RAC Foundation response to the Department for Transport's consultation on ending the sale of new petrol, diesel and hybrid cars and vans

July 2020

1. The RAC Foundation is a transport policy and research organisation which explores the economic, mobility, safety and environmental issues relating to roads and their users. The Foundation publishes independent in order to promote informed debate from the perspective of the responsible motorist. Nothing in this response is confidential.

2. The question of whether it is feasible to accelerate the ban on sale of new internal combustion engine (ICE) cars and vans from 2040 to 2035, or earlier, is not straightforward because the question of 'feasibility' depends both on judgements made about supply-chain capacity in the automotive industry to produce zero tailpipe emission vehicles in sufficient volumes (in particular in the production of batteries) and on the extent to which we are able to mitigate or are prepared to live with the consequences for consumers (should supply chain and industrial constraints limit supply and/or push up prices).

3. Acceleration of the date is clearly possible – to 2035 or sooner, but the risks and the wider implications become more stark the earlier the date is pulled. Whether these issues are likely to be outweighed by the benefits of earlier carbon reductions is a further judgement call. We would say that two things are clear:

- first, both for industry and for consumers it is important that government is clear about the date to which we are working in order to plan ahead, and
- second, associated with that it would be highly desirable to have some form of glide-path transition rather than head toward a cliff edge to create a shared sense of pace.

Background – the scale of the challenge

4. In 2018, 328 billion vehicle miles were travelled in Great Britain[1]. Of that total 255 billion miles (78%) were completed by car, 51 billion by light commercial vehicles (vans) and 17 billion by lorries. The balance is completed by motorcycles, buses and coaches.

5. Whilst total CO_2 emissions from UK transport have been falling since a peak in the mid-2000s, they still account for 33% of the total (27% of the total of all greenhouse gases).[2]

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1 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/801185/tra0101.ods

2 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790626/2018-provisional-emissions-statistics-report.pdf

Table 1: UK annual greenhouse gas emissions, 1990-2018, headline results

								$MtCO_2e$
	1990	**1995**	**2000**	**2005**	**2010**	**2015**	**2017**	**2018 (p)**
Energy supply	242.1	210.3	204.0	219.1	197.3	137.6	106.0	98.3
from power stations	*203.0*	*163.0*	*158.7*	*173.1*	*157.3*	104.1	72.4	65.2
other Energy supply	*39.1*	*47.3*	*45.3*	*46.0*	*40.0*	33.4	33.5	33.1
Business	111.9	108.9	108.7	96.9	78.2	69.5	66.1	65.9
Transport	125.4	126.8	131.0	134.3	123.4	122.2	124.6	121.4
Public	13.4	13.2	12.1	11.1	9.4	7.9	7.8	8.1
Residential	78.3	79.6	85.6	82.5	84.5	64.5	64.1	65.9
Agriculture	6.5	6.5	5.5	6.1	5.4	5.5	5.6	5.6
Industrial process	19.4	17.7	16.9	16.3	10.6	12.1	10.2	10.0
Waste management	1.3	1.0	0.5	0.4	0.3	0.2	0.3	0.3
LULUCF	-2.0	-3.9	-6.0	-8.9	-10.7	-11.2	-11.3	-11.3
Total CO_2	**596.3**	**560.1**	**558.3**	**557.9**	**498.3**	**408.3**	**373.2**	**364.1**
Other greenhouse gases	198.0	185.4	149.2	125.8	102.5	89.6	87.0	84.4
Total greenhouse gases	**794.4**	**745.6**	**707.5**	**683.7**	**600.9**	**498.0**	**460.2**	**448.5**

6. Clearly there is an urgent need to reduce emissions from road transport, including – but not limited to – those from private cars, if the government is to achieve its net zero carbon obligations.

7. That said, the scale of this challenge is daunting – of the 32.9 million cars licensed in the UK at the end of 2019 the vast majority are powered by petrol (19.2 million) or diesel (12.8 million) with just 91,000 pure battery electric, 146,000 plug-in hybrids and 521,000 mild hybrids on the road.[3] Tackling the challenge will require action on several fronts.

The supply chain and manufacturing process

8. There is a track record of the auto industry resisting and then achieving tightening emissions standards over the last 20 years. By 2018 the UK new car fleet average CO_2 emissions figure was down 31% on 2000. However, what is now being sought is a fundamental change in drivetrain – this is no longer about 'low' or 'ultra-low' emissions by fine-tuning existing engine technologies but about zero at the tailpipe, and that means both a reconfiguration of the manufacturing process and the sourcing, at scale, of different components and materials.

9. Our concern over acceleration arises in part from the global implications of the current supply chain for battery materials. Arguably by concentrating on domestic carbon emissions we

[3] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882293/veh0203.ods

could merely be exporting the carbon problem, and unlike air quality, which is a place-specific issue, carbon emissions are a problem wherever they happen. Anything that leads to a global increase in carbon emissions, or, indeed, other pollutants, is a risk. There is a well-recognised human rights angle to the process by which materials are mined and processed. And the environmental and human rights risks need also to be set against the geo-political risk arising form the sourcing of rare earth metals from a limited supply chain which could be constrained by any number of factors, such as tensions over international trade. Ultimately we would argue that we run the risk of focusing too tightly on the tailpipe and not enough on the whole production cycle.

10. On the manufacturing side, it is clear that auto companies, such as Volvo and VW, have ambitious publicly-stated targets already in place to switch production line capacity over to hybrid or non-ICE vehicles at scale between now and 2030. It follows that, although there are obviously vested interests at play, the auto companies must have information about the art of the commercially practicable in terms of sourcing materials and components. Whilst turning the container ship around might be a protracted process, much of the vehicle will remain as is (or as already planned), in terms of chassis, bodywork, interior etc… Government should press the Automotive Council to help with analysis on the supply chain issues – we are aware of analysis having been undertaken, but which we have not seen.

The consumer implications – complementary policies

11. There are two issues here. One is the impact of the accelerated ban on the price of vehicles and/or on restricted supply. This is where the rationale for the ban on hybrids comes to the fore.

12. It is to be hoped that increasing production volumes will result in lower showroom price-tags for battery electric cars over the next decade, but thus far the price gap between plug-in battery and ICE vehicles remains a sizeable barrier to their take up (alongside other concerns referenced below). We would suggest that sharp distinctions be drawn both between the capability and emissions potential of the different types of hybrid and that steps be taken to require their use in the most environmentally appropriate way. There is little point in having a benefit-in-kind regime for company cars that encourages business fleets to opt for plug-in hybrids if there is a counterincentive for their users to run largely on fossil fuels because their employer will neither check that they are opting for electric propulsion nor cover the cost of home recharging but still provides a fuel card for petrol/diesel. For many drivers a plug-in hybrid, such as a BMW i3, can result in virtually 100% emissions free motoring but with the reassurance that range anxiety is dealt with.

13. The second issue concerns the used car market. For most UK households buying and owning a car is the single biggest area of household expenditure bar none. However, the vast majority of the annual sales of cars in the UK involve used vehicles, not new ones (7.9 million v 2.3 million in 2019 according to the SMMT). The market for new cars is split roughly 50:50 between fleet buyers and private buyers. It is possible that accelerating the ban on sales of new ICE vehicles will push the price of new vehicles up and result in drivers hanging on to more

polluting ICE models for longer, precisely the opposite outcome to that sought. From this point forward households contemplating what to do about the cars they own would benefit from clarity about the trajectory from here to, say, 2035, so as to have some way of estimating the residual value of the vehicles they own or might be minded to buy between now and 2030. What polices are envisaged for the 'legacy' ICE vehicles?

14. It is hard, and probably unwise, to think about the ban on new ICE sales in isolation from the complementary measures that might be applied such as ongoing grant support for the purchase of zero emission alternatives, grants for home chargepoint installation, expansion of the public chargepoint network etc… While government strives to maintain a technology neutral stance the message we are hearing, whether or not intentionally, comes across largely as pro-plug-in-battery-electric for cars and vans with alternatives such as hydrogen not being ruled out, but not attracting anything like the same level of enthusiasm. Given the possibility that a technological breakthrough could yet be made in hydrogen propulsion, particularly in the energy needed to create the hydrogen, as well as in battery technology (shortening charge times, lengthening charge duration and switching to more sustainable materials), this may be sensible, but needs to be borne in mind as government considers the messaging that it is sending to consumers.

15. In the plug-in-battery-electric world much more could be done to make the consumer interface better – the recharging of an electric car on the public network offers the prospect of much cheaper motoring for those in the know, but is dizzyingly complicated compared to the user-friendly interface of filling a petrol tank at a petrol pump, where the design and language used are essentially common across the supply network.

The bigger picture

16. Beyond thinking of complementary measures to encourage, incentivise and require zero-tailpipe vehicles we would urge government to think more broadly about other issues that are leading to seismic changes in the world of motoring, such as:

- The new 'intelligent speed assistance' technology that will become a mandatory fitment from 2022 which could challenge the very existence of the performance car market for vehicles intended for use on the public road, but could also see a spike in the value of pre-2022 ICE performance vehicles;
- The widely anticipated advance of vehicle automation and vehicle sharing leading to less private vehicle ownership and thereby a reduction in the overall size of the car vehicle parc; and
- Policies to slow and/or restrict car use in built-up areas, and switch 'last-mile' freight deliveries to alternative vehicles such as electrically boosted delivery bicycles.

All such policies should be weighed, and their potential contribution assessed in deciding where best to impose regulation and/or spend taxpayers' money in order to achieve the best/swiftest outcome.

Conclusion

17. In the context of achieving our climate change ambitions the RAC Foundation would, in principle, be in favour of accelerating the phase-out of the ICE car and van ahead of 2040, but the pace and trajectory by which this should be achieved are hugely dependent on the issues we have flagged above, and without data, particularly on the supply chain issue and on the government's stance on exporting our emissions overseas along the supply chain we are unable to recommend a single target date, though we would be very willing to engage in further discussion.

RAC Foundation

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