

## **Written evidence submitted by Chargepoint (BUS0053)**

### **1. INTRODUCTION**

1.1 ChargePoint is the world's leading provider of electric vehicle (EV) charging solutions. Founded in 2007, ChargePoint is a category creator in EV charging, operating in every segment from commercial to fleet to residential.

1.2 We have created one of the world's largest charging networks by selling individual organisations and businesses everything they need to electrify their parking spaces – networked charging hardware, software and associated support services.

1.3 ChargePoint serves customers through its software-defined hardware portfolio, comprehensive suite of software solutions and robust network and services designed for a wide range of use cases.

1.4 In 2021, ChargePoint acquired ViriCiti, a leading telematics and fleet solutions company. Founded in 2012 with a focus on electric buses and trucks, ViriCiti provides its solutions to approximately 150 fleet operators and OEMs worldwide, including Arriva, Berliner Verkehrsbetriebe, Chicago Transit Authority, GILLIG, Keolis, King County Metro, Metropolitan Transit Authority (New York), PicNic, San Francisco Municipal Transportation Authority and Toronto Transit Commission.

1.5 ChargePoint is the first publicly traded EV charging company. It designs, engineers and manufactures its own hardware and software solutions from its California headquarters and in offices around the US, India, China, UK and Mexico.

1.6 In the UK our engineering lab and office in Reading houses 60 engineers specialising in mechanical engineering, power electronics and software, in addition to a growing sales force and network of resellers and installers.

## **2. EXECUTIVE SUMMARY**

2.1 ChargePoint has addressed the Committee's questions on innovation and decarbonisation below. Across the UK we see a high degree of appetite and readiness to adopt pioneering technology solutions to support bus electrification. But bus operators, local authorities, regional transport authorities and other stakeholders involved in bus operations near-unanimously feed back that they do not have the means to invest in electrification without government support.

2.2 With nearly 40,000 diesel buses in operation in the UK the transition to a full zero emission fleet represents a significant investment programme, especially when the need to install new charging infrastructure in depots and, potentially, along bus routes. However, as this submission demonstrates, the technology and expertise exists to provide all the necessary charging infrastructure to facilitate this investment programme. However, the industry needs greater certainty over funding and the placement of orders at scale and over a consistent timeframe for the investment programme to be delivered efficiently and cost-effectively.

2.3 ChargePoint develops electric bus charging solutions in Europe and North America. From our experience the key challenge is the retrofitting decades-old bus depots with the grid connections and necessary charging infrastructure. Significant levels of technological investment are needed, yet only £3 billion has been allocated for the buses alone in this Parliament. Funding provided to bus operators during the pandemic has been withdrawn from this £3 billion, which is why ChargePoint was concerned to hear that now only £1.4 billion is now available for bus electrification. This level of funding is far from the £7 billion that local authorities require to deliver the Bus Service Improvement Plans submitted to Government, as they were required to do so under the National Bus Strategy.

2.4 The Government's approach to the electrification of cars and light vans has been to incentivise almost every vehicle while the market was in the early

stages through the Plug in Car, Van and Taxi Grants. They also supported the delivery of the charging infrastructure to power them through the EV Homecharge Scheme, the Workplace Charging Scheme, the On-Street Residential Charging Scheme and now the Local EV Infrastructure Fund, at times by up to 50% of capital costs (hardware and installation), alongside other funds to support electrification such as the Super Deduction, claimable against some EV charging hardware. Through this vital support, the EV and charging market for cars in the UK has reached a stage where it can stand on its own two feet.

2.5 However, the same approach and levels of support have not been provided for buses at this early stage in electrification of the market. Even if local authorities and operators are supported with some funds to acquire the vehicles, they also have to make very significant investments in the charging infrastructure and upgrading the depots. This, in ChargePoint's experience, is the aspect of electrification which can be prohibitively expensive. Government support and incentives will be even more crucial than they have been for electric cars and vans to build a commercially viable market that can meet the ambitions in the Bus Strategy to deliver greener, frequent, cheaper, and easier bus services across the UK.

2.6 As outlined below, in ChargePoint's experience, the innovation and technological developments associated with bus electrification extend well beyond the essential need to improve air quality and reduction pollution levels in the UK. Electrification of buses and the associated charging services can offer many other smart technologies which would help operators drive up the standard of bus services for the benefit of consumers across the country. Whether it's advanced bus scheduling optimisation and enhanced availability around charging cycles; analytics to better understand charging and therefore bus usage patterns; or proactive monitoring, remote diagnostics and fault detection; there is a wider commercial opportunity to provide a better service, being a key goal underpinning the Government's Bus Strategy.

### **3. INNOVATION IN THE SECTOR, INCLUDING EXAMPLES OF NEW METHODS THAT HAVE BEEN TRIALLED SUCCESSFULLY**

3.1 ViriCiti, part of ChargePoint since 2021, is at the cutting edge of innovation in the bus telematics and software sector. ChargePoint sees a high degree of interest and willingness to adopt advanced technology solutions at the same time as transitioning to an electric bus fleet, but in the UK operators are regularly prevented from doing so by the lack of government funding and support available to help them make the transition.

3.2 ChargePoint is at the cutting edge of innovation in the bus telematics and software sector. It has over 50% market share of the connected e-bus market and has deployed nearly 7,000 charging ports for over 750 fleets around the world, delivering nearly 100 million charging events to those vehicles.

3.3 Through its all-in-one cloud-based platform, ChargePoint offers a single means of vehicle and charging management, access, visibility and control to vehicle and station activity, enabling optimized operations.

3.4 In order for bus electrification to happen seamlessly and successfully, bus operators need to know what's going on at the vehicle level and connect that to charging activity. ChargePoint's pioneering suite of solutions for buses help operators manage key factors, including vehicle battery health, status and health of physical chargers, vehicle telematics, vehicle maintenance and vehicle operations data. This is all delivered with a high degree of flexibility and a near-bespoke approach to solution design, reflecting the fact that no two electric bus depots, fleets or routes are the same.

3.5 In addition to offering these services through its hardware and software solutions, ChargePoint's approach is to work with bus fleet operators to solve the key challenges of electrification, such as:

- Deployment challenges such as fleet configuration, where to locate the chargers in a city or within a depot, depot design/build and financing, grants and incentives;
- Utilisation challenges such as battery performance and vehicle and charger diagnostics;
- Energy management such as scheduled charging and sufficient access to power;
- Operational readiness challenges such as maximising the efficiency from vehicle range, optimising battery health, route management and optimisation for EVs and charging workflows; and,
- Data analysis and insights on the efficiency of driving and charging, distance driven, station uptime/reliability, driver performance and reporting.

3.6 In addition, ChargePoint's software can also work with existing third-party chargers, so existing chargers do not need to be replaced. The software can also be integrated into non-electric vehicles, and can scale with a growing fleet of buses. This means that mixed fleets of buses can all still benefit from ChargePoint's software, and/or bus operators can stagger their electrification plans in phases but can still benefit from all the technology benefits of ChargePoint's solution from the outset.

3.7 Technical charging solutions therefore exist to support the transition to a zero emission bus fleet across the UK. However, a long term and stable funding environment is necessary if the significant investment programme is to be delivered efficiently and cost effectively, and volumes need to be of a sufficient volume to reduce unit costs and consistent over a period of time to avoid peaks and troughs in the investment programme.

#### **4. DECARBONISATION OF THE SECTOR AND MODAL SHIFT FROM OTHER FORMS OF TRANSPORT**

4.1 ChargePoint plays an active role in the decarbonisation of the UK bus sector by offering proven EV charging solutions that are specifically calibrated to the needs of bus operators and electric buses.

4.2 This solution has been developed in Europe and the USA where it is in use in city and school bus fleets, across over 60 different bus manufacturers. Our solution is agnostic, meaning that it can work with any manufacturer of electric buses.

4.3 ChargePoint's most recent UK deployment of its charging infrastructure for buses is for Translink, Belfast's bus operator. Translink has a detailed and progressive Zero Emission fleet strategy which plans for all Metro services operating in Belfast and Londonderry/Derry to be zero emission by 2030.

4.4 Translink's fleet of 80 electric Wrightbus vehicles launched in March 2022, all charged with ChargePoint's intelligent charging solutions. They are the first double-decker battery electric buses in operation on the island of Ireland and, along with the city's hydrogen bus fleet, mean that around 1/3 of Belfast's buses are now net zero carbon.

4.5 When all vehicles have been delivered, Translink will have the fourth-largest fleet of battery electric buses in the UK. This electrification programme was made possible by Infrastructure Minister Nichola Mallon MLA's commitment of £74 million for electric buses.

4.6 ChargePoint's software operates across 40 150kW DC rapid chargers located in two depots, Milewater Service Centre and Short Strand, Belfast. The buses are charged primarily at night in the depot as there is no opportunity to charge the buses along the routes. There is also a facility to charge buses that are undergoing maintenance work on-site.

4.7 The software enables Translink to operate a number of features which enhance the fueling experience relative to diesel re-fuelling, such as:

- Advanced scheduling optimization, to ensure scheduling is unaffected by EV charging cycles and bus availability;

- Remote management of charging activity from any location;
- Power management, to take advantage of off-peak electricity if desired;
- Analytics, allowing Translink to better understand charging and usage patterns;
- Proactive monitoring, remote diagnostics and fault detection, offering enhanced reliability of the hardware and detailed real-time updates on charging activity.

April 2022