Supplementary written evidence submitted by Arriva UK Bus (BUS0066)

1. Supplementary evidence from Arriva UK Bus on Zero Emission Vehicles.

1.1 At the 8 June witness session bus operators were asked to write to the Committee with follow up evidence on i) cost of replacing the entire fleet in today's prices, and ii) what's holding back the numbers of zero emission buses.

1.2 Arriva UK Bus covered information on decarbonisation in our written submission and this response is in addition to our previous written evidence which should be read in conjunction with this supplementary evidence.

2. Cost of fleet replacement

2.1 Arriva UK Bus has circa 4,500 buses. Approximately 1,500 of these are under TfL contracts, with the roadmap for the transition to zero emissions being driven predominantly through the recognised bus route tendering process which already requires all new buses are zero emission.

2.2 Electric vehicles are approximately twice the price of a new diesel bus at purchase, albeit the marketplace is seeing a number of new entrants developing double deck products which should increase competitive pressure in the medium term. Despite the recently increasing price of electricity, an electric vehicle is an attractive investment over its life cycle when the running costs of a diesel vehicle and novel approaches to battery management are considered - leaving the most significant barrier to progress the up-front capital costs. With infrastructure and vehicle premiums, it is the equivalent outlay to buying more than five years' diesel up front.

2.3 The cost of zero emission vehicles is likely to fall in the long term as competition increases and technology matures. The mid-term is less certain given current macro-economic conditions, the availability of elementals and the progress of product development in the marketplace.

2.4 Transitioning our remaining non-TFL contracted fleet of over 3,000 vehicles from diesel to electric vehicles could cost up to £2bn. This includes the vehicle replacement cost and an allowance for the infrastructure and connection to the grid for each vehicle. This would be approximately £1.4bn more than replacing the same fleet with traditionally fuelled vehicles.

2.5 Clearly given the very significant capital cost of replacing a fleet, the challenge is about affordability, transition rate and ensuring utilisation of the

assets for a full, if not extended life cycle. The full supply chain circularity will become an emerging requirement.

2.6 The cost of hydrogen buses has fallen over recent years, but these vehicles remain much more expensive to purchase than the battery-electric alternatives. There are other barriers to entry such as a higher fuel price, infrastructure costs and fuel availability. Hydrogen remains a clear alternative fuel technology for the longer term, particularly for inter-urban journeys and longer distance routes or high intensity routes where utilisation can be improved by depot or widely available refuelling processes.

3. Wider policy considerations

3.1 The secondary areas where support is helpful are around energy supply cost stability and with grid connections where the approach of the different regional Distribution Network Operators (DNOs) varies.

3.2 In our earlier evidence, Arriva UK Bus set out how the Government's Bus Back Better initiative supports bus networks and the bus industry. The support for the decarbonisation of the bus sector is particularly welcome. This includes the commitment for the introduction of 4,000 zero-emission (ZE) buses, as well as the 'ZEBRA' (Zero Emission Bus Regional Areas) funding scheme for ZE buses and the infrastructure to support these vehicles. This approach can ensure we reach areas of social need, grow the wider bus network patronage and reduce the environmental impact of fleets.

3.3 While government funding for the significant capital costs is welcome, we recommend that when the ZEBRA 'tranche-based' funding rounds end, government funding to support bus decarbonisation should be focused on long-term, stable support rather than competitions or tranche-based funding. Any long-term, ongoing funding is the most effective route to encourage bus operators to seek commercial capital funding, but this should be guaranteed over the lifetime of the asset. The current BSOG mechanism would be a good vehicle for this ongoing funding if it can be stable in the longer term to inform purchasing decisions for vehicles with a fifteen-year life. Otherwise, short-term funding such as the ZEBRA initiatives are effective but tend to drive a 'boom and bust' cycle for investment (suppliers and bus manufacturers) making long-term planning more challenging.

3.4 In our evidence we also noted the importance of, where possible, avoiding running multiple technologies in given areas (such as some electric buses,

some hydrogen etc) as this is an inefficient and expensive deployment of infrastructure, as well as the additional complexity of running a mixed fleet, dealing with the training, warranty and aftersales from multiple vehicle providers.

3.5 Bus operators should be best insulated from energy price movements as the vehicles charge at night to take advantage of off-peak electricity, but escalating electricity prices erode the recovery of that initial capital expenditure for an electric bus. There could be opportunities to partner with local authorities in the longer term to utilise the charging infrastructure for urban charging capabilities for third parties or even fee-paying customers. This could create alternate thinking around funding mechanisms.

3.6 There is a challenge with how operators can engage with the power grid DNOs. A bus depot with electric vehicles will draw many times more power than a large housing estate, and without a clear view of the funding landscape it is difficult for a bus operator to give a clear timeline to electrify these depot sites. Equally the engagement channels with different DNOs vary, from those who will engage to provide suggestions and 'reserve' power capacity, to those who will provide a time-bound quote for a single application on application. A single or more common approach across these DNOs would be useful to give a forum for discussion, to ensure power is available when bus fleets will electrify and to ensure that plans and timelines fit the development of local power grids.

3.7 Finally, the most transformational policy incentive to drive commercial investment in bus fleets and the transition to zero-carbon transport would be the support and promotion of public transport networks to drive patronage recovery and growth. With a strong and growing customer base, public transport operators are positioned to simultaneously invest in their businesses, develop commercial capital funding and grow network frequencies and geographic reach.

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