Department for Transport

Outcome and government response to the green paper on a New Road Vehicle CO2 Emissions Regulatory Framework for the UK

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Executive summary

In November 2020, as part of the Prime Minister's Ten Point Plan for a Green Industrial Revolution, the Government brought forward the date at which we will phase out the sale of new petrol and diesel cars and vans to 2030, and brought forward the date at which all new car and van sales will be zero emission to 2035. Between 2030 and 2035, only new cars and vans with 'significant zero emission capability' would be permitted to be sold.

In July 2021 government published a green paper on a new road vehicle CO_2 emissions regulatory framework for the UK that would put these commitments into UK law. This paper, which was publicly consulted on, sought views on:

- Two possible regulatory frameworks that could be used to deliver these dates and the reductions in carbon emissions in the run-up to 2035; and

- How we would define 'significant zero emission capability'.

The public consultation ran between 14 July 2021 and 22 September 2022. 61 responses were received, and this document is government's formal response to that consultation.

The key announcements from this consultation are:

- To provide certainty to consumers, energy providers, the chargepoint industry, vehicle manufacturers and supply chains during this transition, we will introduce a zero emission vehicle mandate setting targets requiring a percentage of manufacturers' new car and van sales to be zero emission each year from 2024.

- We will continue to regulate the CO_2 emissions of new non-zero emission cars and vans to limit their emissions until all new sales are zero emission at the exhaust.

- In time, this framework could be applied to all new road vehicles sold in the UK.

- A number of key design issues now need further engagement – for example, on the target trajectory that will determine the percentage of new car and van sales that will need to be zero emission between 2024 and 2035, and on how any credit or certificate system will work. Alongside this consultation response therefore, all respondents have been sent a 'technical document', seeking their views on a range of regulation design features. Respondents will have just under 10 weeks to provide

us with their views, which will be used to inform a second formal public consultation. This second consultation will seek views on a full legislative proposal for the regulation of new cars and vans.

- If not fully zero emission, all new cars and vans sold between 2030 and 2035 must have significant zero emission capability (SZEC). The ZEV mandate uptake trajectory is intrinsically linked to transport's CO_2 emissions, meaning until that is set, we cannot precisely set out that definition. We are seeking views on the trajectory through our technical document and will issue a detailed definition in due course to ensure that all aspects of the framework deliver our required CO_2 savings.

Since the consultation launched and closed, the Russian invasion of Ukraine has demonstrated that continued reliance on fossil fuels makes the UK susceptible to geopolitical issues when those issues impact on global fuel production. As an island nation, the UK has the best wind, wave, and tidal resources in the whole of Europe and the new regulatory framework should promote the use of this domestic energy production, rather than rely on imports from elsewhere. The requirement to sell an ever increasing number of zero emission vehicles that, crucially, can be powered by domestic renewable energy sources, is vital for the UK's future energy security.

Stakeholder views and government response

Introduction

The UK has already announced ambitious commitments to phase out the sale of all vehicles that produce exhaust emissions in the UK by 2040. New petrol and diesel cars and vans will be phased out from 2030; all new cars, vans and heavy goods vehicles (HGVs) <26t must be zero emission from 2035; and all new HGVs >26t must be zero emission by 2040. We have also recently published a consultation on phase out dates for new non-zero emission buses; issued a call for evidence on phasing out the sale of new non-zero emission coaches and minibuses, and have committed to consulting on phase out dates for new non-zero emission L-category vehicles.

The Green Paper asked for views and evidence on how these commitments could be delivered through legislation. We sought views on:

- The regulatory framework that could be used to enforce phase out dates
- How a credit system could incentivise or disincentivise certain types of vehicle
- Design features that will need to be considered when developing legislation
- The potential for extending the regulatory framework to include all road vehicles

We also sought views on the specification of new cars and vans that would be permitted to be sold between 2030 and 2035, in line with the Prime Minister's commitment to ensure that only new cars and vans with 'significant zero emission capability' are sold after 2030.

The consultation ran from 14 July 2021 to 22 September 2021. This document provides a summary of responses received, our decisions and outlines our next steps.

Who responded?

61 responses were submitted – 58 from organisations and 3 from individuals. 1 response was jointly submitted by 2 organisations. Organisations responding included:

- Vehicle manufacturers

- Chargepoint/infrastructure operators
- Energy providers and distributors
- Companies operating large fleets of vehicles
- Trade and professional organisations
- Pension funds
- Engine/drivetrain manufacturers
- Non-profit/non-governmental organisations
- Transport operators
- Insurance companies
- Consumer groups

This summary captures the main themes and arguments that were raised by responses.

Stakeholder views and government responses

Significant Zero Emission Capability

This section covers the consultation questions on defining 'significant zero emission capability' (SZEC). The outcome will establish the specifications of new cars and vans that will be permitted to be sold between 2030 and 2035, in line with the commitment made in the Prime Minister's Ten Point Plan for a Green Industrial Revolution in November 2020.

Q1 - What metric, or combination of metrics should be used to set eligibility for cars and vans between 2030 and 2035?

Opinions were mixed on what metric/s should be used to define SZEC eligibility. The most supported metric, representing about a quarter of respondents, was to base the definition solely on a continuous zero emission range. Many reasoned that this metric is easy to understand for consumers and industry alike and is already calculated through the internationally recognised World harmonised Light-duty Test Procedure (WLTP) that all new vehicle types must complete. This would allow for a fair comparison against all vehicle types on the distance they can operate in zero emission mode. This view was shared by a variety of stakeholders including, but not limited to, most vehicle manufacturers, industry trade associations, environmental non-profit organisations and motoring associations.

Another common suggestion was for a metric combining zero emission range with a g CO_2/km emissions cap. Again, these metrics are already calculated during WLTP testing and are therefore already universally recognised, available and understood. This view was shared across a variety of stakeholders including vehicle manufacturers, electric vehicle lobbying groups, chargepoint operators, energy providers and environmental non-profits.

These were by far the most supported metrics. There was a strong correlation between respondents choosing either of these two metrics and also mentioning the need to prevent full hybrids being eligible due to their reliance on fossil fuels as their primary energy source. Others mentioned banning sales of all forms of new hybrid vehicle at 2030, though responses were often nuanced and conceded they could accept new plug-in hybrid vehicles (PHEVs) being sold under certain circumstances.

A minority of respondents, mostly vehicle manufacturers, suggested 'percentage or time spent in zero emission mode' as the preferred metric, with a majority of these suggesting this be determined from phases 1 and 2 of the WLTP test cycle (the low speed phases).

Q2 – For your chosen metric, what threshold should new cars and vans be required to meet from 2030?

The most popular metric – continuous zero emission range – received a wide range of thresholds suggested by stakeholders starting from 8.4 miles all the way up to 150 miles. The mean average equates to a threshold of just over a 60-mile zero emission range.

Derogated thresholds were suggested for, and by, two small volume manufacturers and ranged from 10 to 20 miles continuous zero emission range.

Proposed thresholds for the g CO_2/km metric for both cars and vans ranged between 10g CO_2/km to 50g CO_2/km, with the average of thresholds being just under 32g CO_2/km.

Respondents favouring the 'percentage of journey time in zero emission mode in phases 1 and 2 WLTP' metric, almost unanimously proposed a threshold of 50% of journey time, with a 20% threshold proposed for small volume manufacturers.

A small number of respondents proposed separate thresholds for cars and vans.

Q3 - What other requirements could be introduced, if any, to maximise zero emission capability?

A variety of proposals were received with the most popular themes exploring how to utilise real world CO_2 emission data, fiscal incentives, and provision of charging infrastructure.

Utilising real world CO_2 data from on board fuel consumption monitoring devices received most support from environmental groups, pro-electric vehicle lobbying groups and energy/ renewable fuel trade associations. A small number of respondents specifically suggested that real world data could be aligned to some sort of taxation. Respondents proposed this data could be published and used to adjust regulatory targets on vehicle manufacturers. It was suggested these measures would encourage consumers to buy more fuel-efficient vehicles and encourage manufacturers to bring more 'SZEC' compliant vehicles to the market.

An equal number of respondents, including manufacturers and trade associations representing renewable fuels, energy and vehicle franchises, proposed the use of fiscal measures to maximise zero emission capability. Respondents suggested monetary incentives to encourage consumers to make the switch to electric/plug in hybrid vehicles. Specific suggestions included: the continuation of the plug-in car and van grants, preferential tax breaks and the continuation of penalties for any non-compliance.

Improving charging infrastructure was the other common suggestion, with support from a range of stakeholders from vehicle manufacturers to pro-electric vehicle lobby groups. Recommendations included a more rapid rolling out of publicly accessible chargepoints; better access to chargepoints and for them all to have fast charging capability. Respondents reasoned that improving the availability of infrastructure would encourage and re-assure consumers to make the move to a zero emission vehicle or PHEV.

Another measure suggested was better consumer education on the differences between ZEVs and hybrids and their corresponding real-world CO_2 emissions. Many felt this would enable consumers to make more informed (and environmentally friendly) choices. Six respondents suggest geo-fencing technology on hybrid vehicles could be used to ensure they switched to zero emission mode when in city centres/ultra-low emission zones.

Q4 – What would the impact be on different sectors of industry and society in setting an SZEC requirement, using evidence where possible?

Respondents were firmly focused on whether the definition aligned with their views of what vehicles should be sold post 2030 and/or alternatively if not. Their expectations of the impact of a SZEC definition varied widely. The general themes presented included:

- **Clarity** - many respondents, including environmental non-profits, vehicle manufacturers and chargepoint operators agreed that setting a clear SZEC definition would bring clarity for consumers and businesses across the zero emission eco-system. A clear definition would bring regulatory certainty and provide a clear signal to vehicle manufacturers on the types of vehicles they would be permitted to sell. In turn this would help energy operators and chargepoint operators match provision to the energy demand. Likewise, for consumers this SZEC definition will help to inform them what vehicle types they should be buying.
- **Impact on charging infrastructure** – many respondents stated that a PHEV only SZEC definition would increase demand for chargepoints more quickly as more BEVs and plug in hybrids would be sold. Some respondents noted that the current charging infrastructure across the UK needs to improve significantly, including the need for a faster roll out of chargepoints, increased access, fast charging and smart charging capability. It was noted that rural communities and infrastructure for larger vans needed particular attention to ensure adequate infrastructure is in place.
- **Economic impacts** – manufacturers, energy distributors, chargepoint operators and environmental non-profits all mentioned this theme. Some focused particularly on the economic impacts on whether HEVs would be included in the definition or not – some felt an SZEC requirement that supported PHEVs only, with no HEVs permitted, could lead to additional investment in the UK across the supply chain (manufacturing, installation and maintenance) and an increase in research and development activities, in turn leading to more jobs and upskilling of people. Conversely, it was suggested that an SZEC definition that did not permit HEVs could negatively impact some future business investments in the UK. Others noted the general economic impacts of setting an SZEC requirement such as the possibility of making sourcing materials more expensive and the need for the definition to enable transition to zero emission in a financially sustainable way.

Some vehicle manufacturers, fleet operators and trade associations noted that affordability remains a large barrier for the uptake of EVs and hybrids, therefore the SZEC requirement

needed to acknowledge this. In particular, some argued a PHEV only definition and end of HEVs sale from 2030 could result in low-cost options for consumers being removed.

A range of vehicle manufacturers, environmental non-profits and energy distributors cautioned that whilst a stringent SZEC requirement would ban HEVs and bring carbon benefits, if too stringent could lead to consumers holding on to ICE vehicles for longer.

Government Response

We recognise the wide array of views in respect of defining the specification of vehicle that can be sold between 2030-2035 – both the metric used to measure the zero emission capability of a vehicle, and what the threshold should be within each metric – and the general preference to define SZEC using a continuous zero emission range metric.

The UK is ambitious in its carbon emission reduction commitments, and the definition of SZEC will be no different, however SZEC forms just one part of the new regulatory framework. We must meet our CO_2 reduction obligations under carbon budgets, and as the SZEC definition and the target trajectory of the new framework are intrinsically linked, each will have significant impacts on the total amount of CO_2 emissions that we save.

As a result, until we set the ZEV target trajectory that will be in place from 2024-2035, and can quantify the overall CO_2 savings that the new regulatory framework will deliver, we will not be able to define the specification of vehicle that can be sold between 2030 and 2035 and ensure the UK still remains within our carbon budget and net zero obligations.

To provide as much information as early as possible, alongside this government response, we have issued a technical consultation to all respondents, setting out some options on uptake trajectories. The feedback we receive from this document will inform our analysis and allow us to bring forward a full regulatory proposal with a defined target trajectory, and therefore a specific definition of SZEC, later this year. [The technical document is also available to anyone who would like a copy, please email ZEVmandate@dft.gov.uk.]

Our recently published EV Infrastructure Strategy defines our vision for the continued roll-out of a world-leading charging infrastructure network across the UK. It focuses on how we will unlock the chargepoint rollout needed to enable the transition from early adoption to mass market uptake of EVs, and we will set out our next steps to address barriers to private investment, and level up chargepoint provision.

The strategy is underpinned by over £1.3 billion of funding to accelerate the roll-out of charging infrastructure, targeting support on rapid chargepoints on motorways and major A roads to reduce any anxiety around long journeys, and installing more on-street chargepoints near homes and workplaces to make charging reliable and easy.

We are also continuing to support the vehicles themselves. Government has invested over £1.5 billion to date, with more to follow, in grants for those purchasing electric vehicles to make them cheaper to buy and incentivise more people to make the transition. The March 2020 Budget also extended the favourable benefit in kind tax rates for zero emission vehicles out to 2025: company car tax is 1% in 2021/22 and 2% in 2022/23 through to 2024-25; all zero emission cars are exempt from vehicle excise duty (VED) and zero emission vans pay a nil rate of tax on the van benefit charge.

We are targeting incentives on where they have the most impact. Despite offering lower incentives for electric cars, the UK plug in vehicle market is the second biggest in Europe behind Germany. When we made changes to the plug-in car grant in March 2021, 18 models of car reduced in price and demand continued to soar. Since our most recent grant changes in December 2021, we have seen price reductions across ten vehicle models.

Demand for zero emission cars is growing, and we expect the upfront cost and total cost of ownership of these cars to come down and demand to grow even further as battery prices reduce and as economies of scale are achieved supported by the ZEV mandate.

Future Regulatory Framework for New Road Vehicles

This section covers questions 5-10, specifically looking at the type of regulatory framework that should be used to enforce the end of sales dates and the SZEC requirement.

Given some of the questions overlap, this section groups some responses. The first section considers the ZEV mandate vs CO_2 emissions based framework, and confirms government's preference for a ZEV mandate; while the second section considers some of the initial design features that were raised, along with anything else that government could, or should, consider in order to enforce our phase out dates and meet our carbon budgets.

Respondents' views to questions 5, 6 and 7

Q5 - Do you have any comments regarding Option 1, to replicate the current regulatory framework, albeit with strengthened targets, to meet our wider carbon reduction targets and phase out dates?

Q6 - Do you have any comments regarding Option 2, to introduce a ZEV Mandate or sales target alongside a CO2 regulation?

Q7 - Do you have any views on the government's initial preference for the regulatory approach set out in Option 2?

Of the 44 respondents stating a preference for one framework over the other, the majority (28) agreed with government's initial preference to deploy a ZEV mandate, alongside a secondary CO_2 emissions based element. Some respondents preferred a CO_2 only based framework, disagreeing with the Government's initial preference, with a majority of those also listing specific concerns with the deployment of a ZEV mandate.

Infrastructure/chargepoint operators, energy providers/distributors, pro-electric vehicle lobbying groups, environmental NGOs, pension funds, charities, insurance companies, energy associations and transport operators unanimously supported the government's preference to implement a zero emission vehicle mandate.

There was some support for a continuation of a CO_2 emission-based framework, most notably coming from some vehicle manufacturers and trade associations representing

vehicle manufacturers or fossil fuel producers, however this was not unanimous, particularly amongst the vehicle manufacturers.

Vehicle manufacturers (who will be the organisations directly impacted by these regulations) were broadly split between preferring a ZEV mandate and preferring a continuation of a CO_2 emissions based approach. Cases made for and against each of these are covered below, however there was a clear correlation between existing manufacturer commitments on selling vehicles with zero emission technologies and demonstrating a preference for a ZEV mandate.

Respondents' views on a ZEV mandate framework

Respondents favouring a ZEV mandate overwhelmingly stated that the mandate would provide the certainty that businesses throughout the supply chain need in order to quicken the transition to zero emission mobility. Prescribing a fixed percentage of new vehicle sales that would be zero emission at the exhaust would give chargepoint operators the certainty of demand to increase the rollout of chargepoints, assure them on the return on their investments and those managing our energy system could make the investments needed ahead of time to ensure that the electricity grid can handle the demand on energy.

Supporters also thought a ZEV mandate would directly lead to more ZEVs being deployed on the road more quickly than any other type of framework and result in the cost of zero emission vehicles falling faster. A CO_2 emissions only based framework risked encouraging a blend of hybrid and ZEV technology in showrooms for longer.

Many respondents stated that a ZEV mandate was the only way to guarantee enforcement of government's 2030 and 2035 commitments. Under a CO_2 emissions framework, manufacturers have multiple routes to ensure compliance with targets, with some meeting their targets through the increased sale of ZEVs, but the option remaining for targets to be met through improvements to internal combustion engines, or through hybridisation.

This case was put forward by manufacturers against the introduction of a ZEV mandate. As ZEV sales have increased year on year with no mandate in place, a number of vehicle manufacturers stated in their responses that this increase demonstrates that a ZEV mandate is not necessary in order to see more zero emission vehicles on the road.

A significant number of responses raised concerns around the creation of an additional regulatory burden through the proposed approach in the Green Paper of combining a ZEV mandate with a CO_2 emissions element effectively suggesting this was double regulation. Respondents stated that this would increase the administrative burden on manufacturers, who would be required to track and meet two metrics, rather than the sole CO_2 emissions metric now, and may lead to an overly complex or complicated regulatory framework.

Views on a CO_2 emissions only based framework

Of the responses supporting a CO_2 emissions only based approach, the point most raised was that such a framework would be most consistent with the EU's existing regulatory framework. Vehicle manufacturers in particular stated that although the UK now has a separate regulatory framework, when planning sales and compliance strategies, the UK is

very much still a part of their wider European market planning. Retaining a CO_2 based framework would allow for consistency across that European market, even if different targets were used, meaning fewer metrics need to be tracked across countries and fleets.

Supportive responses stated that if CO_2 regulations were strong enough, this would in effect lead to more ZEVs on the road anyway, as at lower levels manufacturers would have no choice but to meet CO_2 targets through the use of zero emission vehicles. Internal combustion engine and hybrid vehicles can only reach a certain level of efficiency, meaning that toughened CO_2 targets would need to be met through the sale of ZEVs.

However, more respondents stated that a CO_2 target would not lead to increased numbers of ZEVs and that a CO_2 target was not strong enough on its own. Many felt that although at low levels there may be a need for ZEVs, until then, manufacturers would comply with CO_2 emissions only targets through the increased use of non ZEVs and that this would lead to additional CO_2 being emitted in the long run.

Some responses considered the limitations of a fixed CO_2 emissions procedure, agreeing with government's view that emissions levels obtained through the fixed emission testing procedure cannot be completely representative of the real-world emissions of the vehicle. CO_2 emissions only based regulations would need to be based on data obtained before the vehicle is sold, so any CO_2 emissions only based framework would not be able to account for the actual GHG emissions of the vehicle. This would have a direct impact on government's ability to meet carbon budgets, which are based on actual CO_2 emissions.

Government Response

All respondents acknowledged that more needs to be done from a regulatory perspective to ensure the Government meets its carbon budgets, and to enforce our 2030 and 2035 phase out commitments. Although there was a range of views on deploying a ZEV mandate vs a CO_2-based framework, the majority agreed with government's preference to implement a ZEV mandate. Therefore, in line with the commitment already made as part of the Net Zero Strategy in October 2021, government will deploy a ZEV mandate, starting with regulations for new cars and vans, from 2024.

In the government's view, the deployment of a ZEV mandate is the most effective method through which to give absolute market certainty on ZEV uptake through 2035. This will improve investment prospects across all areas of the ecosystem at a pivotal moment in the transition to zero emission mobility – from investment in the manufacture of the vehicles themselves, to supply chains, and the UK's chargepoint and energy networks.

The certainty offered from a ZEV mandate provides delivery assurance around our legal obligations under carbon budgets, and our 2030 and 2035 phase out commitments. Unlike a CO_2 emissions only regulation, manufacturers could not comply with their obligations through further improvements to internal combustion engine (ICE) technology and will need to remove all exhaust emissions, providing the maximum possible carbon savings.

The ability to achieve compliance with a CO_2 emissions based regulation with improved efficiency of ICE vehicles is important. Although the UK is now separate to the EU from a CO_2 regulations perspective, manufacturers still consider the UK to be a part of the wider European vehicle market. Currently, manufacturers are able to deploy their limited supply

of zero emission vehicles in the markets where they will generate the most profit, knowing that they will still be able to meet CO_2 obligations in both the UK and EU. Going forwards, as the UK will have a different approach to the EU, manufacturers will be required to sell a certain percentage of ZEVs in the UK in order to meet their obligations, while knowing that they can continue to sell more fuel efficient ICEs in the EU to meet obligations there.

This requirement will also impact when it comes to guaranteeing the security of the UK's energy supply. The UK has the best wind, wave and tidal resources in the whole of Europe – requiring that manufacturers sell an ever increasing number of zero emission vehicles that can be powered using these domestic renewable energy sources is vital. Recent global events have demonstrated that continued reliance on fossil fuels makes the UK susceptible to geopolitical issues when those issues impact on global fuel production.

Government understands the concerns raised around the additional administrative burden that could face manufacturers from having to comply with a new regulatory framework with a ZEV sales target and a CO_2 emissions based target. We cannot leave such a heavily polluting portion of the new vehicle fleet unregulated, so both elements will be deployed from 2024. However, the CO_2 requirements will be in place primarily to avoid increases in CO_2 emissions from vehicle using fossil fuels, rather than to drive significant reductions. Our intention is that this element of the regulation would not be a driver of further technical improvements from non-ZEVs, and provided manufacturers continue to sell non-ZEVs that are of the same specification, or better, their average CO_2 emissions will need minimal monitoring.

Many respondents requested further information ahead of the consultation on the full regulatory proposal planned for later this year. We are committed to working with industry to ensure that the ZEV mandate delivers our objectives in a way that also works for vehicle manufacturers. Ahead of a public consultation, and alongside publication of this response, we are issuing a targeted technical consultation on specific aspects of the regulatory design. We will continue to work with key stakeholders as we develop the full proposal.

Respondents' views to question 8

Q8 - Are there alternative approaches that could deliver on the government's carbon budget and 2030/2035 commitments?

Across all respondents and all industries, a range of ideas offered alternative approaches that government could use in order to support our carbon budgets and non-zero emission vehicle phase out commitments. Themes that were regularly raised by respondents included supporting significant infrastructure/chargepoint deployment; decarbonising the UK energy grid; supporting the second-hand market; and using lower carbon fuels.

Almost all responses did not directly address the question. The UK has committed to phasing out all new petrol and diesel cars and vans by 2030, and to phasing out all new non-zero emission vehicles by 2035. This question asked respondents if there were alternative approaches to directly regulating the manufacturers of new cars and vans to deliver the phase out commitments. While aspects such as decarbonising the energy grid will be necessary to achieve our net zero goals, it is a complementary measure when it comes to enforcing phase out dates, rather than a direct alternative to regulation.

Government response

Government acknowledges there are a number of complementary measures needed to support our ambition of phasing out all new petrol and diesel cars and vans by 2030; all new non-zero emission cars and vans by 2035; and all new non-zero emission vehicles by 2040. The themes raised by respondents were very much complementary measures that would support tightened regulation, rather than being a replacement for regulation.

The responses received demonstrated that there is no alternative to a ZEV mandate that could deliver the same outcomes as listed above. Only a mandate can deliver the clarity and certainty needed in order to speed of the transition to zero emission mobility; deliver the CO_2 emissions reductions needed in order to meet our legally binding carbon budget obligations; and the ability to directly enforce our 2030 and 2035 phase out commitment.

The clarity that a ZEV mandate provides also provides the clearest direction possible to those involved in the wider zero emission vehicle ecosystem. It signals to vehicle manufactures that they should redirect investment into zero emission technologies; and the guarantee that a certain proportion of new vehicle sales will be zero emission provides certainty to those investing in both charging and energy infrastructure, essentially ensuring that they will see a return on investment. None of these certainties would be provided through using the complementary approaches listed by respondents.

Respondents' views to questions 9 and 10

Q9 - Do you have any views on how either, or both, of the options could be implemented?

Q10 - Do you have any further comments or evidence which could inform the development of the new framework?

A wide range of views were presented on how government should implement a new framework, with very few topics or areas receiving widespread consideration. The only topics appearing in multiple responses when answering questions 9 or 10 were:

- Bring forward implementation dates from 2024 to deliver the maximum possible exhaust CO_2 emissions savings from new cars and vans as early as possible.

- To minimise additional administrative burdens and ensure that targets under a ZEV mandate are met through the deployment of ZEVs only, it was recommended that a single vehicle be considered under the ZEV mandate element or the CO_2 element, but not both. This will ensure that there is no cross-compliance across both targets.

- As cars and vans are at different levels of ZEV uptake, and have very different levels of model availability, many respondents suggested that they be considered separately in regulation. Several responses highlighted that this was the approach in the current regulations and that this precedent should continue to be followed.

- Multiple respondents wanted the new framework to remain flexible, and be able to adapt to any sudden changes in the vehicle market; to the vehicle models that are

available in the UK; and to the ZEV deployment levels to ensure that the regulations perform as intended. A significant number of responses requested that the new framework contain review clauses to ensure that the regulations remain relevant.

Government response

Based on the responses, more detail is needed on proposals to understand the impacts of different options. Alongside this document, government has issued a technical consultation document, seeking views on specific details of the new regulation and will continue to engage stakeholders as we develop the full proposal. This technical consultation progresses some of themes raised through the Green Paper, including the possibility of regulating cars and vans separately; whether there are any vehicle characteristics that could/should count towards ZEV mandate compliance and/or CO_2 emissions compliance; and how any possible reviews/amendments should be accounted for. The entry-into-force date of the new regulatory framework for cars and vans remain at 2024.

Stringency of Target

The Green Paper noted that, if combining a ZEV mandate with a CO_2 emissions regulation, the CO_2 element could be set in a number of ways. We wanted to better understand whether this should be set at a level that matches, or is equivalent to the fleet average CO_2 targets already in force in the UK or should be set so that they would require further CO_2 reductions from new vehicles registered alongside increased ZEV uptake.

The responses in this section varied on how stringent the target should be, and whether it should be set to encourage the increased deployment of ZEVs and/or improve fuel efficiency of ICEs, i.e. focus on reducing CO_2 or delivering the fastest transition to ZEVs.

Q11 - If deploying a combined ZEV mandate and CO_2 regulatory framework, how should the CO_2 element be set?

Responses varied, highlighting a wide range of topics on the CO_2 regulatory framework. None of these topics had unanimous or majority support. The general themes raised were:

Stringency of the target:

- There was support for CO_2 targets to be made increasingly tougher. This view was shared across a variety of stakeholders including trade associations, environmental focused non-profits, chargepoint/infrastructure operators, energy providers and some manufacturers. Some specified that stringency should be increased year on year, whereas others argued annual changes were not necessary but that targets should remain demanding over time. There was some support for reducing CO_2 targets down to zero in line with phase out dates.
- Several other respondents suggested that targets should be kept at the current levels, or at least be kept less restricting. A reason given for this was that, if a ZEV mandate is deployed, this will remove the need for an increasingly stringent target by keeping CO_2 emissions low as more and more ZEVs are mandated. Others argued that stringent targets would ensure a ZEV mandate worked efficiently.

Aim of the target:

- Responses were split between whether the CO_2 emissions regulations should aim to encourage manufacturers to focus on improving and selling more ZEVs rather than incrementally improving ICEs; or to focus on improving and selling more ZEVs and incrementally improve ICEs (including hybrid vehicles). Both options were suggested by a variety of respondents and there were no broad themes as to which type of organisation (or individual) favoured either option.
- Several respondents, including environmentally focused non-profit organisations and energy providers suggested that CO_2 emissions targets should be set to encourage more ZEV sales rather than HEVs or PHEVs. A much smaller number of manufacturers argued that the CO_2 emissions targets should set to encourage the sale of hybrids.
- Some argued that targets should act as a cap and prevent exhaust CO_2 emissions from ICE vehicles rising further, rather than actively requiring additional savings from the non-ZEV fleet.

Characteristics of the target:

- Respondents identified several characteristics setting out what a good target should look like. Suggestions included ensuring that the target be flexible, clear and simple. Some argued that the target should be reviewed annually whereas others suggested that stability and certainty is key, and that targets should be set for as long as possible. It was also mentioned by some manufacturers, trade associations and transport operators that the target should consider the needs of manufacturers.

Q12 - Should the focus be on delivering the largest possible CO_2 savings, or the quickest possible switch to zero emission mobility?

Responses were split between whether the focus should be on the quickest possible switch to zero emission mobility or delivering the largest exhaust CO_2 emissions savings. Neither option received majority support, but there was more support for the former than the latter. Focusing on the switch to zero emission mobility was favoured by several environmentally focused non-profit organisations; some lobbying groups; chargepoint/ infrastructure operators; energy providers/distributers; manufacturers; an energy trade association; and an insurance company. Delivering the largest CO_2 savings was identified as more important by several manufacturers; some trade associations; an environmentally focused non-profit organisation; a chargepoint/infrastructure operator; and a charity.

Of those who recommended that the main focus should be on the quickest possible switch to zero emission mobility, the main reason given was that focusing on ZEVs will also deliver the largest CO_2 emissions savings. There was some suggestion that focusing on the largest possible CO_2 savings would encourage manufacturers to consider more hybrids instead of ZEVs. Several suggested that the move to ZEVs was the priority, as hybrid vehicles will not maximise exhaust CO_2 emissions reductions. Individual responses also highlighted issues with a CO_2 emissions only regulation, such as manufacturers being able to prioritise improving vehicle performance in the CO_2 test procedure, rather than prioritise real-world CO_2 reductions.

Those recommending a focus on the largest possible CO_2 emissions savings suggested that this would encourage further investment in research and development, reduce the risk of failing to comply with carbon budgets and avoiding non-ZEVs being unregulated.

Several responses, the majority being manufacturers, highlighted the importance of achieving the largest CO_2 emissions savings via a range of technologies to ensure the most sustainable approach. A few respondents, including a private respondent, transport operator and environmentally focused non-profit organisation, wanted to focus on the *fastest* way to reduce CO_2 emissions rather than the largest possible savings.

Several responses identified that the two options were not mutually exclusive, and that a balance between the two was needed. A few trade associations and one environmentally focused non-profit organisation stressed that the approach chosen should consider lifecycle greenhouse gas emissions, not just exhaust CO_2 emissions.

Q13 - How do we ensure that the target allows for sufficient supply of low and zero emission vehicles; supports investment in the UK; and delivers our carbon reduction commitments?

A wide range of responses were received with some concentrating on the factors that would best enable each of the three things listed above. Many responses were more nuanced and discussed themes that would support the above aims in general. These fell into five interrelated themes: certainty, legislation, incentives, fairness and other factors.

Certainty

This was an overarching theme and particularly relevant when considering vehicle supply and future investment. Certainty was mentioned explicitly by a variety of respondents and was the defining characteristic of a number of different suggestions, including: regulatory certainty; certainty provided by incentives; certainty of the demand side and consumer confidence; certainty in a global market; and certainty provided by other factors such as the supporting infrastructure. These are discussed in further detail below.

Legislation

A significant number of responses highlighted the role of legislation in managing supply, supporting investments and delivering carbon reduction commitments. Several respondents, including manufacturers and environmental non-profit organisations suggested that the regulatory framework and establishing clear targets will provide certainty. It was implied that this certainty will help support supply and encourage investment. Some, including an environmentally focused non-profit organisation, energy providers/distributors and a chargepoint/infrastructure operator, raised the idea that visible dates and announcing plans early helped create market certainty, encouraging manufacturers to invest in R&D, which would help deliver the UK's carbon commitments.

Some respondents, of which a majority were environmentally focused non-profit organisations, argued that a ZEV mandate would increase investment and vehicle supply, though a small number, including a manufacturer and some trade associations, argued that a ZEV mandate alone would not support investment and supply. Others, primarily vehicle manufacturers, suggested that effective CO_2 emissions regulations would support supply, investment and deliver carbon commitments. Some chargepoint/infrastructure operators also suggested that an effective SZEC metric could also achieve this.

A few trade associations noted that supply of zero emission vehicles currently varies by vehicle type and that different regulatory targets should be set for different vehicle types to

accommodate this. Other responses that highlighted legislation as a way to achieve supply, investment and carbon commitments, suggested that the regulations must be clear, simple, easy to implement and be a holistic part of government strategy.

Incentives

A significant number of responses highlighted the role of incentives in managing supply, supporting investment and ensuring the delivery of carbon reduction commitments.

Many respondents suggested that fiscal incentives should be used to manage supply and investment. These included, but were not limited to several manufacturers, and some trade associations and environmentally focused non-profit organisations. Some, including the environmental groups and a trade association suggested that investment and supply could be managed via tax incentives.

Several responses also highlighted the need to manage consumer demand and ensure consumer confidence. A number, including manufacturers, transport operators, a fleet operator, an insurance company and a trade association, suggested this be managed via consumer incentives, while others also suggested the use of public awareness campaigns. Supporting vehicle demand would encourage certainty by ensuring there is a sustainable market, which would further support sufficient supply and investment.

Fairness

A few respondents, including an energy provider/distributor, a manufacturer, a transport operator, a fleet operator, a trade association and an environmental group, highlighted the need for fairness in any regulation. Suggestions included promoting policies that open up more opportunities for lower-income and/or disadvantaged communities to benefit from ZEVs, while others highlighted the importance of the second-hand market here.

One respondent noted that a faster move to ZEVs would mean those from lower income groups can access the benefits of ZEVs more quickly, as the second-hand market grew. Another respondent raised the need for fairness in the charging infrastructure roll-out to ensure those in dense, urban areas have access to chargepoints.

Other supporting factors

When considering supply and investment, several respondents, the majority of which were trade associations, highlighted the need to consider the global nature of the automotive industry and its supply chains and to ensure policy does not hinder these processes. A small number of respondents suggested that establishing a UK manufacturing base would help support vehicle supply. Some emphasised the need to consider challenges around raw material supply, particularly for batteries. Suggestions included a raw material recycling system and establishing a UK manufacturing base for batteries. A chargepoint/infrastructure operator highlighted the need to consider the supply of charging hardware.

Several respondents, including transport operators, manufacturers, trade associations, an environmental consultant, an energy provider/distributor, a chargepoint/infrastructure operator and an environmentally focused non-profit organisation, flagged the importance of infrastructure (particularly charging infrastructure) for supply and to support investment.

A small number of respondents also mentioned energy as an important consideration. Issues raised included ensuring the future UK energy grid is decarbonised and that energy system upgrades can be completed where necessary. A small number of manufacturers and trade associations argued for a technology neutral approach to support supply of low and zero emission vehicles and future investments and that a wider range of technologies would maximise carbon savings.

Government Response

There are strong views in respect of how the targets within the new regime should be set, and exactly what those targets should incentivise. Having announced the deployment of a ZEV mandate, we have demonstrated that the new framework should support the quickest possible transition to zero emission mobility.

In addition, by stating in the Net Zero Strategy that a CO_2 regulation would accompany a ZEV mandate, acting primarily to avoid increases in CO_2 emissions from non-ZEVs rather than driving additional reductions, we are sending a clear signal that continued development of fossil fuel-based technologies should no longer be a focus for the UK market. The ZEV mandate will act as the primary mechanism through which we deliver our carbon savings and the transition to a zero emission vehicle fleet, while the CO_2 element of the framework will ensure that vehicles based on ‘old’ technologies will continue to be regulated until they can no longer be sold.

While these principles will guide the target trajectory of the new framework, we acknowledge that more information will be needed in order to provide as much certainty as possible. The technical consultation issued alongside this response provides indicative trajectories for the ZEV mandate and poses questions on how the targets could work in practice, while also providing some information on how we envisage the CO_2 element of the framework operating. The views we receive in response to this technical document will allow us to further develop our proposals, ahead of a formal public consultation on the final regulatory proposal alter this year.

Derogations

Q14 – Should the new regulatory framework include exemptions or modified targets for certain specialist vehicles and/or niche and small volume manufacturers?

Most respondents agreed the need for derogations in the new regulatory framework under certain provisions. The vast majority felt they should only apply to special purpose vehicles (SPVs), such as emergency and military vehicles to provide continued resilience. Modified targets or exemptions were also proposed for SPVs in the construction, utility, agricultural sectors and for vans with high auxiliary/on-board power outputs (for example a refrigerated van) as these sectors would find it harder to decarbonise at the same rate as typical cars and vans and therefore should be treated differently. This view was shared among a range of stakeholder such as environmental groups, EV lobbying groups, chargepoint operators and vehicle manufacturers. The next most supported viewpoint was for any modifications or exemptions from targets to be restricted to a limited number of evidence-based cases.

There was some support, mainly from manufacturers and vehicle trade associations, for small or reduced volume manufacturers to receive derogated targets as is seen in other

similar global regulations. This was because of their reliance on others to supply the required powertrains and that it would be too costly for them to switch to ZEVs in the same time frame as larger manufacturers. They also cited their lower overall CO_2 emissions. Some felt that any exemptions and/or derogations granted should be time limited.

Conversely, a number of respondents held the opposite view – some environmentally focused non-profit organisation, energy providers, electric vehicle groups, a transport operator and a vehicle franchise trade association disagreed with any form of exemption or modification within the new regulatory framework. Instead, they argued that a credit trading scheme would allow for manufacturers to make up any shortfall by buying credits. In addition, suggestions were made for the Government to provide alternate support to manufacturers who were finding it difficult to transition to zero emission, such as financial grants.

Government response

The government recognises that there may be legitimate specific use cases where certain specialist vehicles and/or manufacturers may require more time to transition to zero emissions. Therefore, the government will consider a very limited range of time-limited derogations and/or exemptions in the ZEV mandate framework to accommodate this transition. However, to reach the 2035 phase out date and wider commitments to net zero, it is vital the whole of the new car and van fleet moves to fully zero exhaust emissions. A separate consultation on derogations to HGV phase out dates is being published shortly.

Credit levels

Q15 – Should credits be awarded to vehicles that meet the SZEC definition?

Q16 – If so, should this be a fixed number of credits, or should there be a sliding scale that recognises the difference in CO_2 efficiency of various SZEC- compliant vehicles?

The general preference of respondents was for all vehicles meeting the SZEC definition to be awarded with credits, however a subset of these responses stated that this would be their preference only if the SZEC criteria matches their views as set in questions 1 to 4 of this Green Paper. It was felt that this measure would then act as a further incentive for vehicle manufacturers to produce more efficient, cleaner vehicles. This viewpoint had general support across a range of stakeholders, including with vehicle manufacturers, transport/fleet operators, chargepoint providers and vehicle trade associations.

Some respondents, mainly environmental groups and energy providers only wanted credits to be awarded to ZEVs. They felt that rewarding SZEC vehicles would undermine the ZEV framework because the focus should be on deploying on the greatest number of ZEVs, not rewarding vehicle types that rely on, at least in part, fossil fuels.

On whether there should be a fixed number of credits or if it should be based on a sliding scale, the majority of those answering this question supported a sliding scale approach-based on vehicle efficiency. It was well recognised from all stakeholders that the different emission reduction technologies and their corresponding efficiencies should be rewarded appropriately with ZEVs receiving more credit than hybrid vehicles.

There was some resistance mainly from environmental groups and energy providers for this approach as this group of respondents felt only ZEVs should receive any credits.

It was specifically noted by some that any credit system needs to be simple to administer and that government should avoid creating a complicated regime. Additionally, some respondents expressed their preference for the future regulatory regime to avoid any 'super-crediting' and to specifically avoid a credit system that rewards larger batteries.

Government response

Government recognises the importance of keeping the crediting system simple. ZEV mandates deployed across the world have shown that awarding credits and 'super-credits' to different vehicles based on their design components can lead to overly complex crediting systems, where multiple credits can be earned for producing one vehicle. It is well understood that there may be unintended consequences of designing such a system like this and its associated risks, such as the diluting of actual ZEV/CO_2 targets if too many credits are in the system, as it enables certain OEMs to avoid producing BEVs and other compliant vehicles by instead choosing to rely on excess credits.

The government agrees that if it decided to award credits to SZEC compliant vehicles or any other vehicles based on their efficiency e.g. PHEVs, that these vehicles should always receive less credit than a pure ZEV. However, to understand these issues further and how a crediting system best be designed in the UK, the technical consultation document further consults on what criteria would be utilised when awarding credits. That technical consultation is seeking views on only awarding credits for zero emission vehicles.

Credit banking and trading

Q17 – Should this be considered within the new framework?

Q18 – If so, over what timeframe should they remain usable and should credits and debits be treated the same or differently?

Q19 – Within the trading element of the new scheme, should there be limits on the number of certificates/gras of CO2 that can be bought or sold?

Q20 – Should such a market cover the whole of road transport or should there be some constraints imposed on trading across manufacturing sectors (e.g. cars and Heavy Duty Vehicles)?

This series of questions explored whether credit banking and trading should feature in the UK's future regulatory regime and asked specific questions on how it could be designed.

Most respondents agreed that the new regulatory framework should include a form of banking and trading. This view was supported by a range of stakeholders including lobbying EV groups, chargepoint operators, vehicle manufacturers and transport operators. Most reasoned that this approach provides flexibility for industry, whilst rewarding early innovators and guaranteeing the collective environmental performance of the new vehicle fleet.

Of those with dissenting views, a smaller group of stakeholders including an energy provider, chargepoint operator and environmental consultancy, felt that there should be no crediting or banking. A second group, mainly environmentally focused non-profit organisations, specifically said that banking should not feature in the new regulation but felt a credit trading system should be introduced. Reasons given for not introducing a credit system whatsoever included the fact that it would be too complex a scheme to introduce in a short space of time, and because it would act against ZEV production as manufacturers would have the option to buy credits as opposed to registering ZEVs. These respondents also felt having the ability bank over or under performance would ultimately slow down the pace of transition to ZEVs. Other specific comments were requests for the new system to be simple, transparent and easily understood by consumers and industry.

Less than half of the respondents offered views on questions 18 to 20, with many saying this a highly technical design process and not in their area of expertise. Of those that did, many preferred a limit on the amount of time credits could be traded, though views were mixed on how long this period should be, with suggestions ranging from 1 to 5 years. There was limited support from vehicle manufacturers for credits to be usable throughout the lifetime of regulation and a general preference for debits and credits to be treated the same, with few respondents specifically referencing the act of ‘borrowing’ credits.

The consultation specifically asked whether there should be a cap on the number of credits brought or sold. The preference from respondents was that there should be no cap. Some commented that not having a cap on the number of credits available for trading would ensure maximum flexibility for vehicle manufacturers to meet their targets whilst ensuring that the new vehicle fleet would meet the required environmental performance. A smaller group representing a range of organisations disagreed with this approach, preferring a cap on the number of tradable credits. The reasoning for this was to ensure all manufacturers progress to ZEVs as opposed to relying on others who have made the transition to ZEVs already. In addition, some felt this would stop some manufacturers adjusting fleet technology mixes simply to maximise revenues through this mechanism.

Views were generally divided on trading credits across vehicle sectors. A group of respondents preferred no cross-sector trading due to the differing stages and availability of zero emission technologies for each vehicle type and most favoured cars and vans having separate trading systems. There was almost equal support for trading of credits across the different vehicle sectors, however about half of the respondents with this view suggested that there should be conditions on what sectors could trade e.g. only sectors with the same phase out dates could trade with one another. Some, whilst in favour of trading credits across vehicle sectors, specifically cautioned about ensuring there were no unintended consequences and for the scheme to recognise the differences between vehicle types.

Government response

The creation of a ZEV mandate using powers provided by the Climate Change Act 2008 requires a tradable element to the regime. Therefore, as government announced in its Net Zero Strategy in October 2021, the deployment of a ZEV mandate alongside a CO_2 emissions regulation will feature a credit system involving trading. We agree that designing the credit system requires careful consideration in terms of banking/borrowing, credit longevity and whether there should be caps. Government does not anticipate banking or

borrowing featuring in the new framework. We want to avoid a mechanism that encourages an oversupply in the first few years followed by a constrained supply at a later date. Government is also keen to avoid any unintended consequences of a credit system and therefore included additional information and questions in the technical consultation document alongside this Government response.

Government agrees with most respondents that there should be no credit trading between sectors, including between new cars and vans. The zero emission technologies available for each vehicle type are at differing stages of development, therefore a credit earned from a ZEV car cannot be directly comparable to the credit for a ZEV van, or other types of ZEV. We want to avoid an overly complex credit system and unintended consequences.

Target Setting Process

In the future UK regulatory regime, we have the opportunity to determine how far ahead we set the targets, the lead in time for any change in targets and whether the option to amend targets at shorter notice is required. We would welcome views on each of these.

There were very few responses to this section. Of those received, the most common theme raised was the need to either keep targets under constant review, or to ensure that a pre-determined review date was built into the new regulation. A small number of responses provided detail on a review mechanism, stipulating that while review points were needed, any review should take into account more than just ZEV sales, for example status of the UK's infrastructure network.

The only other theme raised by multiple respondents was on the lead time for any new targets set. Views were mixed, with one respondent stating that a short lead time would be acceptable, another suggesting that 4-6 years' notice should be provided. Two asked for the 'maximum' possible lead time to be provided but did not specify a timeframe.

Views diverged on whether the regulation should prescribe an uptake trajectory between 2024 and 2035 from its adoption, or whether later years targets should remain indicative and subject to a future review before being formalised in legislation.

Government response

Given the low number of responses, we are seeking further views on this through our technical consultation document, and undertaking additional stakeholder engagement, before consulting on our specific regulatory proposal.

Government recognises the importance of sufficient lead time, given that product cycles for new vehicles take place on a multi-year basis. If targets are set with too short a lead time, manufacturers will be unable to properly respond to any new requirements.

Fines/buy-out price

Q21 - How, and at what level, should fines be set in the new UK regulatory framework and should this vary for different vehicle types?

A large majority of respondents stated that for any CO_2 emissions based regulation, the existing fining mechanism of *£86* multiplied by the *grams of CO_2 / km exceedance* multiplied by the *number of vehicles sold* should be retained in the new framework. This was supported by many respondents who stated that the fining/buy out structure of the new framework should be robust enough to encourage businesses to deploy additional ZEVs rather than paying fines. Most agreed that the existing penalty levels were significant enough to achieve that. However, some respondents stated that a new 'price' would be needed for a ZEV mandate as the £86 mechanism would not read across and some felt that fines should be set at a level above the equivalent fines in the EU to encourage manufacturers to deploy ZEVs in the UK market, rather than into EU markets.

There were differing views on fines under a ZEV mandate. Whilst there were reasonable levels of agreement on fines being scalable and proportionate to how much a target was missed by, there were differing views on exactly how much that fine should be. Some felt that fines should be a fixed amount per credit (with one respondent recommending the Californian system of circa £15,000 per credit as a starting point), with others preferring to base credit costs on the average cost of vehicles sold by the offending manufacturer. It was argued that this system would prevent luxury/high performance manufacturers from simply paying fines. For 'mass market' vehicles, a fixed credit price would be a larger proportion of their value, while the same amount would be a considerably smaller proportion of the cost of a luxury vehicle.

A small number of respondents suggested that fines should be adjustable over time to ensure that they remained effective, particularly in later years when non-ZEVs will be a minority of new vehicle sales.

Government response

Government acknowledges the need for the fines in the CO_2 element of the framework, and for the credit buy-out price for the ZEV mandate, to be high and robust enough to deliver the policy outcome of 100% new ZEV uptake, rather than raising revenue.

The UK still forms a part of the wider European market for vehicle manufacturers. In the early years of the new regulation, there may be a constraint on the supply of ZEVs available across Europe as supply chains adapt to change. We will consider how the two penalty levels can support our ambition to rapidly increase the uptake of ZEVs in the UK.

Real-world emissions

Q22 - Would there be benefits in seeking to ensure any CO_2 targets in the new UK regulatory framework take into account real-world emissions data alongside the lab-tested WLTP CO_2 emissions figures? If so, how might the two be linked?

Views were split on whether real world CO_2 emissions data should be considered alongside official WLTP information when setting manufacturers CO_2 reduction targets.

A group of respondents favoured incorporating real world CO_2 emissions data into the regulatory targets. This included electric vehicle lobbying groups, energy providers, environmentally focused non-profit organisations and transport operators. Some noted that real world CO_2 emissions are typically much higher than WLTP figures and using this information would offer a more accurate picture of the actual CO_2 emissions produced. Understanding and using this information could ensure CO_2 emissions reductions are achieved in the real world as opposed to only in laboratory tests, as seen before with the New European Drive Cycle CO_2 test procedure that preceded WLTP.

An almost equal sized group of respondents, mostly vehicle manufacturers, opposed the inclusion of real-world CO_2 data with WLTP CO_2 results. Reasoning varied, but it was often noted that the real-world CO_2 emissions of a vehicle are dependent on a range of factors e.g. driving style, and were not a reliable source of information. Others spoke of the merits of the WLTP test procedure, notably mentioning that it is an internationally agreed methodology which has been developed over many years and is now used widely. It was suggested that government continue to monitor the WLTP test procedure, and that if gaps occur between this and real-world emissions, that adjustments via through the UNECE.

In terms linking real world CO_2 emissions data with WLTP based data, suggestions were limited, but included calculating the difference between the two datasets and using this to set a tolerance or multiplier. It was recognised by both those in favour of using real world data and those opposed, that government would need to work with industry to develop a methodology to correctly utilise this information and that a methodology should be standardised before being adopted. Other suggestions included making the data available to the public to enable them to make informed and hopefully more sustainable choices.

Government Response

Since 1 January 2021, all new cars and vans are required to have an on board fuel consumption monitor (OBFCM) that monitors the mileage driven and the fuel/energy consumed by the vehicle. Government is currently preparing to collect this real-world CO_2 emissions data, and we are developing proposals on how to collect this information with industry and other DfT agencies. It is universally recognised that this information is of value and could have a range of uses, including for public information. We are aware that the EU is using the data to adjust the utility factor in PHEV testing, which represents the rough real world split between fossil fuel based driving based driving modes and zero emission based driving modes for vehicles that are capable of both.

Whilst a ZEV sales target will be the primary driver in the new regulation, a CO_2 emissions element will feature to primarily ensure that fleet average CO_2 emissions from non-ZEVs

do not increase over time. Government may look to adjust CO_2 emissions targets using real world CO_2 data if the gap between real world and WTLP CO_2 data grows, but this would be subject to future consultation and engagement with industry. We recognise the importance of a reliable, accurate dataset on real world CO_2 emissions data.

Other vehicle types

Heavy Duty Vehicles

Q23 - For vehicle sub-categories that are not yet covered by VECTO, could a ZEV mandate/sales target be extended before VECTO is adapted?

The majority of respondents indicated a preference for extending a ZEV mandate into heavier vehicles representing a wide variety of organisations. More than three quarters of those stated that in this scenario VECTO would not be needed as it is possible to tell whether a vehicle is zero emission or not without requiring a test procedure. Whilst this is true, it was pointed out from a respondent that a test procedure is required to obtain a consistent 'range' reading, irrespective of whether the vehicle is zero emission or not.

On VECTO, many suggested that as an EU regulatory tool, if the UK did require the use of VECTO for any reason, then it should either unilaterally accept EU decisions in respect of VECTO, or would need to be involved in negotiations around its maintenance and update.

Of those not supporting the extension of a ZEV mandate regulation to heaver vehicles, very little justification was given. One respondent suggested that the existing CO_2-based regulations could be amended immediately to cover other vehicle types, and stated that, due to differences between commercial and passenger vehicle markets, the wider ecosystem was much more important for vehicle sales then regulations.

Q24 - Would there be any unintended consequences of establishing a ZEV mandate for certain vehicle sub-categories before a CO_2-based regulation?

Of the responses on this item, opinions were finely divided on whether the consequences of imposing a ZEV mandate before a CO_2 emissions-based regulation would be negative or positive. Of those in favour, the impacts listed included: greater clarity on the Government's net zero goals, speeding up innovation on zero emission solutions in the sector and leading to an accelerated uptake of ZEV HDVs. Of those against, the prevailing view was that this approach risked distorting the market and limiting consumer choice.

Q25 – Do you have any views on imposing a CO_2 regulation on vehicle types that are not yet covered by a CO_2 test procedure, or existing regulation, particularly in light of the planned future phase out consultation for new non-zero emission buses?

Of the responses received to this question, half agreed that the UK should develop and implement some form of CO_2 regulation on these vehicles. It was reasoned that together both a CO_2 emissions regulation and a ZEV mandate will drive innovation in the bus market, but that with no CO_2 test procedure it could in fact lead to an increase in overall

CO_2 emissions. Others called for the UK to follow the EU's CO_2 test procedure for buses once finalised, and for a CO_2 emissions regime to be established before a ZEV mandate.

A few respondents felt that buses did not need to be regulated by a CO_2 regulation because phase out dates for new non-zero emission buses would be sufficient to achieve decarbonisation goals. In addition, some argued that stakeholders in the bus sector were making strong efforts to decarbonise already due to things like public procurement rules.

Government response

In November 2021, the UK became the first country in the world to commit to phasing out sales of new non-zero emissions heavy goods vehicles weighing 26 tonnes and under by 2035, with all new HGVs sold in the UK to be zero emission by 2040. The UK is currently consulting (26 March to 31 May 2022) on phase out dates for the sale of new non-zero emission buses and has issued a call for evidence on phase out dates for new non-zero emission coaches and minibuses, with 2040 as the backstop for all new road vehicles.

On HGVs, we recognise this term covers a wide variety of vehicle sub-categories that have a multitude of uses and are at different stages of decarbonisation. Further consultation is needed to understand better how regulation will impact this sector, determine which vehicle types and/or uses may need a derogation from the phase out dates, and to ensure that any regulation supports the development of zero emission technologies and a sustainable transition to zero emission mobility for the whole sector.

In due course, as with cars and vans, we will need to adapt our regulatory framework to ensure that the phase out dates can be brought into legal effect. The responses received to these questions will help to inform our analysis as we develop additional regulatory proposals, and these will be the subject of future consultations.

L-Category vehicles (Motorbikes, Mopeds, Quad Bikes etc)

Q26 - Should the preferred regulatory approach be extended to all L-category vehicles or should the diversity of the sector (motorbikes, mopeds, motorised tricycles, quadbikes, motorised quadricycles etc) necessitate different approaches?

Of the responses received to this question, half supported extending regulations to the L-category sector. These were split between those preferring a ZEV mandate and no CO_2 emissions targets; and those favouring the use of CO_2 emissions targets for L-category vehicles, though noting they are not currently regulated.

Those opposed suggested that all L-category vehicles have a lower environmental impact and so therefore should be promoted as a favourable form of transport, irrespective of the technology used; and that the zero-emission L-category sector is at a different stage to that of cars and vans and needs more time for the technology and market to develop before regulation should be considered.

Government response

Government has already committed to consulting on phase out dates for the sale of new non-zero emission L-category vehicles. As with HGVs, due to the diversity of the sector and the different vehicle types that are covered by the 'L-category' moniker, this cannot be a 'one size fits all' approach. Different approaches will be needed for different types of vehicles. There are challenges facing some vehicle that are not seen in other L-category segments (such as mopeds/scooters, where over 40% of new sales are already ZEVs).

Likewise, we will need to adapt our regulatory framework to ensure that, when they have been announced, the phase out dates for all L-category vehicles can be brought into legal effect. The responses received to these questions will help to inform our analysis as we develop additional regulatory proposals, and these will be the subject of additional consultation in due course.

Additional Issues for consideration

As the regulations develop, all potential aspects listed in chapter 5 will need to be considered for each vehicle type. Therefore, we would welcome any additional views on the application of the variables mentioned from paragraph 5.50 onwards, in respect of new HDVs (including the adaptations that should be made for different HDV types) and L-category vehicles.

Of the limited responses received to this question, a small number stated their support for regulation being extended to other vehicle types and a general recognition that these vehicles have a part to play. The issues raised here tended to be disparate, focusing on HDVs or L-category vehicles separately. On HDVs, responses mentioned the need for a credit-based system in the future regulatory regime. A respondent particularly noted that there should be banking, but no cross trading of credits between manufacturers nor pooling.

On L-category vehicles, respondents urged consideration of motorcycle sports when implementing a future regulation so as to not disadvantage the UK in competition. A proposal was made for government to focus on eco-driver training for existing vehicles.

One common theme was the need for better charging infrastructure for all vehicles. Currently, charging roll out has just focused on cars and vans, which now needs to extend to HDVs and L-category vehicles to ensure they can transition to zero emission smoothly.

Government response

The low number of responses received to this question highlights that further engagement will be needed when designing future regulation for other vehicles types such as HDVs and L-category vehicles. Government will ensure any form of future regulation and its specific design components will be created to work in a manner that works for industry, consumers, and government.

Next steps

As discussed throughout the document, alongside this response, a technical consultation has been published, going into further detail about how the ZEV mandate and associated CO_2 element of the new framework could work for new cars and vans. It covers a number of different of scenarios and options across a wide number of variables that will need to be considered and specifically provides an insight into how we believe the new regulatory framework could work in practice. The document asks a number of targeted questions on these key regulatory areas, and we welcome any and all views on the possible options.

This document shall be available for comment for just less than 10 weeks, and the views received will help inform the development of the full legislative proposal for the regulation of new cars and vans. The proposal will be the subject of a full public consultation later this year, and specific engagement will take place with key stakeholders across the wider ZEV sector.

A response will also be published in due course to that full regulatory proposal, and we expect to lay legislation before Parliament in the first half of 2023, with a view to the ZEV mandate and associated CO_2 element entering into effect on 1 January 2024.

Proposals for other vehicle types will follow and will be tailored specifically to meet the needs and requirements of both government and industry in those specific vehicle segments. As with cars and vans, any and all proposals for the regulation of other vehicle types will be the subject of full public consultation and engagement with stakeholders.

Annex A: List of consultation questions

Significant Zero Emission Capability

Q1 - What metric, or combination of metrics should be used to set eligibility for cars and vans between 2030 and 2035?

Q2 – For your chosen metric, what threshold should new cars and vans be required to meet from 2030?

Q3 - What other requirements could be introduced, if any, to maximise zero emission capability?

Q4 – What would the impact be on different sectors of industry and society in setting an SZEC requirement, using evidence where possible?

Possible Future Frameworks

Q5 - Do you have any comments regarding Option 1, to replicate the current regulatory framework, albeit with strengthened targets, to meet our wider carbon reduction targets and phase out dates?

Q6 - Do you have any comments regarding Option 2, to introduce a ZEV Mandate or sales target alongside a CO2 regulation?

Q7 - Do you have any views on the government's initial preference for the regulatory approach set out in Option 2?

Q8 - Are there alternative approaches that could deliver on the government's carbon budget and 2030/2035 commitments?

Q9 - Do you have any views on how either, or both, of the options could be implemented?

Q10 - Do you have any further comments or evidence which could inform the development of the new framework?

Additional Issues for Consideration

Stringency of CO2 Target

Q11 - If deploying a combined ZEV Mandate and CO2 regulatory framework, how should the CO2 element be set?

Q12 - Should the focus be on delivering the largest possible CO2 savings, or the quickest possible switch to zero emission mobility?

Q13 - How do we ensure that the target allows for sufficient supply of low and zero emission vehicles; supports investment in the UK; and delivers our carbon reduction commitments?

Derogations and Exemptions

Q14 - Should the new regulatory framework include exemptions or modified targets for certain specialist vehicles and/or niche and small volume manufacturers?

Credit Levels

Q15 - Should credits be awarded to vehicles that meet the SZEC definition?

Q16 - If so, should this be a fixed number of credits, or should there be a sliding scale that recognises the difference in CO2 efficiency of various SZEC-compliant vehicles?

Credit banking and trading

Q17 - Should this be considered within the new framework?

Q18 - If so, over what timeframe should they remain usable and should credits and debits be treated the same or differently?

Q19 - Within the trading element of the new scheme, should there be limits on the number of certificates/grams of CO2 that can be bought or sold?

Q20 - Should such a market cover the whole of road transport or should there be some constraints imposed on trading across manufacturing sectors (e.g. cars and Heavy Duty Vehicles)?

Levels of fines for non-compliance

Q21 - How, and at what level, should fines be set in the new UK regulatory framework and should this vary for different vehicle types?

Target setting process

In the future UK regulatory regime, we have the opportunity to determine how far ahead we set the targets, the lead in time for any change in targets and whether the option to amend targets at shorter notice is required. We would welcome views on each of these.

Real-World Emissions

Q22 - Would there be benefits in seeking to ensure any CO2 targets in the new UK regulatory framework take into account real-world emissions data alongside the lab-tested WLTP CO2 emissions figures? If so, how might the two be linked?

Extending the Framework to All Road Vehicles

Heavy Duty Vehicles

Q23 - For vehicle sub-categories that are not yet covered by VECTO, could a ZEV Mandate/sales target be extended before VECTO is adapted?

Q24 - Would there be any unintended consequences of establishing a ZEV Mandate for certain vehicle sub-categories before a CO_2-based regulation?

Q25 – Do you have any views on imposing a CO2 regulation on vehicle types that are not yet covered by a CO2 test procedure, or existing regulation, particularly in light of the planned future phase out consultation for new non-zero emission buses?

L-Category vehicles (Motorbikes, Mopeds, Quad Bikes etc)

Q26 - Should the preferred regulatory approach be extended to all L-category vehicles or should the diversity of the sector (motorbikes, mopeds, motorised tricycles, quadbikes, motorised quadricycles etc) necessitate different approaches?

Additional issues for consideration

As the regulations develop, all potential aspects listed in chapter 5 will need to be considered for each vehicle type. Therefore, we would welcome any additional views on the application of the variables mentioned from paragraph 5.50 onwards, in respect of new HDVs (including the adaptations that should be made for different HDV types) and L-category vehicles.