DfT consultation on ending the sale of new diesel buses

CPT Submission

The Confederation of Passenger Transport (CPT) UK represents the operators of bus and coach services across the UK, as well as vehicle manufacturers and other suppliers to the industry. CPT has more than one thousand enterprises in membership, ranging from major PLCs, through to municipally-owned companies and family businesses with fewer than ten vehicles.

We understand that coaches – including those that deliver some bus services - are outside of the scope of this consultation.

Key considerations

It is important to emphasise upfront five key considerations that should shape any decision on phasing out the sale of new diesel buses:

- Electrification of buses is much more challenging than electrification of cars due to considerations of weight (in that respect it is comparable to HGVs).

- The diversity of bus types and uses – the challenges faced in switching a short-range, urban bus operating on relatively flat topography are very different from a long-distance, rural bus in a hilly topography.

- The financial and people resources available to operators vary significantly – the challenges and options available to a major UK operator operating thousands of buses are very different to those faced by a small operator with a few dozen.

- Too fast a transition without adequate Government financial support will result in cost increases for operators which will impact fares, which is very much contrary to the direction of the national bus strategy and would undermine the Government's ambitions (which the industry shares) for modal shift, Net Zero emissions and the levelling up agenda.

- Within any given high Peak Vehicle Requirement (PVR) route, deployed buses will have very different duty cycles. For diesel operations, newer buses will tend to operate on the more intensive routes that run throughout the day. This ensures maximum use is made of the costly new assets with better fuel efficiency. This may not be possible for electric buses where range restrictions prevent them for fulfilling the more intensive duty cycles, with implications for the cost model.

1. What should be phased out?

There should continue to be ultra-low, as well as zero, emission options for purchase until issues around range, reliability and infrastructure have been worked through for rural routes, small depots and SME operators.

For these reasons the bus industry's commitment in its strategy *Moving Forward Together* to phase out the purchase of new diesel buses allowed for the purchase of ultra-low as well as zero emission buses going forward.

The battery range of fully electric vehicles is still not adequate for some longer/more rural routes (and some longer-distance urban routes) and so, if battery electric vehicles are used on these routes, more electric buses will be needed than their equivalent ultra-low or diesel options to cope with higher mileage operations/longer working days, etc. and extra buses equals increased costs.

This is particularly an issue for double deck buses where the products coming onto the market are less mature and ranges are more restrictive. A typical range of 150 miles between recharging represents a significant constraint when scheduling deployments.

Whilst the emergence of hydrogen vehicles can help with issues of range, for the deployment of any type of zero emission bus on e.g. school, rural and SME operations more time is needed for issues around infrastructure and price to be worked through.

Infrastructure provision may be a real challenge at smaller (typically rural) depots and outstations. At these locations there are constraints not only on space, but possibly also on grid capacity/infrastructure. At the smallest of operators/depots, diesel may currently be purchased from a local filling station. This flexibility may well disappear.

Therefore until such time as fully zero emission options are available which are suitable for all types of networks we need Government support to include ultra-low vehicles - for example hybrid vehicles which can run as zero emission in built-up areas and then low emission diesel outside of this.

2. When you think the sale of diesel buses should end?

The appropriate end date for the sale of new diesel buses depends upon the support provided by Government for this policy.

In our bus strategy *Moving Forward Together* published in September 2019 the industry committed to only buying zero emission or ultra- low emission buses from 2025, in return for Government support for the extra purchase cost of ultra-low and zero emission buses until prices progressively align with the current cost of comparators, and support for delivery of the necessary infrastructure. We also stressed the need for Government to put in place a clear plan to support the UK's manufacturing and supply chain in improving and developing technologies around ultra-low and zero emission vehicles.

We have commented separately on the Government's current place-based approach to support for the rollout of zero emission buses. Whilst we welcome the commitment to support the industry in delivering these vehicles, we remain concerned that, in the aftermath of the Covid-19 pandemic, volume rollout of zero emission buses may continue to be uncommercial for a number of operators, in particular SMEs, under the grant scheme proposed. Operators have been unable to earn a profit throughout the pandemic which has resulted in lack of investment capital. In addition, it is likely that in the immediate aftermath of the pandemic, the

UK bus market will contract while we wait for passengers to come back and for new passengers to be encouraged on to bus. This means a continued suppression of fare revenue and a likely surplus of diesel buses. This is discussed in more detail under Q7.

In addition, English BSOG rates of 34.57 pence per litre for diesel and 6 pence per km for electric/hydrogen significantly favour diesel over its zero equivalent. It compares very unfavourably with the levels of support for zero available in Scotland. Until this is addressed we are concerned that levels of bus investment in England will lag what's required to ensure an early switch of volume purchase to zero.

Nonetheless, if the Government comes forward with the right support, as set out under Q7, the industry remains committed to transitioning towards an ultra-low and zero emission fleet. Assuming the right level of support is forthcoming, we can see merit in coinciding the phase out with that for new diesel cars (2030, and 2035 for hybrids) which provides a buffer to the industry commitment of 2025 to take account of the impact of Covid-19 on the industry's ability to invest in new vehicles and to manage localised issues that might arise.

2. what do you believe will be the impact on ending the sale of new diesel buses?

If proposals are brought forward which are sufficiently supportive and timely to drive investment in zero emission vehicles in the short to medium term, these ambitions could help safeguard 10,000 jobs and apprenticeships in UK bus manufacturing. Conversely, if new orders are not placed soon enough, these jobs would be placed at risk, along with the industry's ability to deliver orders of zero emission buses in the future.

The delivery of the 4,000 zero emission buses pledged by the Prime Minister in 2020 could lead reduce carbon dioxide emissions by 2 million tonnes.[1] Being able to honour the industry's commitment to only purchase ultra-low or zero emission buses from a given date (for example from 2025/2030) could make that saving half a million tonnes per year. This results in improved air quality and a better environment for everyone.

If the necessary Government support is not in place to support the industry with this transition it is highly likely that most operators, SMEs in particular, would simply cease buying new buses and/or move to second-hand purchases. This is because we are yet to see the manufacturer price reductions which are needed if ZEB prices are to progressively align with diesel vehicle prices (and are unlikely to see those price reductions in the short term). An ageing fleet could mean less reductions in emissions and less improvements in the customer on-board experience.

In addition, any announcement that delivery will be grant free by an arbitrary date could well undermine the very confidence amongst manufacturers and in the financial sector that is required to drive costs down long term.

If the necessary technological innovations in both vehicles and infrastructure do not emerge in the necessary timeframes to serve those areas where it is harder to run zero emission

[1] Over the estimated lifetime of the vehicles

services and/or install related infrastructure (rural/remote areas, SME operators etc as discussed under Q1) operators in these areas will remain unable to upgrade and invest in zero emission and will be reliant on increasingly aged diesel vehicles, resulting over time in a 'second class' service in such areas and putting the levelling up agenda at risk.

4. what do you believe are the necessary conditions for a successful transition to a full green bus fleet?

As well as an appropriate package of Government support, as discussed elsewhere in this submission (in particular under Q7) we need measures which increase passenger numbers and reduce operating costs of bus services to make the economic case for investment in zero emission buses. Journey time improvements brought about by bus priority measures can deliver the more attractive travel option for passengers, increasing passenger numbers and fare revenue which, along with operational cost savings resulting from quicker journey times, can be reinvested in both zero emission vehicles and in improving services even further creating a virtuous circle.

This virtuous circle can then drive modal shift from the private car to active travel and public transport which is crucial if we are to meet the nation's net zero targets. Getting people out of their cars and walking to the bus would have a dramatic impact on carbon emissions and air quality. It is worth noting that just 6 more journeys a year by bus by everyone would be equal to the impact of the entire bus fleet transition to zero emission.

Given that buses are typically depreciated over 15 years, with many lasting up to 20 years, we believe that it is important not to set an end date for the phasing out of all diesel buses from the fleet, but to rely on the gradual phasing that will result from ending the sale of new diesel from a specified date (such as 2030). This ensures that:

(a) We prevent scrappage of diesel buses that have considerable life left in them, and prevent the waste of the carbon that is wrapped up in their manufacture.
(b) SME operators and rural locations etc for which zero emission buses and infrastructure are currently a challenge, with given technology and prices, have more time to make the transition and can access good quality, second hand low emission diesel vehicles in the meantime.
(c) We recognise the huge savings in emissions that can be gained simply through getting people out of their cars and onto the bus, whatever the engine of the bus.
(d) Operators can purchase clean, fuel efficient Euro VI vehicles in the next few years to replace older vehicles with immediate benefits for air quality.

Any end date for diesel buses to be on the roads would need additional Government funding to allow for writing off buses purchased as recently as 2020, and therefore only halfway through their working life. If this was not part of the scheme, the hit to the balance sheet of many SMEs would be so severe that they would be put out of business. With a significant uplift

in the vehicle replacement rates, it also raises the question of what happens once the transition is complete and all vehicles needed for operations still have a significant remaining useful life.

Many leasing and finance companies would also take a huge hit and in all likelihood cease financing (or dramatically increasing rates) for new vehicles, both diesel and electric.

As an illustration, for an SME operator:

By using a mix of new and second-hand vehicles, the average depreciation per bus for 2019 was c.£6,000 pa. If the operator has no option but to buy new electric (because second hand diesel bus supplies will dry up or become too old in due course, and there will be no second hand electric buses for at least 10 years), and assuming an electric bus cost of £400k (ignoring infrastructure), depreciation would move to 400/15 = £27k pa.

As there is no realistic possibility for the SME of funding that sort of cost through cashflow, interest payments of c.£20k per bus per annum need to be added, resulting in depreciation of c. £47k per bus versus £6k - an increase in depreciation of c.£40k per bus.

A typical rural/small town bus earns £110k - £150k per annum (much less if it's only a morning/afternoon schools service). So any extra £40k in depreciation/finance cost would – all other things being equal – need an increase in patronage of between 26% and 36% just to stand still.

We calculate that, for all vehicles to be ZEB by 2030, the gap in price between ZEBs and diesel would not be narrowed so investment would be required close to £3.3bn to account for the write-downs and lower impact of price convergence with a higher replacement rate.

5. What are the barriers, in your view, to achieving the proposals?

As discussed, a lack of adequate financial support for the industry to transition to zero emission could de-rail the process.

We also need to ensure that the bus industry is able to exit the pandemic in a good enough shape to start to deliver the range of ambitions in the Strategy, including on zero emission. If we are to have operators who are in a position to invest in zero emission vehicles, and if we are truly going to see significant modal shift from private car to the bus, we need to be able to offer a comprehensive bus network to potential passengers with quality services. This requires well-funded recovery partnerships as we exit the pandemic and move back to the commercial model of operation to ensure that we do not see a contraction of the bus network in the immediate aftermath of Covid-19.

If we are to have a British bus manufacturing sector that is able to play a part in the delivery of this zero emission bus vision, we need to be able to get orders on the books over the next few months. We therefore welcome the 'fast track' option that is now part of the ZEBRA scheme.

For the longer term, we need a roadmap for English rollout which includes the £120m for 2021/22 but goes well beyond. A project of the magnitude envisaged by the Prime Minister when he announced his 4,000 new zero emission buses ambition requires a major national multi-year programme which addresses operators' finances, depot connections, and manufacturer capacity with appropriate phasing to take account of timing required to connect depots. This programme also needs to recognise that we are unlikely to see price parity of ZEBs with diesel in the short term.

Early investment may be skewed towards a small number of cities/towns due the place-based approach of schemes and different levels of local authority engagement. Future rounds of funding may therefore need to take a more nation-wide approach to avoid some locations getting left behind.

6. What impact do you believe these ambitions will have on different sectors of industry and society?

If proposals are brought forward which are sufficiently supportive and timely to drive investment in zero emission vehicles in the short to medium term, these ambitions could help safeguard 10,000 jobs and apprenticeships in UK bus manufacturing.

The delivery of the 4,000 zero emission buses pledged by the Prime Minister in 2020 could lead reduce carbon dioxide emissions by 2 million tonnes.[2] Being able to honour the industry's commitment to only purchase ultra-low or zero emission buses from a given date (e.g. 2025/2030) could make that saving half a million tonnes per year. This results in improved air quality and a better environment for everyone.

Conversely, if new orders are not placed soon enough, these jobs would be placed at risk, along with the industry's ability to deliver orders of zero emission buses in the future. If fit for purpose levels of Government support are not made available in England delivery could falter and Government's aspirations could remain unfulfilled. And if new diesel sales are ended prematurely, the long-term prospects of the SME operating sector could be significantly damaged.

7. What measures are required by government and others to support this phase-out?

In our bus strategy *Moving Forward Together* published in September 2019 the industry committed to only buying zero emission or ultra- low emission buses from 2025, in return for Government support for the extra purchase cost of ultra-low and zero emission buses until prices progressively align with comparators, and support for delivery of the necessary infrastructure. We also stressed the need for Government to put in place a clear plan to support

[2] Over the estimated lifetime of the vehicles

the UK's manufacturing and supply chain in improving and developing technologies around ultra-low and zero emission vehicles.

We have submitted comments to Government separately on the Government's current place-based approach to support for the rollout of zero emission buses. Whilst we welcome the commitment to support the industry in delivering these vehicles, we remain concerned that, in the aftermath of the Covid-19 pandemic, volume rollout of zero emission buses may continue to be uncommercial for operators, and in particular SMEs, under the grant scheme proposed. Operators have been unable to earn a profit throughout the pandemic which has resulted in lack of investment capital. In addition, it is likely that in the immediate aftermath of the pandemic, the UK bus market will contract while we wait for passengers to come back and for new passengers to be encouraged on to bus. This means a continued suppression of fare revenue and a likely surplus of diesel buses.

For most operators leasing of new buses will be necessary due to constraints on operator cash flow not least due to covid. It is however a more expensive option than outright purchase of vehicles and is not a means of addressing the extra costs of buying zero identified above. Providing Government guarantees as part of the package can help to leverage private finance, making the business case more deliverable and cheaper to the public purse.

The key barrier to a commercially viable business case for zero is the high mid-life costs incurred by both electric and hydrogen – with electric vehicles requiring replacement of expensive battery and other electrical components and hydrogen requiring replacement of fuel cells and (smaller) batteries. Costs can be smoothed and some of the risk transferred through leasing. But a mechanism is required to cover these later life costs in Government support. Options for enhancing levels of grant support include:

- Increasing the upfront per unit capex grant
- Reserving grant to cover mid-life battery replacement costs as and when they arise
- Adding a BSOG enhancement to any vehicle capex. At present, BSOG rates in England for zero emission buses are less than for diesel buses. We recommend the Scottish model which offers a BSOG payment rate of 20p per km for zero emission buses to help make the financial incentives for them more attractive than for diesel buses.

As well as sufficient finance to enable operators to invest in zero emission vehicles, support is needed for the infrastructure to support this transition. In *Moving Forward Together* we estimated the cost of upgrading a single depot at around £1.5-£2m and believe there are approximately 100 key bus depots in the urban areas which would be central to the transition to zero emission urban operations.

Government support for the UK's manufacturing and supply chain is also needed to ensure the development of adequate technology, including battery life and charging points, to make the transition to a fully zero emission fleet a reality. The EV infrastructure market is not yet mature and operating efficiently, with costs higher than necessary. Further market development is needed to support deployment of zero emission buses at scale cost-effectively.

Zero emission buses cannot deliver increased passenger numbers and net zero emissions by themselves. They need the journey time improvements brought about by bus priority measures to deliver the more attractive travel option for passengers along with operational cost savings which can be reinvested in improving services even further creating a virtuous circle. This can then drive modal shift from the private car to active travel and public transport which is crucial if we are to meet the nation's net zero targets. Getting people out of their cars and walking to the bus would have a dramatic impact on carbon emissions and air quality. If everyone took one more bus journey a month there would be a billion fewer car journeys and we would reduce the UK's carbon dioxide emissions by 2 million tonnes a year.

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