the use of zero/near-zero-emission energy and fuels. This should require a 9% reduction in GHG intensity on 2021 levels from 2025, increasing to 28% in 2030
- A mandate for the use of an increasing share of renewable fuels of non-biological origin to guarantee essential investment before 2030 (which could be partly supported by a maritime contract for difference funded via a levy on UK marine fuel sales)

³⁶ MV Caledonian Isles. Retrieved from <https://www.calmac.co.uk/fleet/mv-caledonian-isles>

³⁷ Transport & Environment (2023), [A pricey omission: not charging ships for their pollution costs the UK £1.6bn/yr](#)

³⁸ Transport & Environment (2024), [Long, loud and legal: the case for zero-emission UK shipping](#)

³⁹ Well-to-wake energy greenhouse gas intensity (GHGi) standard measured in grammes of carbon dioxide equivalent per megajoule (gCO₂e/MJ)

- A mandate for ship energy efficiency improvement to ensure the 2030 target can be met, and the most economical use of shipping energy in the long-term. This could be achieved by requiring all ships to demonstrate they meet the uppermost energy efficiency standard (label “A”) under the IMO Carbon Intensity Indicator (CII)

4.3 Addressing port emissions

Around 10% of UK shipping greenhouse gas emissions are produced by vessels in the UK’s ports, primarily from running engines to meet onboard power requirements whilst at berth. Very large quantities of air pollutant emissions are also discharged, including sulphur and nitrogen oxides and fine particulate matter. All are poisonous and damaging to human health.

Solutions exist, and with the right policies from the Government they could be developed rapidly. Shore side electricity (SSE) allows vessels to plug in at berth rather than running engines for energy requirements. Alternative fuels like hydrogen from renewable electricity can also greatly reduce air pollutant emissions. And designating all UK waters and ports as an emission control area (ECA), where limits and even charges are placed on ship pollution, would lower emissions and could help fund cleaner forms of energy. The Government should:

- Require all berths in UK ports to be zero-emission (for both air pollutants and GHGs)
- Publish a plan for SSE in UK ports (recommended by the Climate Change Committee)
- Implement a UK variation on the Norwegian NOx fund and charge all ships making UK port calls for their emissions, effectively making all UK ports maritime clean air zones

5. Aviation

Aviation is the most climate-intensive form of transport. In the UK aviation emissions contribute significantly to UK emissions and transport emissions. Globally aviation accounts for 3% of all carbon emissions, while in the UK, they account for more than twice that, 7% cent. It comprises 25% of all UK transport emissions and is the only sector whose overall emissions are still trending upwards. Emissions have been lower since the pandemic but are expected to be higher than 2019 levels either this year or next.

Aside from direct CO₂ emissions, aviation also has an increased climate impact thanks to its non-CO₂ emissions: nitrogen oxides (NO_x), vapour trails and cloud formation triggered by the altitude at which aircraft operate. These emissions contribute twice as much to global warming and account for two-thirds of aviation's overall warming effect.

15% of people take 70% of all flights and in most years more than half of the UK population do not fly at all meaning that a small minority of the UK population is responsible for the majority of aviation’s climate impact. Fuel duty is not applied to jet fuel and VAT is not applied to plane

tickets, though Air Passenger Duty is. Most aviation emissions fall outside the UK emissions trading scheme.

The UK's current Jet Zero Strategy is inadequate to successfully decarbonise the sector by 2050. The Sustainable Aviation Fuels (SAF) Mandate is the main policy tool for decarbonisation. Yet in the absence of measures to manage growing demand and with relatively little long-term ambition compared to the EU version, the mandate will only cut emissions from the sector by 0.8% below current levels in 2040. The UK mandate is particularly weak on hydrogen-based fuels (e-fuels, power-to-liquid or PtL). This is concerning as these are the only fuels that can be produced with no net CO₂ emissions and scaled sustainably. The mandate also allows large amounts of used cooking and other waste oils to be used as feedstocks despite concerns about these feedstocks fraudulently being palm oil and existing demand from other sectors.

To get the UK back on track, the government should:

- Review the taxation of aviation: In 2019, flights departing UK airports were responsible for 38.5MtCO₂ and yet the industry paid no tax on the fuel it consumed. The “tax gap”⁴⁰ is expected to grow to £7.4bn by 2025
- Reject plans for airport expansion, consistent with the Climate Change Committee advice that “no airport expansions should proceed until a UK-wide capacity management framework is in place”⁴¹
- Apply hydrogen demand-side policies, ensuring green hydrogen is available for aviation
- Consider how to start the zero emission flight domestic market
- Ensure that the revenue certainty mechanism to support the development of SAF is funded by industry. Most people do not fly in any one year with the frequency of flying closely linked to household incomes. It would not be a fair or equitable approach if taxpayer subsidies were required for aviation to comply with the need for it to play its part in tackling climate change⁴²
- Review the cap on HEFA in the SAF mandate and increase the sub-mandate on PtL, to raise the ambition in the UK mandate to EU levels, or beyond

6. Hydrogen

Hydrogen-based fuels will be crucial for the decarbonisation of shipping and aviation. The UK has an established hydrogen strategy that aims to ensure hydrogen is produced in the UK but there are, as yet, no demand side policies in place for shipping and a weak policy for aviation in the SAF mandate (with a much lower PtL sub-mandate compared to EU policy). These demand-side policies need to be strengthened (for aviation) or put in place (for shipping), as set out above to guarantee offtake for the green hydrogen produced.

⁴⁰ Transport & Environment (2023) [Aviation tax gap](#)

⁴¹ Climate Change Committee (2023) [Progress in reducing emissions: 2023 Report to Parliament](#)

⁴² Transport & Environment (2024) [Paying for sustainable aviation fuel should not be funded by UK taxpayers, civil society groups say](#)

Many sectors already need hydrogen or see it as part of a solution for their decarbonisation. Green hydrogen from renewable sources will be scarce given the amount of renewable energy needed to meet the demand for hydrogen from existing users (eg fertilisers) and those sectors hoping to use it to meet their future energy needs. The new Government needs to be clear on the hierarchy of need for green hydrogen, with long-haul aviation and shipping clearly coming near the top of the hierarchy. Rather than constantly pushing back decisions on using hydrogen to heat homes (an extremely inefficient use of renewable electricity), **the new Government should ensure that there will be enough green hydrogen to decarbonise shipping and aviation by ruling out hydrogen for home heating and rule out blending hydrogen into the gas grid** now rather than wait to decide in 2026, as planned by the last government.

7. Conclusion

The UK has a good track record in cutting emissions in the power sector. Now, the policy focus of the new Government needs to turn to decarbonising transport. Civil servants will be coming to ministers with submissions about how to approach this challenge. The response of Ministers to the options presented will decide whether policy is sufficient to tackle transport emissions or if the UK fails the biggest climate challenge of the next Parliament.

Further information

Richard Hebditch

UK Director

Transport & Environment

richard.hebditch@transportenvironment.org