

Transport Planning Society

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Dear Sir/Madame,

TPS Response: Consultation on ending the sale of new petrol, diesel and hybrid cars and vans

Please see below a general response to the consultation on ending the sale of new petrol, diesel and hybrid cars and vans, followed by specific answers to the consultation questions.

The Department for Transport has committed to decarbonising the transport sector in line with Government policy to achieve net zero emissions by 2050. Current policy is to end of the sales of conventional petrol and diesel vehicles by 2040, though the sale of hybrid and plug-in hybrid vehicles (PHEVs) would continue.

The Committee on Climate Change (CCC) recommends the phase out date be brought forward to 2035 for all non-zero emissions vehicles under a 'further ambition' scenario¹. The DfT is now consulting on whether to accept this date, and in particular asks for views on:

- 1) the phase out date
- 2) the definition of what should be phased out
- 3) barriers to achieving the above proposals
- 4) the impact of these ambitions on different sectors of industry and society
- 5) what measures are required by government and others to achieve the earlier phase out date.

In summary, the TPS response is:

- 1) **The phase out date should be brought forward to 2035 at least.** From 2020, an escalating, emissions-based first year registration charge (expanding that already in place) should be introduced. Raising the cost of ownership of the petrol and diesel vehicles now will reduce the number of these vehicles in circulation through to 2035, mitigating some of the problems of a "cliff edge" when the ban comes into force. Early efforts to influence consumer choice before the ban will have a large positive influence on vehicle parc emissions in the lead up to 2050.

¹ CCC (2019). Net Zero – Technical Report. Committee on Climate Change. <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-Technical-report-CCC.pdf>

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- 2) **PHEVs should be included in the vehicles phased out in 2035** because many of them emit almost as much CO₂ as conventional cars and in fact their real-world emissions often exceed significantly the levels advertised based on laboratory testing. Extending the emissions-based point of sale charge to include hybrids and PHEVs would help to capture this discrepancy. It is also essential to reduce vehicle mileage if decarbonisation targets are to be met. The TPS has consistently supported road user charging which should be related not only to greenhouse gas emissions, but also to remaining external costs associated with non-combustion emissions of fine particles, noise, road safety and congestion.
- 3) **Barriers to implementing proposals relate to the lack of the electricity supply infrastructure, particularly at the distribution network level.** Examples include: a lack of charge points, both public and private; issues in urban areas where vehicles may not be parked close to home; and the marginal carbon dioxide emissions associated with supplying the extra electricity.
- 4) **The impacts will be widespread and many may be unexpected or unintended.** The UK is not a major vehicle manufacturer (although components are still important) but the cars it produces through Nissan are electric. Overall, vehicle sales are likely to fall in the short to medium term, partly as a result of the recession and partly reflecting the move away from car ownership among young people. However, many of the impacts will be felt outside the industry itself. New patterns of travel will emerge using shared car use rather than owning vehicles.
- 5) **Government should introduce a ramping emissions-based registration charge for new petrol, diesel, hybrid and PHEVs as soon as possible.** A national overview of the charge point availability is also needed. Further encouragement of shared vehicles and electric car clubs will help to address the issue of those who cannot afford car ownership or would otherwise be tempted to buy an older, less expensive, but more polluting one. We do not support significant scrappage payments since this tends to be regressive and any subsidy for electric vehicles (EVs) should be based on the shared model. Finally, there should be greater emphasis on land use planning which minimises the need to travel, particularly in the context of conversions from offices and associated uses as a result of greater home working. New housing must be designed with sustainable transport built in.

The following sections of this response go into our reasoning in more detail.

The phase out date

The TPS agrees with the CCC's 'further ambition' recommendation to end sales of all new petrol, diesel and hybrid cars and vans by 2035. Hybrids and EVs entered the market in 2001, with PHEVs following in 2010².

² DfT (2020). Statistical data set – Cars (VEH02): Cars registered for the first time by propulsion and fuel type: Great Britain and United Kingdom.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/896216/veh02_53.ods

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By 2018, there were over 620,000 hybrids, PHEVs and EVs in circulation³, equivalent to less than 2% of all registered vehicles. EVs accounted for less than 1% of new vehicles² registered and less than 0.2% of all vehicles in circulation.

Large scale electrification of road transport requires a combination of almost-exclusive consumer demand, paired with manufacturing capacity across all the major car and van suppliers. Ending the sale of new petrol, diesel and hybrid cars and vans would focus demand on EVs and drive uptake.

The Government should consider carefully the used car market for petrol, diesel and hybrid cars and vans.

It is unclear the level of consumer demand for these vehicles after sales of new versions stop. However, whatever the consumer response, the aim to decarbonise road transport will be delayed if more conventional vehicles are in circulation.

The definition of what should be phased out

The ban should include hybrids and PHEVs⁴ because fuel savings from the hybrid system are uncertain. Hybrids use combustion engines to deliver the majority of the driving required. PHEVs may have batteries sized to deliver the average daily driving distance, but suffer many of the challenges facing EVs in terms of availability of charging infrastructure locally and nationally.

The key challenge of delivering all-electric driving obviously requires the consumer to charge the PHEV regularly. In the absence of this, PHEVs revert to their internal combustion engines to deliver the driving need.

Recent testing, for example by Which in the UK⁵, revealed carbon dioxide emissions from some hybrids and PHEVs exceed those from conventional diesel cars. One of the reasons for this discrepancy is PHEV manufacturers can choose how to implement the technology and whether to target low emissions or performance. Energy use in hybrid and PHEV vehicles is sensitive to how they are driven: in the worst cases, hybrid vehicles use 47% more fuel than expected under real-world driving conditions; while more research is needed to determine the performance of PHEVs. Ultimately, hybrids and PHEVs will not deliver decarbonised road transport, even if they performed as expected

Evaluation of the total environmental impact of HEVs, PHEVs and EVs should include the embodied energy and associated emissions in manufacturing the batteries and other components of the electric traction drive system. Even the source of electricity for manufacturing batteries and vehicles is important – far greater in countries which still rely on coal burning.

Total emissions can be calculated over the vehicle lifetime and this summary figure is used widely. For conventional petrol and diesel vehicles, lifetime emissions depend on total distance driven. EVs can return lower total ownership costs as the avoided cost from fuel saved offsets higher purchase price.

³ DfT(2020). Statistical data set – Cars (VEH02): Licensed cars by propulsion or fuel type: Great Britain and United Kingdom.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882293/veh02_03.ods

⁴ The CCC ‘further ambition’ scenario suggests ending sales of plug-in hybrid vehicles by 2035.

⁵ For example, see the March and June editions of the monthly magazine.

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The timing of this crossover point is linked to total distance travelled. This potentially conflicts with reducing the need to travel, a key to reducing congestion as well as emissions.

For this reason, the TPS supports the introduction of a registration charge for new vehicles which accounts for in-use emissions (grams per kilometre) with two main aims: first, to make vehicles more expensive so consumers consider if to make the purchase; and second, to influence consumer choice such that they purchase an EV instead of a more polluting option. Therefore, making petrol and diesel vehicles more expensive is preferable to subsidies to reduce the purchase price of new EVs.

The level of such a market price mechanism should be based on transparent, robust evidence. A key feature of the registration fee is it should increase rapidly over a five year period. The aim is to recognise explicitly the increasing social cost of carbon and to accelerate the phasing out of the most polluting vehicles by the end of this decade. This will reduce the number of those vehicles in circulation to the middle of the century, placing road transport emissions on a downward trajectory before the sales ban is introduced in 2035.

Car production in the UK is currently much lower than demand and many are exported. Action will be needed to mitigate problems for UK manufacturers which arise when the UK leaves the EU. For example, domestic automakers should continue to develop low emissions models which comply with EU Directives to support demand for UK products on the continent. An emissions-based registration fee paired with a commitment to continue develop low- and zero emissions vehicles would prevent any perverse incentive to sell higher emission vehicles into the UK.

Barriers to achieving the above proposals

To put this in context, the challenges associated with switching from fossil-fuels for road transport are small compared to the difficulties associated with unmitigated climate change. Reducing vehicle use must play a major role between now and 2050, particularly in the short to medium term. This is why the Government must introduce new methods of road user charging as the use of fossil fuel for transport declines. The loss of revenue is also hard to contemplate in the current financial situation.

The challenges to ending sales of new petrol, diesel, hybrids and PHEVs can be grouped into supply, demand and infrastructure. There are 57 EV models from 10 manufacturers available on the market in 2020⁶, even as demand remains low. Likewise, charging infrastructure has rolled out at pace to meet (and exceed) consumer demand. Investment in local grid capacity may be required to provide high power recharging to a growing EV fleet, each with a large battery pack. Over time, electricity generating capacity may need to expand to accommodate the growing demand from mobile and stationary applications.

Decarbonising different economic sectors is based on two stages: first, the switch to all-electric operation; and second, the decarbonisation of the electricity supply. However, switching to EVs does not solve the climate change challenge. In the narrowest sense, EV emissions are shifted from the tailpipe to the electricity generation sector. While EVs avoid the use of some natural resources, such as refined road fuels, they depend on a range of natural resources and processes to produce their batteries, motors and other unique components. The consequence is EVs have more embodied energy in their powertrain components than conventional vehicles.

⁶ VCA (2020). Vehicle Certification Agency. Find new cars using alternative fuel types.
<https://carfueldata.vehicle-certification-agency.gov.uk/search-by-alt-fuel.aspx>

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EV emissions can be half those of a petrol or diesel vehicle over its lifetime⁷ but, as noted above, this calculation is very sensitive to distance travelled. Therefore, as with hybrids and PHEVs, achieving an electrified vehicle fleet will not deliver decarbonised road transport in time to meet climate change targets.

The role of transport planning: impacts and actions

Ending the sales of petrol, diesel and hybrid vehicles addresses tailpipe emissions of greenhouse gases. However, few would regard a wholesale switch to EVs as delivering the ambitions of a sustainable transport system.

An EV fleet would not only require energy and natural resources, but also sustain the negative externalities of congestion, noise, road safety and local air pollution challenges.

The aim now, and in the future, should be to minimise the volume of traffic in terms of vehicle kilometres.

This should be combined with control of other factors, especially speed, which has positive impacts on safety and fuel economy. These factors are currently undervalued in our transport appraisal system.

To achieve the aims of economic and environmental efficiency, health and safety, communities need to be designed where homes, offices, commercial and leisure activities are within walking or cycling distance. Integrating land use and transport planning with a focus on place making is the best way to deliver emissions-free travel and the co-benefits of greater inclusion and accessibility. Delivering housing in a sustainable way requires transport to be taken seriously – the recent report “Garden Villages and Garden Towns: Visions and Reality”⁸ illustrates the current weaknesses and the need for stronger Government guidance and local action.

Integrated land use and transport planning will be even more important given the number of one-off land use changes driven by the post-COVID changes to work patterns. Without discussing the merits or demerits of remote working, a significant amount of travel can be avoided, not only for commuting but for business travel generally, by working from home. These changes will impact traffic patterns. For example, some commuters may switch to car from public transport, offsetting a drop in the longer distance trips on the strategic network from lower business travel. The extent of these changes remains unknown: however, changes in trip time, distance and purpose will impact the attractiveness of EVs, both for users and for transport planners. Air quality will continue to be a key driver in removing vehicles with combustion engines from circulation.

There are additional, serious implications from post-COVID land use changes. Reducing office space through home working is now firmly on the agenda for most company finance directors. While it is not yet possible to predict specific area impacts, there will be a reduction in office requirements, a reduction in retail businesses serving them, and pressure to fast track changes from commercial to residential use.

⁷ D Hall and N Lutsey (2018). Effects of battery manufacturing on electric vehicle life-cycle greenhouse gas emissions. The International Council on Clean Transportation.

https://theicct.org/sites/default/files/publications/EV-life-cycle-GHG_ICCT-Briefing_09022018_vF.pdf

⁸ <https://www.transportfornewhomes.org.uk/the-project/garden-villages-and-garden-towns/>

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The design of new residential areas needs to have due regard for the creation of communities and communal spaces, genuine placemaking, opportunities for local employment and provision of local facilities. This will allow residents to have easy access to the areas they need, including social interaction, education, healthcare and jobs.

EVs have an important role in public transport and delivery vehicles, recognising not every trip can be accomplished using active modes. For longer distance goods transport, a combination of less polluting modes and possibly other technologies, such as hydrogen, may play a part. Accessibility mapping has been available for some considerable time and should be a useful tool in moving forward.

Communities where amenities are not connected by active and sustainable travel infrastructure will force residents to travel more by private car or suffer from isolation and lack of choice.

We would be pleased to discuss these responses with you further.

Yours sincerely,

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