



Consultation on a zero emission vehicle (ZEV) mandate and CO2 emissions regulation for new cars and vans in the UK

Transport & Environment response

May 2023

Summary

This consultation marks another important step for the UK's efforts to decarbonise road transport. Once finalised, these proposals will turn into legally-binding targets that set the UK clearly on a world-leading path to 100% zero emission vehicle (ZEV) sales by 2035. It is crucial that the Government does not delay the implementation of the regulation beyond January 1, 2024.

We are pleased that the Government's latest proposals for the zero emission vehicle mandate and CO2 emission regulation have finally been put forward but we believe that the proposed targets for cars and vans still fall way short of where they should be if the mandate is to drive the market as intended. The purpose of the regulation should be to drive ambition, not be a backstop or insurance policy to what the market could deliver anyway. The Government's own [cost-benefit analysis](#) states that the "do nothing baseline" would get us to 23% ZEV sales in the car market in 2024.

By not increasing the ambition of the proposals for cars, the UK is missing out on a big opportunity to drive down emissions quicker, boost energy security and reduce costs for consumers. In fact, the Government's cost-benefit analysis for the ZEV mandate showed that the "high ZEV pathway" that was considered would bring benefits of £260 billion, instead of the £145 billion delivered by the current proposals. We need to see faster ZEV sales in the early years to maximise benefits and counter the changes to baseline emissions from transport due to real world emissions of plug-in hybrids (PHEVs) and increase in heavy goods vehicles (HGV) and van miles. As a result, we recommend that the car targets are at least 34% in 2024 rising up to 80% in 2030.

Despite increasing the ambition of the van targets proposed in the Technical Consultation from last year, the new proposals are still disappointing. We believe targets of 17% in 2024, rising to 48% in 2027 and 80% in 2030 would have put the UK on the right path.

We are concerned that the Government has not yet provided its definition for “significant zero-emission capability” (SZEC) that would give clarity to the types of new vehicles that will be eligible for sale after 2030. However, we are encouraged that the Government is taking the concerns around higher real world emissions of PHEVs seriously. The Government should come forward with its definition as soon as it can later this year and set strict standards for PHEVs that can be sold during this period (e.g. high minimum electric range ~ 100 miles, ability to smart charge and power of electric motor should be at least equivalent to engine). The Government should also rule out allowing new e-fuel powered cars and non-plug-in hybrids (HEVs) during this period (and beyond).

While flexibilities were expected in the scheme, we are disappointed that the Government has included banking and borrowing in these proposals. While the proposals for borrowing do, in theory, meet three of the four criteria T&E recommended if a borrowing proposal was to be included (time limited, cap on borrowable credits, interest rate on borrowed credits), we believe that the proposals are too generous and weaken the effectiveness of the regulation. The Government should reduce the share of borrowable credits to 50% in 2024, 25% in 2025 and 10% in 2026 and increase the interest rate to 5.5%. We also do not support the inclusion of the flexibility to allow over-performance on the non-ZEV CO2 regulation to be rewarded by transferring credits to the ZEV mandate - this should be removed in the final design of the regulation. The danger of a high amount of flexibility is the trajectory of ZEV sales become less certain, which will create uncertainty for investment in the wider EV ecosystem such as charging infrastructure.

On the design of the non-ZEV CO2 regulation, while we understand the policy intention, we believe the Government should adopt the proposed “tightening scenario”: the 2% reducing baseline for emissions. The consultation itself states that manufacturers have already made investment decisions - this should be reflected in how they are regulated on non-ZEVs. Furthermore, there is a risk in the Government proposals of a freebie for manufacturers by only asking them to comply with the 2021 baseline - in the three years between 2021 and 2024, manufacturers on average will have reduced their emissions by 1.5 % per year. The baseline should reflect where 2024 emissions are expected to be instead.

We believe that the regulation is well-designed overall and will provide certainty to the auto-manufacturers and related industries that the future of cars and vans in the UK is zero emission. We’re also pleased that the Government has opted to keep eligibility criteria for ZEV sales relatively simple.

Finally, we would like to reiterate the weak targets will result in bringing the natural trajectory of the industry down. It is unlikely that the industry will move faster than the targets and it is a concern that the DfT is assuming that this will be the case.

1. Introduction

This paper has been prepared by [Transport & Environment](#) (T&E) UK in response to the [Consultation on a zero emission vehicle \(ZEV\) mandate and CO2 emissions regulation for new cars and vans in the UK](#) from the Department for Transport (DfT).

T&E UK is the UK arm of Transport & Environment, Europe's independent expert in enabling clean transport for all. We work to end greenhouse gas emissions from transport in the UK, covering road transport, shipping and aviation. Set up in 2019, T&E UK is a growing team and we work closely with partners in the transport and environment sectors and support policy makers with evidence-based solutions to decarbonise transport in the UK.

We are pleased with many aspects of the proposed design of the ZEV mandate in this consultation. The regulation will create policy certainty for manufacturers and other industries to deliver the vehicles and infrastructure needed, while giving consumers and fleets the certainty they need that the supply of battery electric vehicles (BEVs) is secure in the years to come. However, we are disappointed by the lack of ambition of the targets and flexibilities that have been given to manufacturers.

To ensure drivers have sufficient confidence to switch to BEVs, the ZEV mandate regulation should be complemented by the rollout of a comprehensive, reliable and accessible charging network across all regions of the country. While the EV Infrastructure Strategy and funding commitments represent a good step forward by the Government, it's clear that local authorities need further policy guidance and legislation on reliability and interoperability of charging infrastructure needs to be passed as quickly as possible.

2. Regulatory framework (Questions 1 & 2)

We agree with the Government's view that the ZEV mandate regulation and its targets should apply to the whole of the UK. Separate systems developed by devolved administrations risks adding unnecessary complexities and delays to the implementation of the regulation, which adds uncertainty for industry and consumers. The UK Government trajectories and plans to ban the sale of petrol and diesel cars and vans by 2030 and all new sales to be zero emission by 2035 is in-line with previously stated policies of devolved administrations. Devolved administrations have powers to be able to introduce other measures to accelerate the uptake of BEVs further if they wish (for example, Scotland introduced a zero interest loan for new and used BEVs).

3. Annual sales targets for cars (Question 3)

So far in 2023, [New Automotive data](#) shows that sales of battery electric vehicles (BEVs) are around 16% of the market. While the share of registrations for BEVs has not significantly increased in recent months, the total sales have increased by 25% year on year. The fact is that petrol and HEV registrations have increased in recent months compared to last year which is keeping the BEV share lower than expected. It's unclear as to what is causing the spike in petrol and HEV sales, but this should not be a cause for concern with regards to demand for new BEVs which is still on the rise.

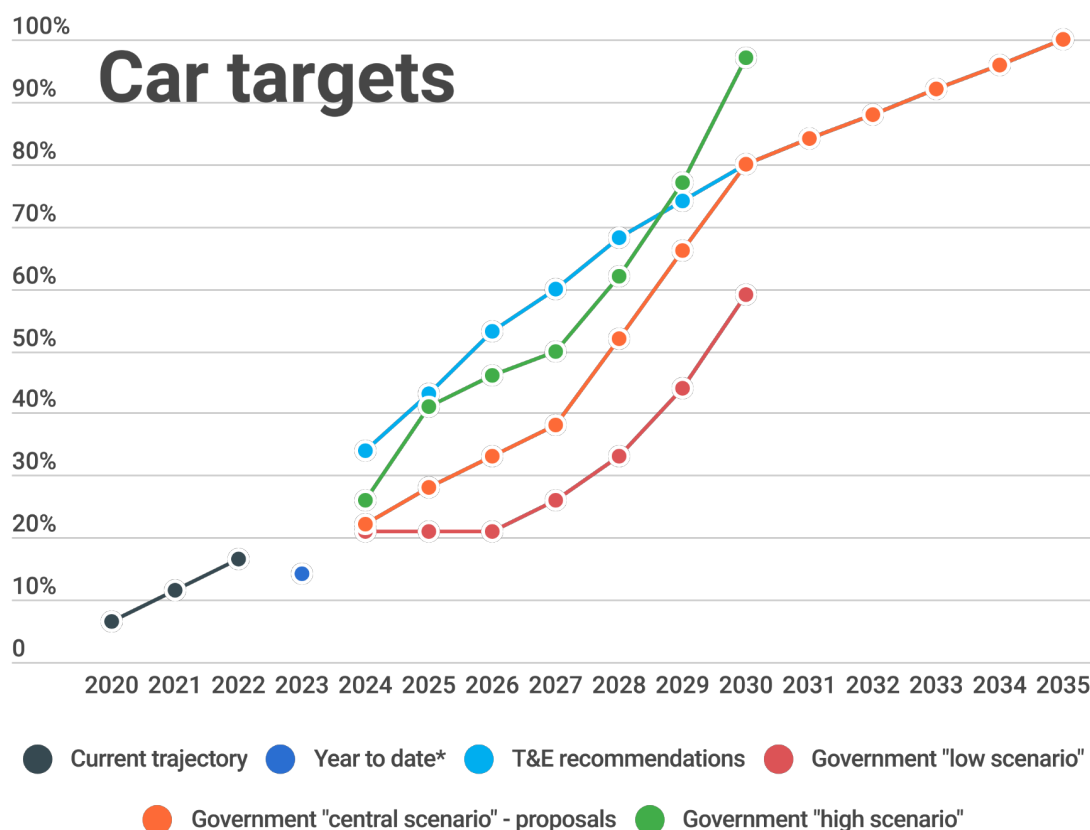
BEVs provide the UK an opportunity to switch its reliance away from foreign oil imports and towards domestic renewable electricity, as well as reduce emissions from transport and cleaning up our air. For this reason, early targets set out by the Government should be more ambitious than proposed in this consultation. Higher ambition in the early years generates better CO2 savings to push the market to its tipping point earlier. On top of that, the UK can create a thriving second-hand BEV market earlier that will unlock the potential for millions of people to benefit from the cheaper running costs that BEVs provide.

Furthermore, [the UK is already a net importer of crude oil and oil products](#). In 2022, whilst UK production of petrol matched petrol demand, 62% of all diesel burnt was imported. The situation will only get worse though, as the North Sea Transition Authority predicts that [North Sea crude oil production will drop nearly 50% from 2019 levels by 2028](#). This means that the UK will be a net importer of petrol very soon, and will import an even higher share of diesel. This is a major energy security concern.

Fleets will be one of the primary drivers behind accelerated BEV sales in the early years, since BEVs are cheaper to own and run than ICE alternatives on a total cost of ownership (TCO) basis (particularly with favourable benefit-in-kind (BIK) rates which have been extended until 2028). BEVs represented 34% of new registrations by the leasing sector in 2022 and with [corporate registrations accounting for more than half of new vehicles in the UK](#), procurement decisions of fleet operators have a huge impact on the wider vehicle market. After 3-5 years, fleet vehicles go into the second-hand market, with some used BEV prices now [half the price](#) of a new model. We know the high demand from the corporate channel will continue - it's important that supply matches this demand.

Some industry groups have claimed that we should be cautious against rapid electrification because the UK charging network isn't adequate. These claims are ill-informed. [T&E analysis](#) shows that the UK public charging network is currently sufficient to meet BEV demand in all regions, but that some regions could fall behind when the expected rapid uptake in BEV numbers occurs post-2025. The Government's EV Infrastructure Strategy was a step in the right direction and we applaud the financial support the Government is providing through this, but throwing money at a problem is not a strategy. We need strong, robust policies to deliver a world-class charging network and ensure local authorities are equipped to deliver on its obligation to plan and deliver charging infrastructure.

The proposed annual targets for cars can, and should, be more ambitious in the early years of the mandate. A target of just 22% in 2024 is below what we can expect the market to deliver anyway, as demonstrated by the "do nothing baseline" in the Government's [cost-benefit analysis](#) for the ZEV mandate. The ZEV mandate should not just be a backstop to a business-as-usual scenario; it should encourage realistic ambition from the market. We believe that the UK should aim for at least a third of new sales to be ZEV in 2024 and just over two-thirds in 2028.



Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
T&E proposal	34%	43%	53%	60%	68%	74%	80%	84%	88%	92%	96%	100%
Government proposal	22%	28%	33%	38%	52%	66%	80%	84%	88%	92%	96%	100%

Figure 1. T&E and Government proposed targets for cars.

We are concerned that the Government is only proposing to set out binding targets until 2030, seeking to consult once again on the targets that will take the UK to 100% ZEV sales in 2035 and what vehicles should be defined as having “significant zero-emission capability” (SZEC). While we recognise the commitment to “implement binding targets at least as ambitious” as those indicated in this consultation, the Government should be clearer on its intentions for this period sooner rather than later.

The Government should rule out allowing cars powered by e-fuels to be sold after 2030. E-fuels do not exist in meaningful quantities currently, and even by 2035 there will only be enough for [2% of cars in Europe](#). E-fuels are also incredibly unaffordable, [costing up 50% more than standard petrol in Germany, for example](#), and significantly more than it costs to charge a BEV. E-fuels are also not zero-emission at the tailpipe and will likely be banned from low and zero emission zones in towns and cities across the country. Allowing vehicles equipped for e-fuels to be sold after 2030 will just mean unnecessarily prolonging the life of the internal combustion engine - e-fuels are chemically identical to fossil fuels so

any petrol and diesel cars would be able to use them. Finally, E-fuels are made from combining hydrogen and captured carbon: since green hydrogen will be a scarce resource for decades to come, it should be used in hard-to-abate sectors such as aviation and shipping.

With regards to other vehicles that can be sold between 2030 and 2035, we are interested to engage with the Government on its tracking of the “ongoing uncertainties around the real-world emissions and test cycle monitoring of various drivetrain technologies” referred to on page 20 of the consultation. The Government should rule out the sales of non-plug-in hybrid vehicles after 2030 as they do not provide significant enough emission savings. The only new non-ZEV vehicles that should be eligible for sale after 2030 are plug-in hybrids (PHEVs) that meet strict criteria. Such [eligibility criteria for PHEVs](#) should include:

- Minimum consistent fully electric range of at least 100 miles;
- Capable of fast charging at minimum speeds of 50kWh;
- The power of the electric motor should be at least equivalent to the power of the engine;
- The vehicle should be able to operate in zero emissions mode irrespective of the power demands of any auxiliary equipment.

The Government should also oblige manufacturers to collect data on their PHEVs sold from onboard fuel consumption meters from 2027 to understand how much PHEVs are actually driven in electric mode and how much in fossil fuel mode, and based on this data review the criteria for PHEV sales post-2030.

T&E will submit separate evidence on PHEVs and SZEC and is happy to engage further with the Government on this process.

4. Annual sales targets for vans (Question 4)

While we are pleased to see that the Government has listened to the cross-sector calls to increase the level of ambition of its targets for vans, we believe the updated proposals still lack the level of ambition that is required to sufficiently scale up supply of electric vans in the UK. Although it’s understandable that the Government is planning to set the early targets for vans at a lower level than cars due to the differing maturity of the electric van market, the targets must accelerate at a much faster rate than currently proposed.

The UK inherited weak CO2 targets for the van market from the EU. While the stronger CO2 targets for cars have helped to accelerate the electric car market to where it is today, the van market has lagged behind. These targets have meant that manufacturers haven’t needed to supply many electric vans to be compliant, leading to the weak electric van market we currently have today.

Over [4.5 million vans](#) are driven along our main roads and streets, providing a crucial means for people to work, services to run and goods to move. Between 1999 and 2019, the number of vans on our roads has risen by 76%, while emissions have gone up by 35% in this period.¹ The growth of a diesel-dominated van sector has been a disaster from an environmental perspective. Vans are also a major contributor to air

¹ DfT, Vehicle Licensing Statistics 2021 Data Tables, veh0101. Emissions figures from DfT, Energy and Environment Tables, ENV0201.

pollution in cities, contributing to 36% of NOx emissions from road transport.² Whilst total NOx emissions from cars have fallen in recent years, total NOx emissions from vans have in fact risen by 58% between 2009 and 2019; meanwhile, in the same 10 year period, the van sector has also seen increases in PM10 and PM2.5 from tyre and brake wear (35%) and road abrasion (36%).³

The best way to reduce tailpipe emissions to zero is to switch the UK van fleet from diesel to electric; which will be easier if the fleet is made up of fewer vehicles in total, which the Government should be doing more to address.

The supply of electric vans is the main thing holding the market back from rapidly shifting away from diesel. So far this year, electric vans account for nearly [5.5% of new registrations](#) in the UK van market, up by nearly 15% from this stage last year. Meanwhile, however, diesel accounts for almost 92% of new registrations.

The vast majority of new vans registered are by commercial users, who tend to operate on a TCO basis: looking at the whole lifetime costs of the vehicle whilst they own it (including fuel and maintenance costs which are lower for BEVs). As soon as the TCO is positive for BEVs in comparison to an ICE van, the market will shift as it makes financial sense (as long as there are not major operational constraints). T&E analysis shows, in the UK that point has already been reached, with [electric vans already between a fifth and quarter cheaper than diesel equivalents](#) across all use cases, for light and heavy vans,⁴ with or without subsidies, assuming a 4-5 year ownership cycle. Furthermore, according to [BNEF forecasts](#), the upfront cost of electric vans is continuing to fall, with upfront price parity expected to be reached with diesel vans in 2026 in the light and heavy segments.

[4 of the 5 largest corporate fleets](#) (BT Group, Centrica, M Group and Mitie) have made commitments to collectively switch nearly 55,000 vehicles to zero emission by 2030 at the latest through the EV100 campaign, alongside many other fleets of significant size (including SSE, OVO, National Grid, Siemens, Severn Trent & Schneider Electric). Most of these fleets have a significant number of vans. Collectively, commitments from corporate fleet signatories to the campaign stands at over [150,000 vehicles](#).

Although there are some genuine concerns around operational constraints of electric vans currently on the market, these barriers are starting to be addressed. On range, for example, a [T&E study](#) found that in 2021, the average light electric van in Europe could drive 192km on a single charge in real driving conditions (up to 255km for longer range models), while a heavy electric van had a real range of 133km (up to 154km for longer range models). New models in 2022 are advertising higher official ranges (293km for light electric vans and 263km for heavy electric vans) demonstrating that range limitations are starting to be addressed.

² DfT, Energy & Environment Data Tables (ENV), ENV0301: Air Pollutant Emissions by Transport Mode: United Kingdom

³ *ibid.*

⁴ Light vans below 1.76t; heavy vans above 1.76t

The electric van market is ready for rapid acceleration, but the targets need to be there to ensure manufacturers prioritise production and sales for the UK market. Under the EU CO2 targets, for example, car manufacturers delayed supplying EVs until they were required to do so and instead promoted sales of profitable ICE SUVs. Without strong targets, van makers may hold back the transition to electric vans for as long as possible to prioritise selling diesel. All told, the likelihood is that the main thing currently holding back the electric van market in the UK is van makers holding back supply in favour of selling diesel. Strong, ambitious targets in the early years will send the right signal to van makers that they have to accelerate their plans to bring the right electric vans to the market, including models with better towing capabilities, loading capacity and other specifications.

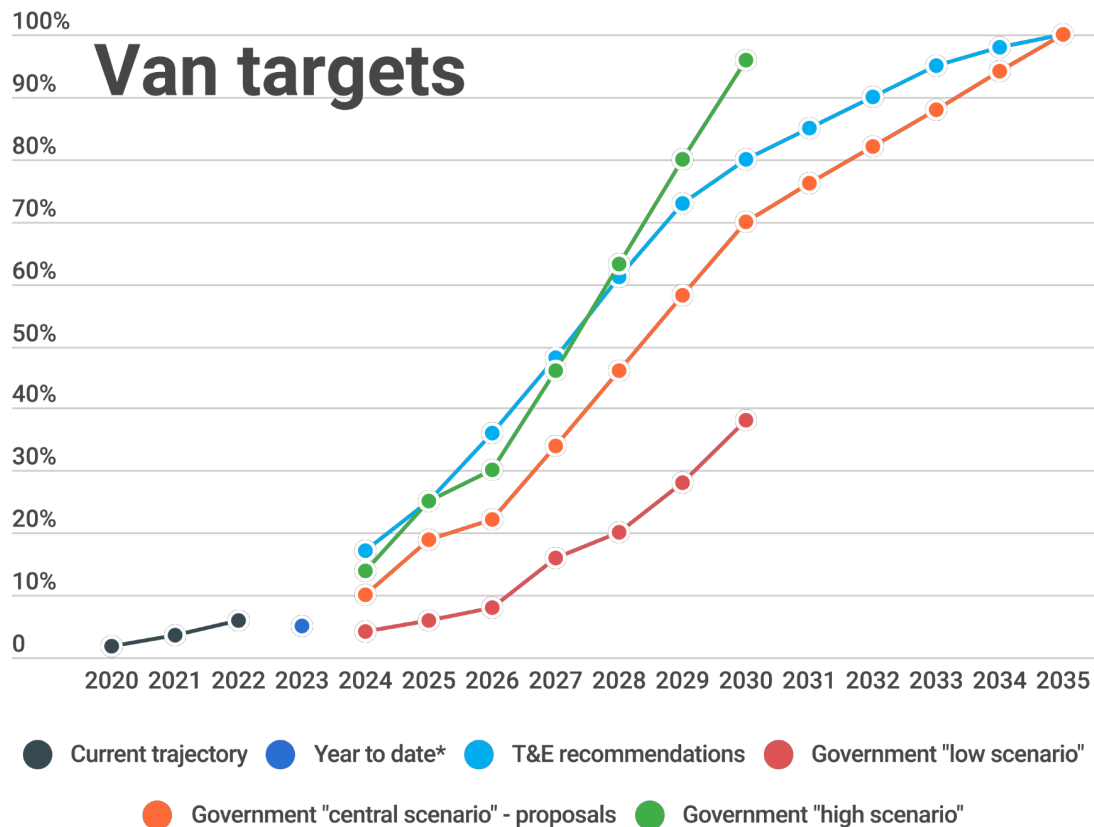
The Government should aim for targets that significantly ramp up electric van production and sales between 2024 and 2030 to catch up with targets proposed for cars. In 2024, we recommend the Government sets the target at 17%. We believe this sets the ambition at the right level to ensure the supply of electric vans is increased to meet current demand in the UK. As set out above, once the van market starts to move and the financial business case is positive for fleets, it will move very quickly towards an electric market.

Whilst we're pleased that the Government has increased the targets for 2030 from the woefully low 52% to 70%, we still believe this falls short of what is needed and still leaves open the question we asked in our response to the technical consultation: what does the Government expect will make up the remaining 30% of van sales once diesel sales have been banned? As set out above, we are concerned about the lack of certainty being provided by the Government on its post-2030 targets and it should make clear its intentions as quickly as possible.

PHEV vans do not play a significant role in the van market, with diesel and BEV vans equalling 98% of new registrations currently. BEV vans are technologically and economically superior to PHEVs. Indeed, only a couple of manufacturers even produce them. [Research by IHS Markit for T&E](#) found that by 2030, PHEV vans will only make up 2.5% of the total vans produced in Europe. PHEV vans are not competitive on CO2 savings in comparison to BEVs (even when benefiting from generous accounting methods, namely on the assumed electric range driven) and it is likely that they will have higher real-world emissions, as has been demonstrated for cars. Meanwhile, [HEV vans only provide a 14% average CO2 saving](#) compared to an ICE van.

As we have set out above, we also strongly oppose any allowance of e-fuels in new vehicles after 2030, including vans.

We recommend the Government set out levels of nearly 50% in 2027 and 80% in 2030. However, due to the fact that there appears to be no genuine alternative to BEVs in the van market, we believe that the van market could accelerate far quicker and overtake the car market towards the end of this decade.



Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
T&E proposal	17%	25%	36%	48%	61%	73%	80%	85%	90%	95%	98%	100%
Government proposal	10%	19%	22%	34%	46%	58%	70%	76%	82%	88%	94%	100%

Figure 2. T&E and Government proposed targets for vans.

The ZEV Mandate is a great opportunity for the UK to get ahead of other markets and ensure a strong supply of electric vans into the UK market. They are cheaper to own and run, saving UK businesses money; and they can, importantly, attract new investment and create new jobs in the UK for van production. In the UK, we have already seen Stellantis' Ellesmere Port plant switch to an all-electric facility, and strong targets could lead to others switching too, as well as manufacturers setting up new plants in the UK.

The UK can achieve this by setting ambitious targets and ensuring there are strong incentives to stimulate demand for zero-emission vans. The level of BEV van sales recommended is achievable, but will require the UK to be a key market for sales of electric vans manufactured in Europe. The Government should revisit reforming vehicle excise duty for vans to create a greater tax differential based on CO2 emissions, ensuring that BEV vans are well incentivised.

5. Applicability of mandate (Questions 5 & 6)

Regarding derogations for small and niche manufacturers, we understand the Government's approach. Niche manufacturers only supply a tiny number of typically luxury vehicles and could buy credits to meet obligations under the ZEV mandate. In fact, some of these luxury manufacturers (e.g. [Rolls Royce](#)) have existing plans for sales of electric vehicles which will help them to meet the targets without need for a derogation anyway. However, we understand that others are not in this position - as a result, we have no issue with the proposals so long as all manufacturers comply with the ban on petrol and diesel sales in 2030 and deliver 100% zero emission sales from 2035.

Regarding "special purpose vehicles" (SPVs), we similarly understand the Government's approach. We are supportive of the proposal to spur the development of ZEV models for these vehicles by allowing manufacturers to claim a ZEV credit if manufacturers produce a ZEV. The Government should keep this under constant review and narrow the scope of which SPVs are excluded from the ZEV mandate as the market develops. For example, there are developments of zero emission models of blue light vehicles including ambulances and fire trucks underway, with [Government money](#) being committed to supporting development in this area. Overall, we don't believe excluding SPVs will make a material difference to the purpose of the ZEV mandate.

6. Trading & flexibilities (Questions 8 & 9)

In the Government's [technical consultation](#) from 2022, it stated:

"We are not considering implementing 'banking' or 'borrowing' of ZEV certificates within the regulation so that the annual targets are required to be met within the year in which they apply and cannot be met by sales achieved in either prior or future years. We want to avoid a mechanism that encourages an oversupply in the first few years followed by a constrained supply at a later date."

We are disappointed that the Government has rowed back on its previous position which was to not include banking and borrowing in the scheme. Flexibilities can delay much needed climate action, creating steeper and costlier abatement in the later years. This is contrary to what is needed if the UK is to achieve its Sixth Carbon Budget targets that require ZEV sales to be ambitious in the early years.

We do not believe that banking & borrowing is needed in this regulation. Borrowing allows companies to kick the can down the road and will not stimulate further innovation. Companies unable to meet targets in the early years will be able to purchase certificates under the trading scheme until they are in a position to catch up. It is also clear that the overwhelming majority of OEMs recognise the future of cars and vans is electric. The Government's [cost-benefit analysis](#) (p18) shows that increasing numbers of OEMs are planning to end sales of ICE cars and a ZEV mandate simply regulates this.

While some manufacturers may not currently have plans to sell high amounts of BEVs into the UK market, the purpose of having ambitious targets coupled with high penalties for non-compliance, would be to attract those vehicles to the UK market. The ZEV Mandate can and should be designed in a way that

manufacturers prioritise the UK market for ZEV sales. As a result, banking & borrowing is unnecessary and would significantly weaken the regulation.

The trading system is more than adequate to provide flexibility to manufacturers. Car manufacturers are making [record profits](#) and are paying out unprecedented amounts to CEOs and shareholders. The big five European car makers have more than doubled their annual profits since 2019 to 64 billion Euros. Manufacturers have more than enough capital to be able to purchase certificates if they need to.

However, we do understand that the Government has felt it necessary to find a level of compromise between the position of laggard auto-manufacturers and the need to maintain the integrity of the mandate.

In a briefing sent to DfT in February 2023, we set out what we believe are four key conditions if borrowing was to be included in the mandate. These are:

- **Higher ambition in the early years** to counter weakening to regulation from borrowing of credits;
- **Flexibilities should be time limited** to just the first three years of the scheme (until 2027);
- **Limit the amount of credits that can be borrowed** (and banked);
- An **interest rate should be applied** to the borrowing of credits to ensure manufacturers overcompensate for targets missed in early years.

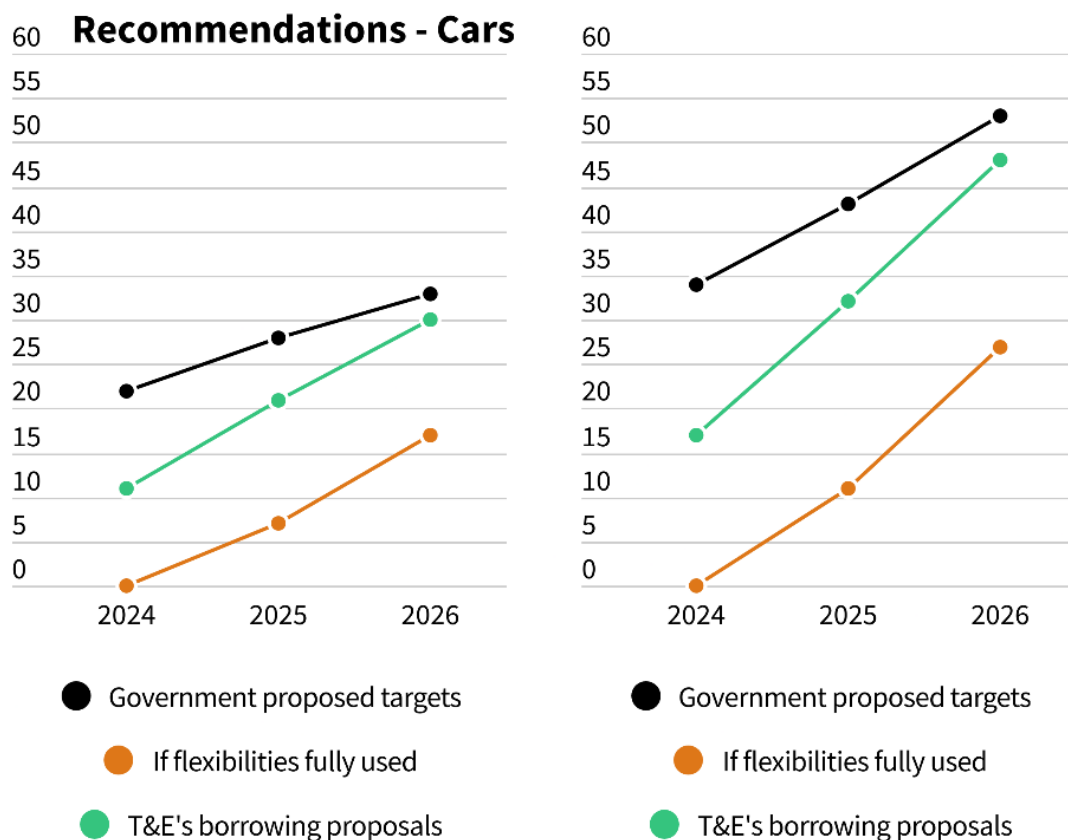
As set out above, we are disappointed that the Government has not increased the ambition of its car targets and we believe that, even though they are better than previously proposed, the van targets also fall short of what is needed.

We are pleased that the Government has limited the period that borrowing applies to the first three years of the mandate - this ensures that the long term integrity of the targets are not compromised.

While we're pleased to see that the Government is limiting the amount of credits that can be borrowed, we think the limits are too generous and should be reduced in order to prevent the number of ZEVs on the road falling too far behind targets, and minimise the risk of a dramatic increase in the supply of ZEVs 2027 in order to protect other industries such as charging. As presently stands, were a manufacturer to use the flexibilities to their fullest extent, then they could go from no ZEV sales in 2024 to 17% in 2026 and then, in the course of a year, up to 81% in 2027 (for cars; from 0% to 11% to 59% for vans)⁵. It is a massive risk to the decarbonisation efforts of the mandate to allow manufacturers to bet on this massive increase in production, or on the availability of sufficient credits in the market.

We therefore recommend reducing the amount manufacturers can borrow to 50% of the 2024 target, 25% of the 2025 target and 10% of the 2026 target.

⁵ This includes the maximum 25% increase from overcompliance with the nonZEV CO₂ standard.

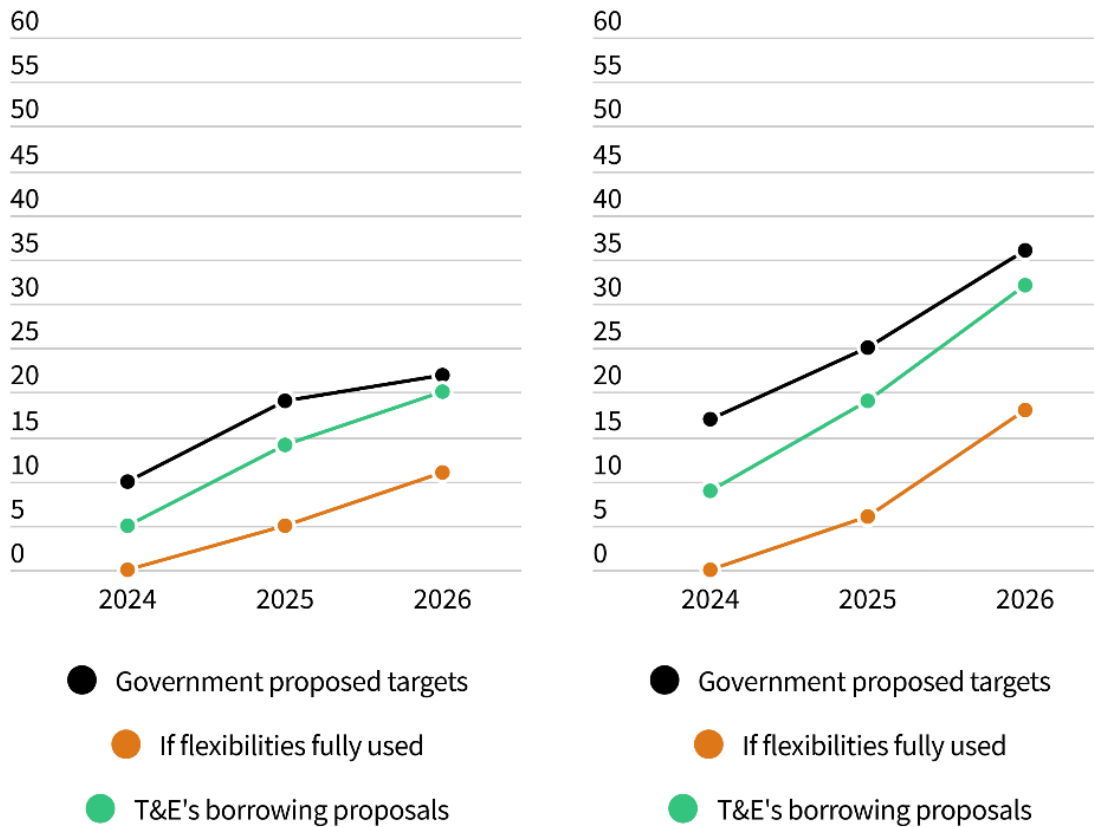


*T&E's recommendation - higher interest rate; borrowing allowances of 50%, 25% and 10%; and no weakening of targets through overcompliance on NonZEV CO₂

Figure 3. Potential impact of flexibilities (cars)⁶

⁶ To form these trajectories, all of the available flexibilities were combined into a worst case upon worst case scenario – the maximum borrowing and maximum credit transfer from overachievement on the nonZEV CO₂ regulation. This differs from the worst case scenarios considered in the [consultation CBA](#), which considered each flexibility in isolation.

Recommendations - Vans



*T&E's recommendation - higher interest rate; borrowing allowances of 50%, 25% and 10%; and no weakening of targets through overcompliance on NonZEV CO2

Figure 4. Potential impact of proposed flexibilities (vans)⁷

Finally, we are pleased our final condition of an interest rate being applied was included. However, again we think the interest rate needs to be higher. While the interest rate should act as a mechanism to make up for lost CO2 savings, it should also discourage manufacturers from borrowing in the first place. Given likely improvements to CO₂ emissions from non-ZEVs over the borrowing period, it is logical to increase the interest rate by a further 2% to compensate society as the earlier non-ZEVs are more polluting than the future non-ZEVs the future BEV is displacing.⁸ Hence, our recommended interest rate for borrowing is 5.5%.

⁷ To form these trajectories, all of the available flexibilities were combined into a worst case upon worst case scenario – the maximum borrowing and maximum credit transfer from overachievement on the nonZEV CO2 regulation. This differs from the worst case scenarios considered in the consultation CBA, which considered each flexibility in isolation.

⁸ [T&E analysis](#) estimates that future ICE-based powertrains will improve by an average of 1.5% per year between 2022 and 2025, based on improvements to both ICEs and hybrid models and changes in market share.

Overall, we believe that the proposals are way too generous and risk undermining the effectiveness of the regulation in the early years. This will be bad for investment and bad for consumers.

With regards to the proposals for the banking of credits, we believe that the Government's proposals are reasonable.

7. Minimum requirements (Questions 9 & 10)

We support the Government's proposals to ZEVs to set some limited minimum requirements for vehicles to be eligible under the mandate. In our response to the technical consultation, our view was that the eligibility criteria should be kept simple to just require ZEVs to have 0g CO₂/km according to WLTP. However, we understand and agree with the Government's position that including requirements for ZEVs to have a minimum range of 120 miles and have a warranty of at least 8 years or 100,000 miles will help provide more confidence to drivers. This criteria should apply to both cars and vans.

We are also supportive of the Government keeping requirements for bi-directional charging capability under review - [California](#) has recently proposed such a requirement on manufacturers to come in for new BEVs from 2027. We would encourage the Government to explore other mechanisms in the meantime to support the scalability of vehicle-to-grid (V2G). V2G has [significant potential](#) to enhance the UK's energy grid and can offer significant financial benefits for drivers.

We do not believe that any additional requirements need to be added at this stage. The Government must come forward with its proposals for an updated battery regulation this year, which should include provisions around battery sustainability, recycling and reuse. The EU has made significant developments on this policy area in recent months - the UK should ensure that it is at the very least aligned with these regulations and seek ways to gain regulatory advantages, such as through higher recycling targets. We do not believe that the ZEV mandate is the right regulation to cover this.

8. Additional credits (Questions 11 & 12)

T&E is very supportive of the expansion of availability of car clubs in the UK. The average car is parked 96% of its life and rarely travels far when it is in use. Car clubs are one way of tackling the waste created by unnecessary car ownership and deliver a whole host of social and environmental benefits. As a result, we're encouraged by the attention car clubs are being given in this regulation and we hope it signals further progress that will be driven by the Department for Transport to further increase the size and usage of electric car club vehicles.

T&E understands the main barriers for expansion of car clubs to be:

- A lack of a coherent national strategy to expand electric car clubs;
- Inconsistent local authority policies, notably regarding access to parking bays; and
- Insufficient charging infrastructure suited to electric car clubs.

While we're not opposed to the proposals, we are keen to understand further what problem DfT is

seeking to address with its proposal to allow manufacturers to claim additional credits for selling ZEVs into car clubs. There is no clear specific supply issue for car clubs, rather an issue for the wider market. The uptick in supply to the wider market that will come from the annually increasing ZEV sales targets should enable car clubs to access these vehicles more easily.

With regards to wheelchair accessible vehicles (WAVs), we are supportive of the Government's proposals.

9. Non-compliance payments (Question 13)

We support the Government's proposals of non-compliance payments to be £15,000 for cars and £18,000 for vans. Previously T&E recommended that, as an absolute minimum, the penalty levels must be above those imposed by EU regulations so that manufacturers are incentivised to prioritise the British market. Under the EU regulation, penalties are set at €95 or approx £85 per g/km that a manufacturer's fleet average is above the target, with a series of adjustments such as ZEV bonuses and adjustments for average mass. The Government's proposals certainly do this.

10. Baselines & trajectories for non-ZEV emissions standards (Questions 14 & 15)

With regards to the proposed 2021 baseline for non-ZEV sales, we believe there is a risk of the Government inadvertently giving away a freebie to manufacturers. During the period between 2021 and 2024, manufacturers on average will have made [1.5% CO2 savings](#) per year due to efficiency gains. This is particularly a risk because the Government's proposals allow for overcompliance on the non-ZEV regulation to be used to comply with the ZEV mandate. Due to this flexibility, we would strongly urge the Government to revise its proposal for the baseline to be set in 2021 and take an additional 4.5% away from this to reflect where expected emissions will be in 2024.

While we understand the policy intention of the Government's proposed approach to fix the CO2 regulation in the "flat scenario" so that non-ZEVs do not become less efficient, we believe the Government should adopt the "tightening scenario" which would require 2% annual reductions. While we agree with the Government that manufacturers should focus development plans on ZEVs, the consultation itself states that manufacturer investment and production cycles have already been set for the next few years. If this is the case, then they should be regulated to ensure that the UK doesn't become a dumping ground for polluting vehicles while the more efficient vehicles go elsewhere. Ultimately, regulation in the EU that requires improved efficiency will have a larger effect on OEM production plans. The UK should put in place policies to benefit from the same improvements, as long as it doesn't impact the supply of ZEVs to the UK.

There is a risk that this leads to higher sales of PHEVs, which ultimately compete with BEVs. It is crucial that the UK takes steps to ensure PHEV real world emissions are reflected in utility factors and that the Government takes additional measures to reflect these higher real world emissions in its tax measures.

While we agree with the Climate Change Committee's assessment that the increase in the number of heavy vehicles (e.g. SUVs) on UK roads is an issue, we believe that the "tightening scenario" could have a similar effect as any additional efficiency gains needed for compliance could be met by removing heavier vehicles from sale. Other measures should be considered by DfT and the Treasury to disincentivise SUVs, such as higher taxation, or incentivising sales of smaller BEVs.

11. Applicability of non-ZEV emissions standards (Questions 16 - 19)

Regarding derogations, we support the Government's approach to only apply derogations for car and van manufacturers producing less than 1,000 units per year, as long as all manufacturers comply with the ban on petrol and diesel sales in 2030 and deliver 100% zero emission sales from 2035. Otherwise, the CO2 standards should apply as normal to all other companies.

We also support the Government's approach to maintaining the same exemption classes as the current CO2 regulation.

With regards to pooling and targets for new manufacturers, we have no particular view and are happy to support the Government's approach.

12. Transfer of allowances (Questions 20 & 21)

We are opposed to the non-ZEV CO2 regulation and ZEV mandate credit systems being linked. Allowing the two systems to work independently ensures that they are at their most effective in a) increasing the number of ZEVs sold in the UK, and b) ensuring non-ZEVs do not become less efficient.

The proposals of allowing manufacturers to switch certificates earned on overperformance on the ZEV mandate to offset underperformance on the non-ZEV CO2 regulation carries less risk. As stated in the consultation, it could help to incentivise higher ZEV sales.

We are strongly opposed to the proposal that allows for companies to overperform on the CO2 regulation and offset that against underperformance on the ZEV Mandate. This will result in being a loophole for polluting hybrid vehicles, contrary to the Government's intention with the overall design of the regulation. While we appreciate that the Government is seeking to limit this flexibility to just the first three years of the scheme and set a limit on the amount of credits that can be transferred, we do not believe that this measure is necessary.

Manufacturers that are unable to meet the ZEV mandate targets in the early years are offered flexibilities already by the Government's proposals, in the form of borrowing of credits. Manufacturers are also able to make non-compliance payments as set out in this consultation. The Government should not provide further flexibilities and allowances for manufacturers that have failed to invest the necessary amounts

into ZEV production. This will undermine the early year targets of the mandate, allowing companies to effectively not sell any ZEVs in the early years of the regulation, as set out above in section 6. If the Government is to include this flexibility, alongside borrowing, it must increase the level of ambition of its early year targets to be at least in line with T&E recommendations.

13. Non-compliance payments (Question 22)

We support the Government's proposal to keep the non-compliance payments for the non-ZEV CO2 regulation the same as it is currently.

14. Reporting and review (Questions 23 - 25)

With regards to reporting, we have no particular view on the timing of reporting and are happy to support the Government's proposed approach. However, we believe that for transparency it's important that all non-commercially sensitive data is published so interested stakeholders can monitor the progress of the industry in complying with the ZEV mandate. This will also help with enabling interested stakeholders to provide clear evidence to the Government for reviewing the effectiveness and potential changes needed to the regulation.

We support the Government's approach to keep the regulation under review, although we must stress that this must not mean a weakening of the ambition of the regulation at any point. Any changes to the mandate should be to a) increase ambition of the targets, b) add additional eligibility, c) strengthen the non-compliance payments, or d) remove flexibilities such as borrowing or transfer of non-ZEV CO2 credits to ZEV mandate.

Finally, with regards to the last question on the impact of the regulation on rural and remote communities of the UK, we agree that consideration should be given to people and businesses in these areas. However, the main challenges facing people in these areas will be access to public charging infrastructure (although access to off-road parking is likely to be more prominent in rural areas), rather than the vehicles themselves and so not of concern for this regulation. DfT should continue to work closely with local authorities and the private sector to ensure that all communities in the UK are well served by public infrastructure and opportunities for charging at home and workplaces are maximised. This will also include ensuring the local grid networks are ready for the uptake of BEVs. This shouldn't, however, have a chilling effect on uptake of ZEVs in these areas.

15. Further comments

We would like to reiterate concerns above that the definition of "significant zero emission capability" (SZEC) has been left outside the scope of this regulation. The Government needs to be completely clear on its current thinking on this area and explain its concerns on "ongoing uncertainties around the real-world emissions and test cycle monitoring of various drivetrain technologies". T&E has published a wealth of evidence highlighting the real world emissions impact of hybrids and plug-in hybrids and we're happy to further work with the Government on this area.

The Government should come forward with its plans on this as soon as possible to ensure there is certainty for manufacturers, businesses and drivers on what vehicles will be eligible beyond 2030. The Government should also rule out new vehicles powered by e-fuels to be allowed during this period.

Further information

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Appendix

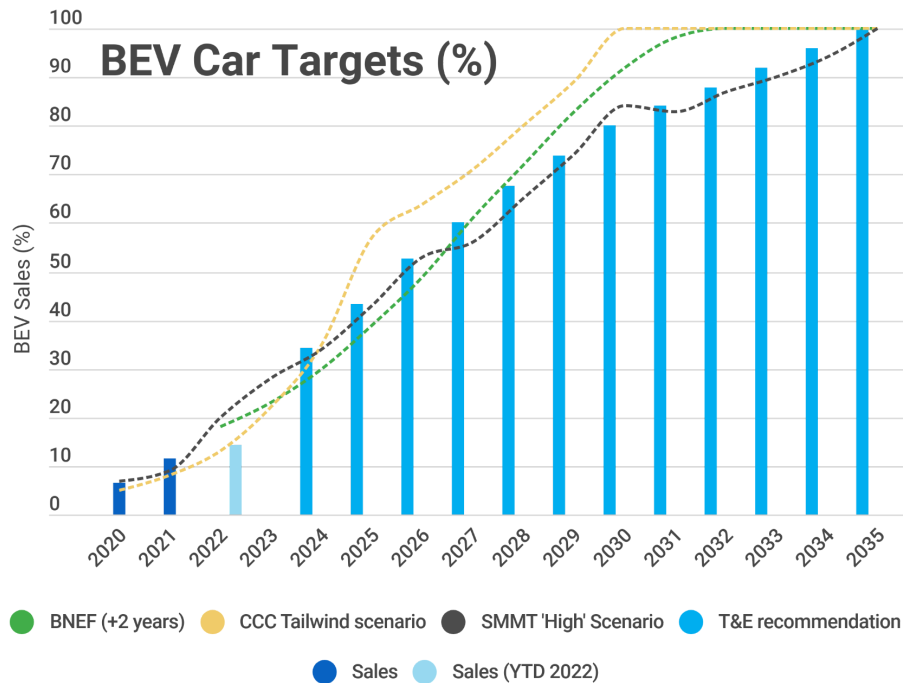
How T&E arrived at our recommendations for targets

The ZEV Mandate is intended to bolster a faster transition to zero emission surface transport, not to act as a backstop regulation. Therefore, any targets should be at least as high as the market would achieve unregulated. Over the last few years, ZEV car sales have grown faster than many expected, and there is a risk that Mandate targets become outdated, which T&E believes outweighs the risks of overambition. In our recommendations we have tried to strike a balance between maintaining the momentum we're seeing in the market and outpacing what can be realistically achieved.

In their [Sixth Carbon Budget](#), the CCC's most optimistic projection (the 'Tailwinds' scenario) assumed a 2030 phase out of ICE sales and a percentage based target on EV sales. Given those market conditions, they estimated that BEV sales could reach the levels shown in Figure A.1 below. Currently, sales are outpacing the CCC's pathways. This is a good sign that further ambitious targets can and should be used to drive the market forward and grab the benefits of the BEV revolution for the UK as soon as possible.

In 2020, [BNEF](#) studied the falling costs of EVs and projected the impact of rapidly decreasing costs and achieving price parity well before the end of this decade on ZEV uptake. Within their projections for Western European markets, there was an expectation that some markets would move faster than others. Based on current sales rates, the UK seems to currently be around 2 years ahead of the curve.

Furthermore, the [SMMT](#) has projected ZEV sales under a range of market conditions. Assuming adequate infrastructure, sufficient cost incentives and price parity being achieved by around mid-decade, they assumed BEVs could represent the following share of sales (Figure A.1) in an unconstrained market that recovers quickly to around 2.3 million annual sales. Although there are presently constraints on the market involving a shortage of chips and potential scarcity of the metals required to make EVs, presently this does not seem to be depressing demand, and T&E does not expect it to materialise as an issue. It should be noted that supply chain issues are affecting the ICE market, too, and that BEV sales seem less affected by shortages.



Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
T&E recommendation	34%	43%	53%	60%	68%	74%	80%	84%	88%	92%	96%	100%
Current proposal	22%	28%	33%	38%	52%	66%	80%	84%	88%	92%	96%	100%

Figure A.1: Comparison of projections based on assumptions similar to present market conditions.

From comparing the above projections and current sales, we think a series of targets broadly based on the SMMT’s ‘High’ scenario are both realistic and achievable, though it may be that these are too conservative and ambition needs to be updated at a later date.

For vans, we have based our recommendations on the ‘accelerated’ adoption pathway modelled by [BNEF](#), which is consistent with a 2035 phase out date. This forecast was adapted to account for low supply and for issues with charging for fleets, and is once more based on TCO and price parity considerations.