RTFA response to

Green Paper on a New Road Vehicle CO_2 Emissions Regulatory Framework for the United Kingdom

The RTFA

The Renewable Transport Fuel Association was formed in 2020, to create a strong voice for the interests of renewable and low carbon fuels. We represent the interests of UK renewable transport fuel manufacturers and gaseous fuel suppliers. The RTFA subscribes to evidence-based policy making, taking into account the full life cycle impacts of technology and fuel choices. We subscribe to the principle of being technology / fuel neutral – encouraging long-term policy measures which focus on the objectives sought, enabling innovation and letting the market play out.
Carbon emissions need to come down rapidly, and overall carbon budgets are important. The sooner action is taken, the less dramatic later carbon saving measures need to be. The RTFA recognises that some fuels, in some applications, may only have a transitional role in the journey to net zero. Our focus is on driving forward the achievement of nearer-term decarbonisation goals, and welcoming but not over-focusing on more distant policy objectives.

The transition to electrification, wherever possible, and at pace, is welcome. The RTFA must not be misunderstood as an organisation which seeks to challenge this, or slow down its rollout. Our message is that renewable and low carbon fuels can deliver greenhouse gas savings today, and using today's infrastructure. If the government is serious about tackling climate change it must maximise the contribution renewable and low carbon fuels can play during the transition to electrification.

We appreciate that the objective of the announcements on ending the sale of cars, vans, HGVs and other vehicles is to signal the need for change loudly and clearly. However we do not agree that the approach set out in the Green Paper for achieving that is the best way of achieving the much-needed reductions in GHG emissions from transport, as it;

- does not take account of upstream -i.e. Life-cycle and Well-To-Tank emissions associated with vehicle manufacture, electricity and hydrogen production
- rules out other legitimate ways of decarbonising transport, which may in some circumstances be superior to zero tailpipe solutions
- fails to address carbon emissions from existing vehicles and those that will be sold between now and 2035, many of which will be on the road for decades to come.

We propose an alternative approach, where the allowed carbon intensity of fuel supplied is continually reduced to the eventual point where fossil fuel is eliminated altogether. This has the following advantages;

- it more directly addresses the challenge of reducing GHG emissions,
- it works on both new vehicles and the existing fleet, and therefore does not create perverse incentives to maintain older vehicles in service,
- it simultaneously sends a clear message to OEMs and alternative fuel suppliers on the direction of travel,
- it is more straightforward than the proposals in the Green Paper, and therefore more likely to get engagement from OEMs, and
- it enables those vehicles for which it does not make environmental or economic sense to make zero tailpipe an alternative approach to becoming net zero.

At some point this would mean that all vehicles, regardless of the date on which they were sold, that are not zero tailpipe emission would either need to be taken off the road or would have to be fuelled with an alternative fuel, (e.g. for liquid fuelled vehicles bio-gasoline, HVO, B100, a combination of biodiesel and

drop in fuels, bioethanol fuels such as ED95, or any other renewable, development or sustainable low carbon fuels; or in the case of gas fuelled vehicles they could only be supplied with biomethane or bioSNG or other renewable gas.). These alternative fuels would be bio-derived initially, but in the longer term could move to e-fuels).

Alternatively, if the Government wanted to target particular categories of vehicles, it could set dates from which new vehicles in that category must use 100% renewable fuels. If applied in the context of the recent proposals on HGVs for example, this approach would mean that from 2035 new <26 tonne trucks could not be fuelled with standard fuel (e.g. fossil diesel or natural gas), with those above 26 tonnes only able to use it until 2040. It would be anticipated that many models would already be *zero tailpipe emission* by this time, but this approach *would* allow OEMs to offer alternatively fuelled vehicles such as range extender hybrids, biomethane / bioSNG vehicles or ICE vehicles beyond that point. This would be also be accompanied by the RTFO, to reduce the CI of standard fuel supplies in the meantime.

The consultation questions

Significant Zero Emission Capability

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

The ability to drive a certain distance without tailpipe emissions. This would enable some hybrids to achieve the status of being SZEC vehicles. However, we dispute that sales of SZEC vehicles should be prevented after 2035, and the remainder of this answer explains why.

If any vehicle can achieve superior performance in terms of **life cycle** grammes of CO_2 per kilometre (gCO2/km) – to a BEV or Hydrogen vehicles, there is no logic in phasing it out either in 2035 (or beyond). This is always likely to be the case for range-extended electric hybrids running on renewable fuels. Ultimately the lifecycle CO_2 metric is the most relevant, all encompassing one for addressing climate change. Admittedly it would be extremely challenging to design legislation based on this metric, but it does illustrate the irrationality of banning all forms of hybrid vehicle. The benefits of certain types of hybrids are set out below.

Rather than having one metric, there should be an approach that combines the following

- Encourages OEMs to cease selling purely ICE driven vehicles and move to BEVS/REEVs or other zero tailpipe solutions (which the gCO2/km metric does)
- Continually reduces the carbon intensity of fuel sold (which our proposal does), and
- Prevents poor driving behaviours of hybrid vehicles (as set out below).

Given the carbon saving benefits of plug in-range extended hybrids (REEVS) set out below, these should encouraged rather than phased out. The problem with the final phase out approach is that OEMs will be discouraged from continuing the very promising innovation that is taking place in this sector. This will be the case whatever metric or combination of metrics are set for 2030 – 2035. If REEVs remain an option (provided they are fuelled entirely by low GHG fuel) this will enable faster decarbonisation as:

- Their lower cost will result in more purchases, and more electric miles driven sooner
- It will provide an effective solution for more owners in more rural environments [or those without access to charge points at home or at work]
- The lower metal consumption requirement will mean more EVs can be produced and alleviate constraints in lithium, cobalt etc supply during the period when mining operations and battery production facilities scale up.
- The embedded GHG emissions are significantly reduced due to the smaller battery pack that is more appropriately sized for the majority of journeys.

As well as innovation within the vehicles themselves, there are many measures that can ensure / incentivise REEVs to be driven in battery mode wherever possible.

The benefits of range extended hybrids

REEVS are series hybrids, which have only one drive train – i.e. the electric motor, powered by the battery. They have a small ICE which is used to charge the battery. They are preferable to parallel hybrids as they enable downsizing of the ICE, whereas with a parallel hybrid the ICE needs to be of a sufficient size to power the vehicle when the battery cannot.

REEVs can offer significant GHG savings, as

- the smaller size of battery is advantageous for vehicles which are predominantly used for short-range driving, as the additional weight of the unrequired battery capacity is not carried around for all journeys. A BEV with a range of 250 – 300 miles is a poor engineering solution for vehicles with predominantly short range duty cycles, as they are more expensive and inefficient in relation to energy efficiency, GHG and metal consumption requirement. With private cars, it is a very common driving pattern to drive fewer than 50 miles most days, interspersed with an occasional longer journey. It is extremely unlikely that OEMs would develop BEV vehicles with a range of less than 100 miles, leaving people without an option of a vehicle with a smaller battery.
- there is less embodied energy and carbon emissions in a smaller battery, and for vehicles with lower annual mileage the GHG emissions associated with battery manufacture are therefore more significant. A BEV covering low mileage with a large battery may have significantly worse whole life GHG emissions than a hybrid, when this is accounted for.
- smaller batteries require fewer resources and manufacturing capacity, which will become a limiting factor on the rate of electrification if there are no significant changes to battery chemistry in the medium term. Cars and vans are far from the only applications where the trend is towards electrification. They will be competing for materials with a whole range of other transportation modes, as well as larger battery applications including storage.
- Being lighter they emit lower levels of non-exhaust emissions (NEEs). Heavier vehicles result in increased tyre wear, which the latest research suggests is already a larger source of PM2.5 emissions than exhaust emissions in current ICE vehicles
- Allowing REEVs beyond 2035 would reduce the challenges of the scaling up of battery manufacturing capacity. The technology will have applicability in the small to medium truck sectors as well so economies of scale will be significant.
- hybrids allow for more flexible behaviour. Whilst every car or van should be charged whenever required, in order to maximise the proportion of electric miles driven, there will always be the risk that a household / business will not have a charged vehicle with the necessary amount of charge for an emergency situation.
- Not allowing hybrids will create an incentive to retain older ICE vehicles, and have more vehicles per household. Running out of charge is not only a cause of inconvenience for individuals, but is also a problem for services (especially if charge expires on a motorway, for example).
- With regards to vans, REEV technology allows for full functionality of the vehicle with lower payload impacts when daily mileages are larger than current electric van ranges of 100 miles. In addition for emergency services, particularly ambulances, where daily mileages are at times 400 miles, REEVs are the obvious solution as battery technology is not available that could provide that range, and recharging / battery swapping would be impossible without severely impinging the functionality of the vehicle.

Preventing poor driving behaviours

If REEVs are to be a long term option as we suggest they should be, then it is important that they are not sub-optimally driven. This will address GHG as well as air quality concerns.

There are measures that can be taken to ensure this, such as

- Having vehicles communicate their operating mode with roadside infrastructure or geo-fencing, such that vehicles would be automatically swapped to electric drive in low emission zones unless their state-of-charge deteriorates and then they would be charged a levy if they operate their ICE. Progressively extend such zones to cover more and more urban areas.
- Requiring vehicles to record the time their ICE is in operation, in the same way as the odometer records mileage, and then making this information part of the MOT process, and using it to weight the following year's Vehicle Excise Duty chargeable for that vehicle.

- From 2025 require all new vehicles to provide downloadable data on distance driven each day. Owners could then use a smartphone app to download the data, and the app would estimate their annual running costs for vehicles with different sized batteries, allowing them to understand whether they would be better having a long-range BEV, or buying an REEV and just using the range extender for a few days per year.

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

We have not had time to explore the threshold for eligibility as a SZEC with the RTFA's membership, and we do not want to suggest arbitrary numbers. Clearly, however, different vehicles have different requirements according to their typical duty cycle and environmental impacts. Determining thresholds should be done on the basis of evidence of different types of vehicle usages. Wherever possible the DfT's existing categorisation system for vehicle should be used.

For example, an articulated HGV (N3a) would need to operate in ZE mode whilst it makes its delivery in a town or city, and the primary motive for switching to zero emissions mode is air quality. The rest of its daily cycle – or at any time when it is not in an urban environment – it could run on renewable fuel using an ICE (and its lifecycle environmental impact would likely be lower as such than if it were a fully battery operated vehicle.) This type of vehicle would need enough miles of ZE capability to enable it to make its delivery and exit the urban environment (which could be geofenced).

On the other hand, a hybrid car may be operating within an urban environment virtually all of the time. This would need to have enough ZE capability between charging opportunities, suggesting a threshold which comfortably covers the average daily use of urban run-around cars.

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

Geofencing approaches and others described in answer to question 1.

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

If industry and society had access to SZEC vehicles for an additional 5 years or possibly longer, it would result in more affordable vehicles (which may be purchased sooner than BEVs by some homeowners / businesses). It would also bring environmental benefits in cases where the LCA of certain duty cycles shows superior environmental performance.

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 targetsand phase out dates?

This seems the most sensible approach, for the reasons set out, and provides the required message to OEMS.

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

The advantages listed for a ZEV mandate are debatable. Requiring certain things (or a proportion of certain things) to be sold is a novel policy instrument. It is extremely complex, and it is questionable whether it is even necessary. OEMs are either unlikely to engage with it, as they will be responding to the first option (and particularly European, legislation) or they may focus their best minds on optimising their trading position in the context of the interaction of the two policy measures. Generally speaking having two policy measures (and complex ones at that) when one would do is simply not sensible policy making.

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

As per the answer to question 6, it is overly-complex and unnecessary.

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

Yes. The RTFA proposal on reducing the carbon intensity of fuels sold, described in the opening remarks.

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

The first option could be to simply continue reducing gCO2/km on a trajectory which arrives at a very low level by the required date. That level would be only achievable by zero tailpipe vehicles or ICE or range extended hybrids running on renewable fuels. Option 2 or a combination of 1 & 2 is not wise and should not be implemented, in our view.

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

Additional Issues for Consideration

Stringency of CO_2 Target

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

N/A as we don't support a combined approach.

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

Clearly the focus should be delivering the largest possible CO_2 savings. That is what the planet needs (and is the only system boundary that matters; artificial boundaries around the vehicle do not necessarily reduce overall life cycle GHG emissions). The suggestion that is it might be OK not to further tighten CO_2 limits as it could distract OEMs from putting their resources into innovation in zero emission vehicles is extremely unhelpful.

The Government must not forget that there is more embodied energy in a BEV than there is in an ICE vehicle, and therefore if it were possible for all new vehicles sold from tomorrow to be BEVS then carbon dioxide levels would rise before they could fall, especially with the current geographical manufacturing of cells.

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?

This will be very difficult to achieve. Setting a mandate for the selling of vehicles will not ensure they are sold and may create perverse incentives, such as a grey market for importing nearly new pre-registered vehicles. Working with other jurisdictions on universally understood metrics is likely to result in a more assured supply of zero emission vehicles (the policy proposed does very little to promote the supply of low emission vehicles). This argument also applies to maximising the chances of investment in the UK. We also need to be wary of divergence away from EU legislation. Whilst the UK may wish to be in the vanguard, we must bear in mind that we are also an awkward market (being right-hand drive). Even though we are a significant market for most European OEMs, we risk being marginalised if we have too many differences, thereby limiting the availability of vehicles. Adopting a complementary renewable fuels based approach will mitigate this whilst the rest of Europe catches up.

Ensuring the UK delivers on carbon reduction commitments is to have policies directed at achieving that, and this proposal does not do that. It aims to pick what it hopes to be a technology winner and proposes complex incentive structure to encourage OEMs to switch to that track. With the right carbon metric the market will come up with the most appropriate solution.

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?

Development costs for low volume e.g. specialist heavy duty vehicles are very high and the costs of components also very high, plus they tend to have less frequent development cycles. They should be exempted from the imposition of unachievable or unaffordable targets which would put them at risk of going out of business.

Credit Levels

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

We propose that those vehicles meeting this definition should not be phased out. It may well be that OEMs themselves choose not to develop them, but this should be left to the market.

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?

N/A

Credit banking and trading

Q17 - Should this be considered within the new framework?

No, the proposals are already overly-complex.

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

N/A

Q19 - Within the trading element of the new scheme, should there be limits on the number of certificates/grams of CO_2 that can be bought or sold?

N/A

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 DutyVehicles)?

No comment

Levels of fines for non-compliance

Q21 – How, and at what level, should fines be set in the new UK regulatory framework andshould 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.

The RTFA's view is that there is a risk that setting targets that are far into the future detracts from measures to reduce GHG emissions in the near term. It also discourages investment in technology that could make a difference much sooner. Taking near-term actions that impact on voters that will be around come the next election, is more challenging than setting out big picture, long term visions. Both are required, but there will be no progress on long term goals if the immediate challenges are not addressed. A good example is addressing the gap in government income from fuel duty, in the transition to electrification.

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?

They are currently linked through the conformity factor so why do we need to change that? We should bear in mind that real-world measurements are significantly less accurate than lab-based measurements.

However, from a regulatory standpoint, we need to establish balance and should introduce a set of real-world driving range (RDR) tests that exercise BEVS and FCEVs over similar drive cycles to that used in the RDE test with different ambient temperatures, gradients, accelerations etc. so consumers get real-world range information rather than the unrealistic ranges advertised.

Extending the Framework to All Road Vehicles

As a general comment, wherever possible the DfT's existing categories should be used to distinguish between different types of vehicle.

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?

N/A, as we don't support a ZEV mandate / sales target.

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

The sales mandate is a novel mechanism, and unintended consequences seem inevitable. It could marginalise the UK market, through it diverging with larger markets, which may result in some OEMs pulling out of some products and less choice for fleet operators / specialist vehicle users. Being required to sell a certain percentage of a particular type of vehicle seems likely to distort sales practices. It may divert OEMs attention to how they can maximise their trading position with respect to credits and super credits (see answer to Q6).

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?

Being lighter duty vehicles, these are inherently easier to electrify. It may be that the market moves in advance of the regulation (or happens irrespective of the regulation, particularly if the regulation is over complex.)