appyway

Leading the charge

Are cities ready for a fleet led EV revolution?

Version 1.0
November 2020

Introduction message from our company founder

Net zero. A very short statement with huge ramifications. The UK has set the ambitious target to reach net zero emissions by 2050 and whilst 30 years seems like a while away, this island of ours needs to make some significant changes in the next decade for this target to be achievable. Changes including a ban on the sale of fossil-fuelled vehicles by 2030, and a 60% reduction in car mileage by 2035.

Some would argue that the UK is not ready for such a dramatic change, with many across the country heavily reliant on their cars even for the shortest of journeys. No one however, could have predicted the huge changes 2020 would bring. As a result of the COVID-19 pandemic, many changed their travel behaviors for the better, relishing the opportunity to ditch their cars, opting instead to travel via bike or on foot as the streets became devoid of traffic. The result of this was a dramatic reduction in emissions.

Suddenly it became very apparent that this could be the golden opportunity the UK needed to make the necessary strides towards net zero.

As people migrate away from cars, there will be an increased need for fleets to access towns and cities. Whether it be for home deliveries, utilities, services, ride-hailing, ride-sharing, or car-sharing, fleets will continue to remain a fixture on our streets. One that

will likely increase as pandemic consumer and travel trends continue in a post-COVID world.

Fleets will be incredibly important to achieving net zero emissions with 52.1% of new vehicles purchased registered to a fleet and business, according to figures from the Society of Motor Manufacturers and Traders. Many fleets have answered the government's net zero call to arms, boldly making the move to electrify their fleets in order to do their part in reducing emissions and improving air quality. These transitions are exciting, but it's worth noting that these businesses are innovators, taking a leap of faith into a world that may not be completely ready to revolutionise.

Changes in government policy have been slow, and fast-charging infrastructure, something that is essential to the smooth running of fleets in cities, has been thin on the ground. Not to mention strategies, schemes and implementation lack a national vision leaving many local authorities to play catch up.

In the following eBook we bring together a diverse range of voices from across the EV spectrum. You'll hear from fleets pushing ahead with their EV transformations, trail-blazers within the public sector working to improve the landscape for EVs, pioneering infrastructure providers helping local authorities achieve their ambitious charging goals, and solution integrators and innovators working across smart cities, smart parking, and mobility law to improve city and driver experiences.

Plug in, recharge, and read on as we look to answer - are cities ready for an EV fleet revolution?

Dan Hubert
Founder & CEO, AppyWay

Table of Contents

Section 1

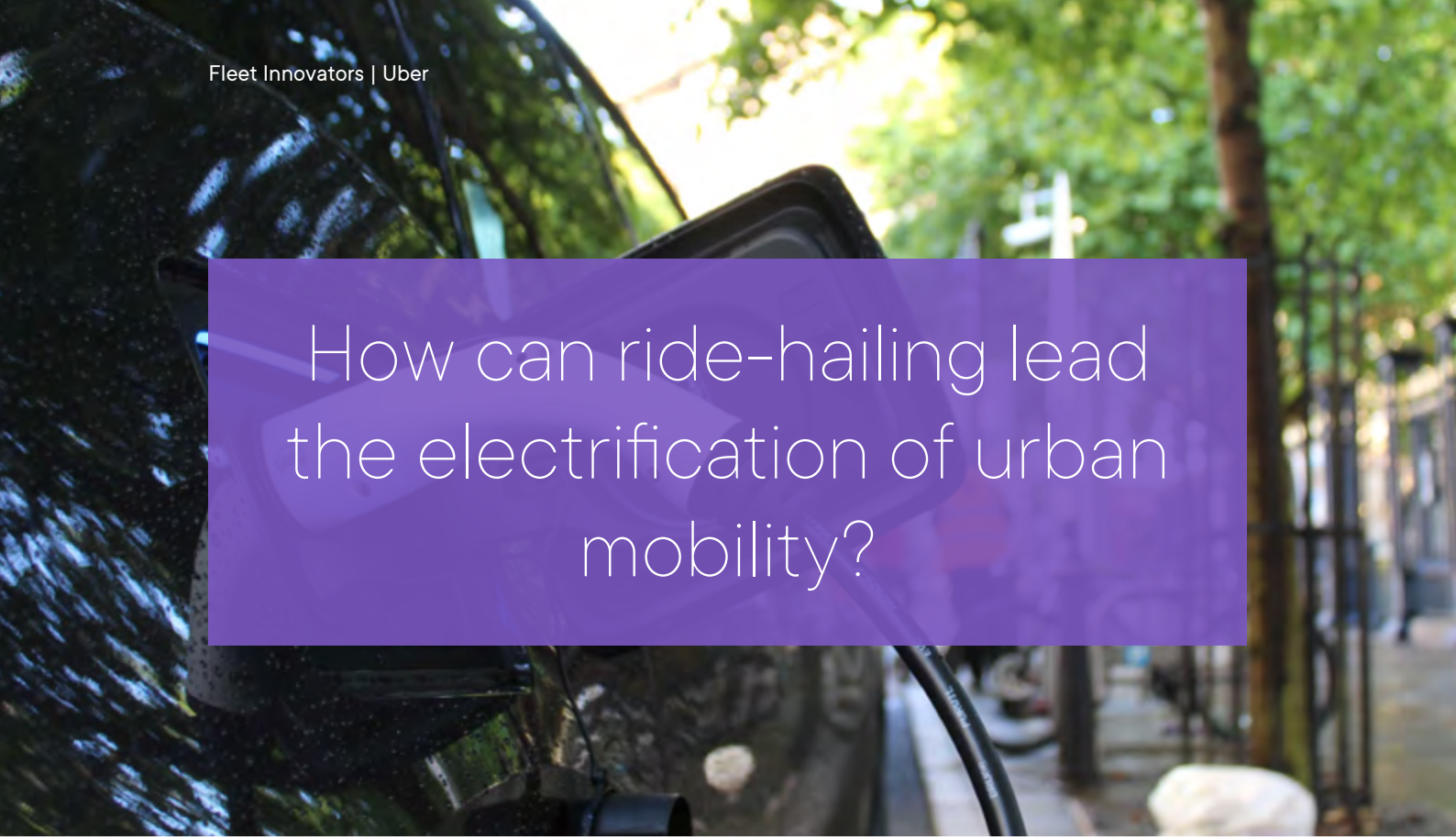
Fleet Innovators

Fleets have a tough task when it comes to balancing environmental challenges and operating a sustainable business. Positive changes often require a shift in consumer habits, and collaboration between the fleet operator and government.

Fleets feel the urgency to combat rising emissions and know the opportunity may be now or never to make a real, long lasting difference and they see electric vehicles as the facilitator of this.

But some have their concerns. Not all fleet operators are in a position to make such a rapid change and a number are apprehensive to make the transition because they believe the infrastructure is just not there to accommodate the recharging of fleets within towns and cities. This is where collaboration becomes key.

Our following contributors are arguably the biggest names in ride-hailing, car-sharing, and car-rental. Different businesses in terms of offering and size, but with very similar challenges, and all with the same innovative, forward-thinking, and collaborative approach to pursuing a future for fleets that are electric.



How can ride-hailing lead the electrification of urban mobility?

Uber

Christopher Hook

Clean Air Lead, UK & Ireland, Uber

How we address the climate emergency is the single most important challenge for our generation. All the scientific research points to the critical importance of this decade in bringing emissions down. If we are going to limit global heating to anything close to the levels set out in the 2015 Paris Agreement we must act now. Each year that passes without that happening makes the transition harder.

The scale of this undertaking is difficult to overstate. Recent analysis has suggested that the goal of decarbonising Europe, as laid out in the European Green Deal, will cost around €230 billion a year. This means that by 2050 it will have cost roughly 18 times the total amount spent on the Apollo space program.

Achieving this ambitious, and profoundly necessary change requires all of us to take bold steps. Transport has a particularly important role to play. The most recent report from the UK's Committee on Climate Change shows that surface transport is now the sector with the largest emissions footprint. In the last two decades it has only achieved a mere 5% reduction, with aviation making less progress.

The way we move around our towns and cities also has a major impact on those who choose to live in them. Many of us are already living with the damaging effects of emissions. Vehicles with internal combustion engines are by far and away the biggest contributors to urban air pollution. This

issue cannot be ignored. Large swathes of the UK population are living in areas which exceed WHO pollution guidelines. The apparent connection between pollution levels and COVID-19 mortality rates is a stark reminder of urgency of this issue.

Many looked to a reduction in air pollution as one of the few silver linings of the COVID-19 crisis. It is true that pollution did drop but it has risen again quickly in most places. Delivering a green recovery is necessary to make sure these benefits become permanent.

Policymakers at all levels are alive to this challenge. The UK's commitment to be net zero by 2050 is an important statement of intent, as is the promise to "build back better". This approach enjoys widespread public support, as was demonstrated by the recently concluded UK Citizens Assembly on Climate Change.

The central recommendation for transportation from that assembly is to accelerate the shift to electric vehicles. This is where we believe mobility platforms like Uber can make a real difference. Drivers using the Uber app use their vehicles roughly four times more than private cars, and therefore have the opportunity to make an outsized contribution to this goal. As the largest mobility platform in the UK, and across the world, we have a deep-seated responsibility to address this issue.

This is why we've committed to become a fully electric mobility platform, with 100% of rides in zero-emission vehicles, by 2040 across every single one of the 700 cities where we operate. In the UK we believe that we can get there faster. In London we are aiming to be 100% electric rides by 2025. For all other major European cities , including the cities we operate in across the UK, we aim to be at that point by 2030.

Overcoming barriers to adoption

We won't be able to deliver this commitment alone. Governments, cities, NGOs, car makers, charging operators and power companies all need to work together to create the right conditions. And its by working together that we can overcome the three barriers to adoption we believe need immediate focus:

The lack of appropriate charging

The lack of affordable / second hand BEVs

Insufficient targeted financial incentives

1. Appropriate charging

Most critically of all, significant investment is required in all types of charging infrastructure, but especially that infrastructure that would provide a reliable overnight charging solution at or near the homes of those who need it most.

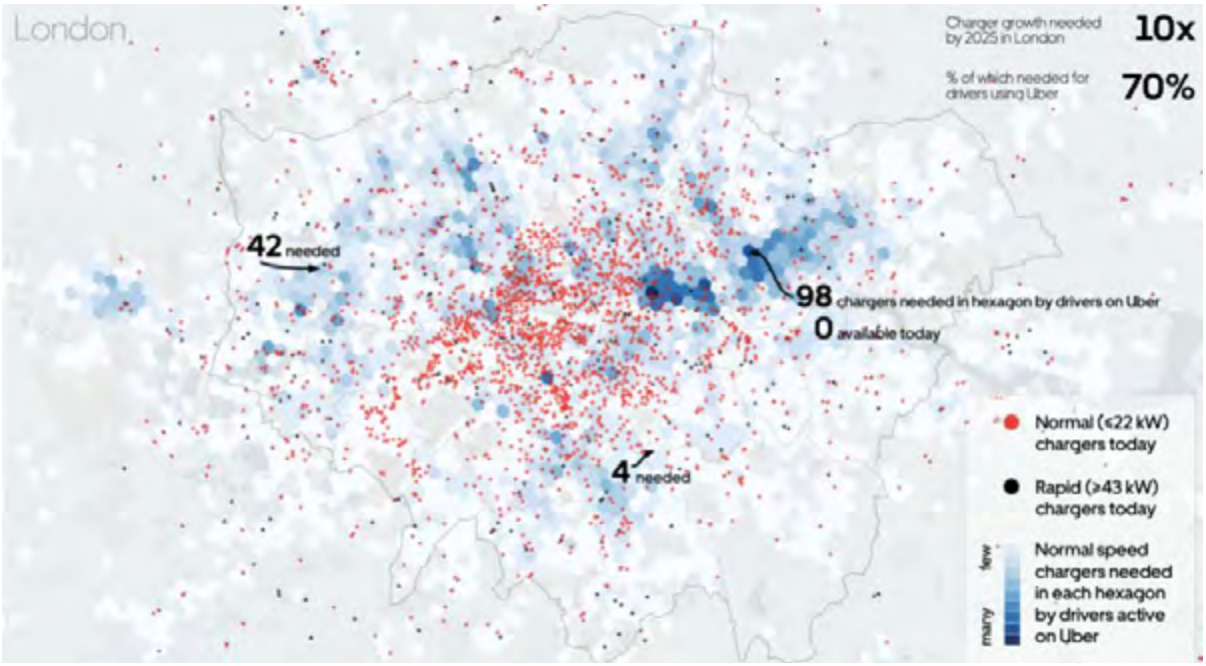
2. Affordable / second-hand BEVs

Significant work is needed across the industry to develop a second-hand market that makes vehicles with the larger batteries and longer-range that professional drivers need genuinely affordable.

3. Targeted financial incentives

Finally, the incentives that are offered to encourage drivers to purchase EVs should be carefully tailored to support the largest possible number of electric miles.

Considering the specific challenge on charging, the London Electric Vehicle Infrastructure Delivery Plan published last year estimated that EV charging needs will increase 10 fold in the capital by 2025. The drivers who are on the Uber app will represent approximately 70% of this total demand.



For this reason, and because we believe it will create the condition to support a wider societal shift, we've committed to spending at least £5m over the next three years to support this transition in the parts of London that need it most. This funding alone will not solve the challenge, but we want to work with councils, expert organisations, and other industry partners to ensure it can have maximum impact.

Achieving cleaner, healthier cities

If these things can be accomplished then the transformation of transportation is within reach. At Uber we recognise the role we can, and must, play. But we also recognise the need to work in partnership to speed things up. We are already collaborating with car companies, (such as Renault-Nissan), energy companies, like BP, and influential NGOs (like Transpot and Environment). And we're playing a lead role in the world's largest real-world commercial EV study - Optimise Prime. All of this work will pay off if it is able to make switching to zero-emission vehicles an affordable reality for those who earn their living through the Uber platform. Done right it can also help to ensure that those drivers save money every day through unlocking a structurally lower operating cost base.

If these drivers can make the switch, overcoming all the barriers that are currently in place, then it should act as a major catalyst for change across society. If we act now, together and with renewed purpose, we can create cleaner, healthier, more liveable cities for everyone.

If our drivers can make the switch, overcoming all the barriers that are currently in place, then it should act as a major catalyst for change across society. If we act now, together and with renewed purpose, we can create cleaner, healthier, more liveable cities for everyone.

Christopher Hook
Driver Operations Clean Air & Driver Earnings Lead UK and Ireland, Uber

Car clubs accelerating the uptake of electric vehicles

James Taylor

General Manager,
Zipcar UK

One of the unintended consequences of the coronavirus pandemic has been the dramatic improvements in air quality we have experienced, due to the substantial reductions in traffic on our roads when lockdown measures were in place. Emissions on some of the capital's busiest roads and junctions fell by over 50%, giving us all a glimpse of what a greener future could look like.

Now is our once in a lifetime opportunity to build on this and to create a step change in the way in which we all live, work and travel around our cities.

Switching to lower polluting privately owned vehicles is one step we can take, but there is an even better option: car sharing. Keeping in mind that the shift in ways of working and travel means that while car travel may always be needed, hopefully it will be less so. Car sharing can enable a behavioural shift where less cars are used, by providing access to a car, whilst at the same time reducing reliance on it. Research shows that after joining a car club, members drive less and use public transport, cycle and walk more - 23% of our members cycle regularly as opposed to only 9% of Londoners and 62% of our members are regular users of the tube compared to only 37% of Londoners.

But, how do we persuade and encourage more people to make the behaviour change required? And how do we ensure there is sufficient infrastructure to support a rapid growth in use of electric vehicles (EVs)?

In 2018 Zipcar launched a vision to have a fully electric fleet by 2025. As a first step towards that vision we added 325 battery electric vehicles (BEVs) to our fleet. Just two years on from the introduction of our EVs and the results have been impressive: over 50,000 members have driven an EV with us, taking over half a million trips and driving over 3 million zero tail-pipe emission miles. When you consider that there are around 140,000 registered BEVs in the UK, Zipcar has provided a significant boost to the number of people who have affordable access to electric vehicles.

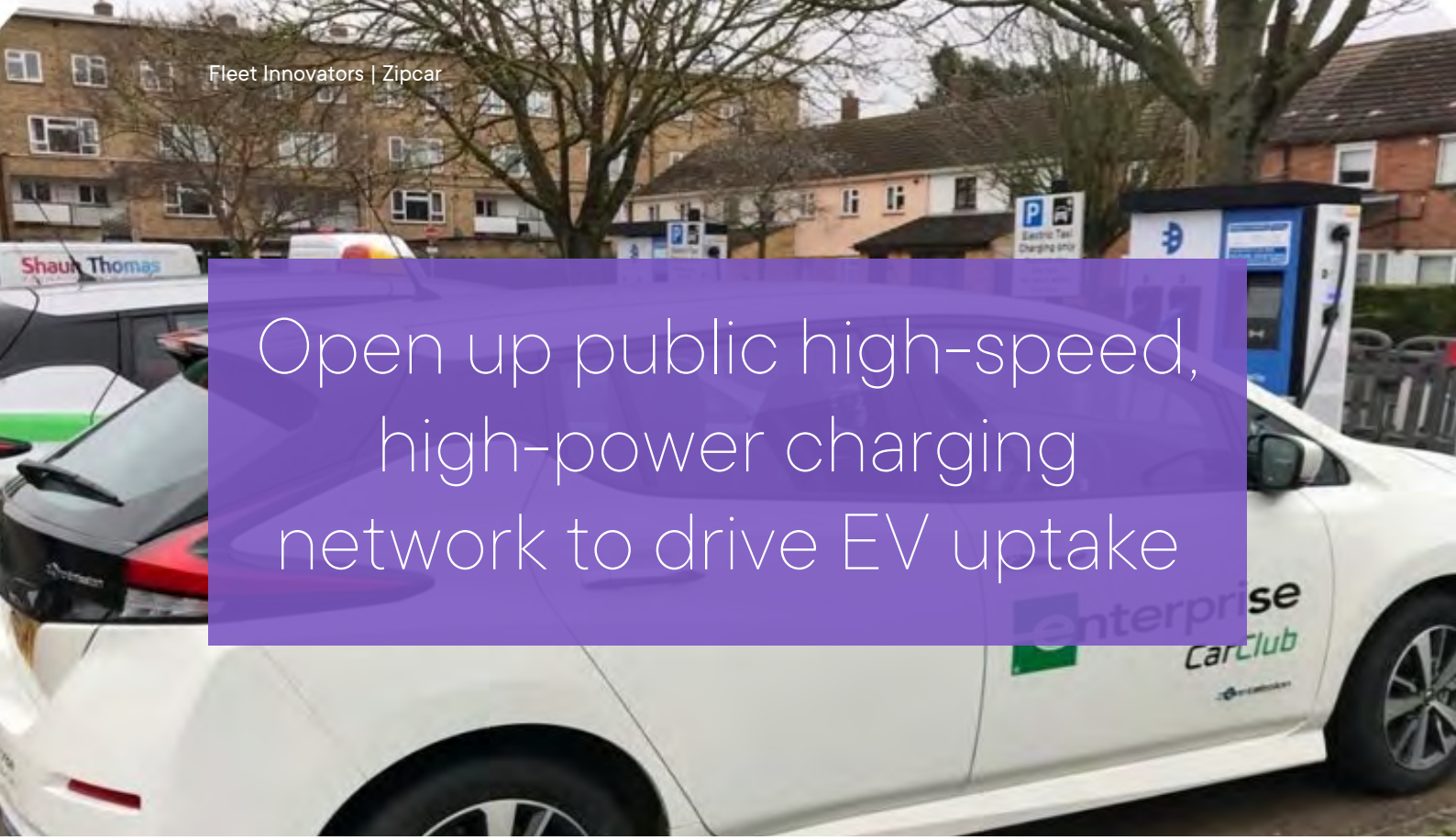
The incredible uptake of EV usage by thousands of our members clearly shows that car sharing has a vital role to play in accelerating the normalising and mainstreaming of EV use. But our ambition doesn't stop here – we are building momentum, we are introducing more and more people to EVs and ultimately working towards our vision to be fully electric by 2025. Indeed, the car sharing sector is leading the way in reducing emissions – London's car sharing fleets emit 28 per cent less CO2 than the average vehicle in the UK and 100 per cent of these fleets are already compliant with the capital's Ultra Low Emission Zone – and the sector will lead the way in switching to fully electric vehicles as well.

If the UK wants to get the benefits of a rapid switch to electric vehicles through utilisation of car sharing we will need significant investment in the charging infrastructure and recognition of the role that car sharing can play in reducing overall car use. Currently Zipcar takes care of all re-charging, simply because asking members to do this with the current charging infrastructure would be unviable and would be a poor member experience. But critically this is not a long-term solution. As we grow our EV feet in response to member demand, in the future we will need members to recharge vehicles in the same way they currently refuel our petrol vehicles.

And so, we need a national strategy for charging infrastructure which considers all users and all needs, such as in-trip as well as destination charging – privately owned, shared, rental and taxis all require in-trip charging. Many London boroughs are increasing the provision of lamppost charging for example, which is great for residents with slow overnight charging but not necessarily ideal for Zipcar where we need to get vehicles charged quickly and available for members to rent.

To rapidly electrify the UK and realise the benefits of a shared zero emissions feet two key measures will be required. Car sharing will need to have a more central role in Government and local transport policies, and further expansion of the charging network, especially rapid and ultra-fast charging, will be essential to supporting the growth of our electric fleet.

> “Over 50,000 members have driven an EV with us, driving over 3 million zero tail-pipe emission miles.”



Open up public high-speed, high-power charging network to drive EV uptake

Iain Macbeth

Director of Electric Vehicle Strategy – Europe
Enterprise

Many policymakers and thinktanks see vehicle rental as a key driver in accelerating the uptake of electric vehicle (EV) technology, enabling governments to deliver their commitments around emissions.

It often surprises people to learn that many of our customers rent a vehicle near to where they live and work, not just at airports, and this is why businesses like Enterprise can help drive EV uptake.

Many of our customers need a car to support their day-to-day lives, often because there is no alternative mode of transport. They rent a vehicle over several days for multiple journeys, often to different locations.

They cannot always wait several hours while an electric vehicle recharges at a standard charging point. And many cannot recharge at the office or at home overnight.

These customers rely on a rapid and easy-to-use public charging infrastructure to make electric motoring a viable solution for their needs. So, a high-speed, high-power public charging network will be essential in enabling the rental car sector to play this role.

Despite the impacts of Covid-19, we are currently seeing great utilisation for EVs in our car club operations. This is because each vehicle has a dedicated charging unit in an allocated bay and top-ups are guaranteed as the bay cannot be used by other cars.

Customers can check the live state of charge in a vehicle on the app when they make a booking and ensure the charge is sufficient to complete their trip.

Our experience is that customers want to rent EVs, but often don't because they are worried about how often they will need to recharge the vehicle and where they will be able to do this.

It is therefore essential to increase capacity as many high-power chargers are very busy and can be difficult to access.

The network must also be consumer friendly, easy to use and amenable to the needs of the wider market especially if there are several vendors – much like the automatic roaming experience we associate with the mobile phone network.

The rental industry has the appetite, network and capacity to dramatically increase access to EVs. In doing so, we can help to free kerbside access and reduce congestion so a smaller number of shared vehicles are used more frequently by a wider audience.

A public high-speed, high-power charging network is an essential element of driving a viable transition to electric vehicle technology.

“Our experience is that customers want to rent EVs, but often don't because they are worried about how often they will need to recharge the vehicle and where they will be able to do this.”

Section 2

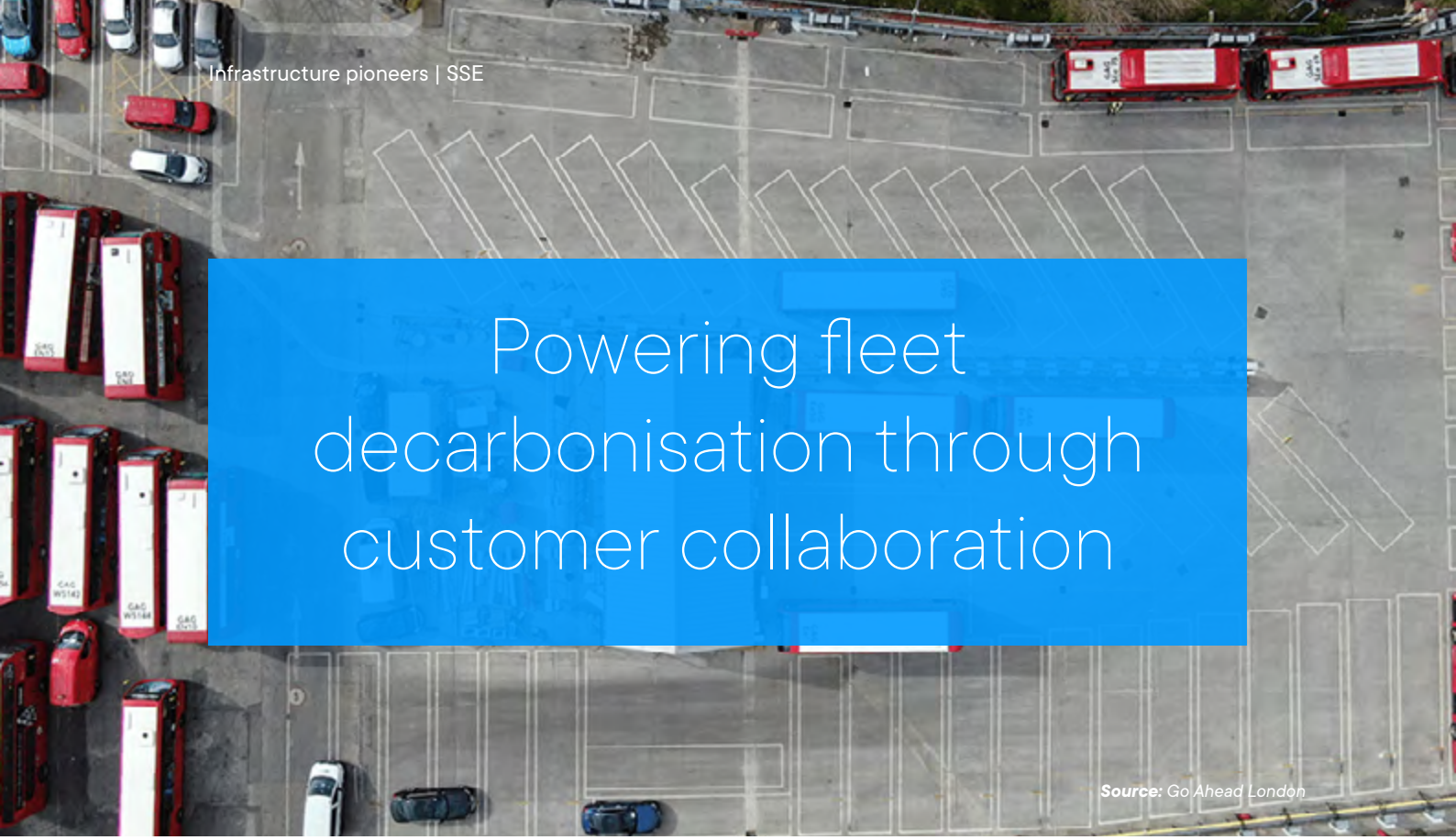
Infrastructure Pioneers

It's the age old conundrum, what came first, the chicken or the egg? For charging infrastructure providers, do they provide enough infrastructure to support only current EV drivers, or build the infrastructure to entice people to switch?

With less than 1% of drivers currently driving a plug-in vehicle, the planning and scaling of charging infrastructure ahead of the EV flood gates opening is a complex challenge.

Infrastructure providers are ready and raring to go and see fleets as the catalyst for change in the market. Fleets have the potential to shift buying habits as vehicles are cycled through to private ownership, enabling infrastructure providers to embed into the outer reaches of towns, and into residential areas.

The next two contributors are pioneers in charging infrastructure, both with a keen interest in sustainable charging solutions that meet customer needs. From your stand alone EV driver, through to black cabs and double decker buses, the following infrastructure providers provide a wealth of insight into what is needed to meet the EV fleet revolution.



Powering fleet decarbonisation through customer collaboration

Source: *Go Ahead London*

Niall Riddell

Smart Systems Innovation Sector Director, SSE

SSE Enterprise has been driving the delivery of EV infrastructure in London and the UK for an extended period. We have been part of the Mayor's EV infrastructure task force which in 2019 recommended a focus on both developing rapid EV charging hubs, as well as exploring innovative models to increase slow, off-street chargers.

To support these ambitions we have been:

- Delivering infrastructure with Bollore to enable 1,500 charge points to be delivered across London on the Source London network
- Electrifying bus depots across London with 330 electric busses in London now operating off infrastructure that SSE has delivered, including the first electrified bus garage in the UK at Waterloo
- Developing EV charging hubs at strategic locations across London based on underutilised land to support for high mileage users, both private residents and commercial fleets.
- Finding and deploying a range of innovation solutions including:
    - Bus2Grid, a Government-funded project, which is the largest V2G site in the world, located on the largest electric bus depot in Europe (with almost 100 e-busses of which 28 busses are V2G capable allowing a 1.1MW export)

- The first to create 'Community EV Charge Hub,' of co-located chargers inside a bus garage

- Developing EV hub solutions to enable residents, visitors and businesses to charge at local car parks under the Oxford Park & Charge project (a Government grant funded project under Innovate UK)

This experience lends me to believe that there are a number of things we need to watch going forward.

Firstly fleets are hugely important. The majority of new vehicles are purchased by fleets (c. 60% based on DFT stats) and with the Fleet 250 report stating 88% of fleets are looking to buy electric this year we can expect to see many new vehicles. However this is also important because these vehicles get cycled quite quickly into the second hand market meaning that we can expect this to support those who only buy second hand (like me!)

Commercial fleet triggers to decarbonise are also different to private consumers, therefore it is essential to increase the policy focus on fleets to give a clear signal that, for example on the infrastructure side, their needs are considered and supported.

Secondly the decision with fleets to move drivers into vehicles changes the dynamic of the market. Today only around 1% of drivers at the time of writing drive plug in vehicles (yes that is one percent of all drivers!) and most of those are innovators. Innovators are the first in any new market to adopt a new technology and will also accept additional discomforts that mainstream drivers will not find sufficient. We therefore need to accelerate our ability to deliver simple customer orientated solutions that make charging in public easier than it is today. This includes interoperability between charging points, more accessible data to better inform navigation systems, a mix of higher power charging and slower local charging to suit driver's needs, all leading to an overall more pleasant driving experience. These improvements better enable drivers to find, charge and pay for electric driving.

And finally we need to collaborate. With less than 1% of drivers on the roads with plug in vehicles today, we have a huge market ahead of us and the associated challenges associated with decarbonising transport. Collaboration is the key to improving air quality and reducing the impact of transport on climate change.

SSE is working nationally to bring these innovations to life across the UK for the benefit of all the communities that we serve. Our EV journey started in London 5 years ago as we started to support the fleet operators adjust to the new ULEZ ambition. We are now building on this to support decarbonisation of transport across the UK.

Together we can move forward.

The Art of Preparing for an Inevitable Market

Chris Pateman-Jones

CEO, Connected Kerb

The current charging infrastructure in the UK is not adequate or convenient enough to facilitate or encourage mass adoption of electric vehicles. If we want people to join the dance, it needs to be accessible and it needs to be convenient – for everyone.

Research by Energy Saving Trust in 2017 found that 60% of Uber drivers did not have access to off-street parking, rendering them unable to home charge. Similarly, 44% of Black Cab drivers in London do not have the ability to install a charger at home.

With tax benefits and incentives in abundance, EV fleet numbers are only going to increase and so too the number of drivers reliant on public charging networks. The infrastructure needs to catch up.

Lack of sufficient on-street charging for fleets is the tip of the iceberg, over 60% of UK residents do not have the ability to install a home charger. For preparation and promotion of mass transition, it's these people who need a solution.

The key is to deploy infrastructure that matches people's existing routines – where do they already park for long periods of time? For most people, this is at home or at work.

The provision of a vast network of public on-street charging infrastructure

that mirrors the convenience of home charging will not only support eventual mass transition, it will encourage people to adopt an electric vehicle now.

> Research by Connected Kerb found that 89% of non-EV drivers would be encouraged to make their next car purchase an EV if they had access to a space where they could charge – on-street or at work. A certain Field of Dreams quote comes to mind.

An on-street charging solution that matches people's existing routines; drive home, park up, plug in. When they get up in the morning, not dissimilar to an iPhone, their car is charged and ready for them to use.

For commercial fleets, where time is money, this solution keeps 'opportunity cost' low. Opportunity cost is the consideration of lost earnings from time spent looking for and using a charge point. For other drivers, it's simply the most convenient option, easier than driving to a petrol station.

Despite the inevitability of this market, the flood gates are yet to open. So, how do we provide enough infrastructure to support current drivers and entice more people to switch without having bays of chargers sitting unused?

Employ a phased deployment approach that mirrors demand. Use data-driven site selection to identify areas where potential demand is likely and enable the entirety of those streets with passive below-ground infrastructure. Install enough above-ground charging sockets to support current demand.

Then, as people become aware that EV ownership is now a viable option for them and begin to switch, scale easily to match; install more charging sockets to coincide with increased uptake.

Efficient deployment of long-life infrastructure assets in this way removes the need to re-dig streets, in turn reducing unnecessary construction activities, additional materials and disruption to residents.

What you deploy is also critical; we want to drive EVs to help the environment, so it makes sense to install infrastructure that shares those aspirations.

Materials used should be as sustainable as possible, employing a circular economy method, while the system itself needs to accommodate rapidly advancing technology to avoid becoming obsolete, aka joining the charge point graveyard's burgeoning mound.

We are facing one of the most significant infrastructure challenges of this century; one that requires mindset and behavioural changes, as well as bold thinking and cross-sector collaboration. The scale of transition between where we are now and where we need to be will create massive flux.

Once these initial road bumps have been smoothed through acceptance, strategy and investment, the outcome will be more functional, better connected and more sustainable transport solutions for all members of society.

It's going to be a long road, but it's the right one.

Section 3

Trail-blazing Cities

City authorities are on the frontline of the government's net zero strategy. Through policy change, funding, and grants, authorities are tasked with maximising the electrification opportunities that have been provided by central government whilst also managing the regional nuances that exist across the UK.

Regional considerations include the capacity of the grid to serve new charge points, appropriate distribution of charge points throughout the region or city, and local business and resident engagement and consultation. Collaboration and a data driven approach becomes crucial for city authorities who must carefully manage these elements in the pursuit of an EV revolution.

There are a number of innovative city authorities across the UK who have taken an accelerator approach to EV, aimed at boosting driver and fleet confidence, and support charging demand nearer to the origin and destination of deliveries, taxis, and other light freight activities. We will hear from two such authorities, a combined authority and a city authority, who are at the forefront of this revolution, and also from a city advocacy group, who through data sharing and partnerships is determined to see the green recovery come to fruition.

Keeping London moving towards net zero

Adam Tyndall

Programme Director
Connectivity,
London First

We must avoid a car-based recovery. It is a phrase we have heard frequently over recent months, but an objective that London seems to be struggling to achieve. By the time the capital moved into Tier 2 restrictions this October, private car use had begun to exceed its pre-pandemic levels, whilst the tube and buses were seeing just 35% and 55% of normal passenger numbers respectively. Over the coming months and years a whole range of policy levers will need to be pulled to support London through the rest of this health crisis, to build back better as the city recovers economically, and to ensure that the capital's public transport remains adequately and sustainably funded in the long run.

Avoiding a car-based recovery is the first step in meeting many of these objectives. In a respiratory disease pandemic we should be protecting one of the only benefits of lockdown: improvements in air quality. Building back better necessitates addressing the carbon emissions from internal combustion engines. And post-pandemic public transport will continue to rely in part (albeit a smaller part) on revenues from the farebox, which are lost when people choose to drive instead.

London's post-Covid approach to these issues is likely to be an evolution and an acceleration of existing policies. Penalising polluting vehicles, becoming a net zero city by 2030, and the Mayor's ambitious target for 80% of journeys to be taken by public transport or active modes such as walking and cycling by 2041 remain the right principles.

Whilst the transition to electric vehicles won't necessarily do anything to address congestion or public transport mode share, it remains one of the most powerful levers that can be pulled to meet our environmental targets. And it is increasingly clear that fleet owners and operators are leading the way in this transition.

In February 2020, a London First survey of more than 500 business leaders from across the UK, carried out by Survation, found that 30% of those with a fleet of company-owned vehicles have already begun using electric vehicles, while 46% have active plans to make the transition, and a further 16% have begun to discuss it. For those who have not yet made the switch, 50% think they will have transitioned within five years and a third (35%) think it will be within two years, well ahead of the ban on the sale of petrol, diesel, or hybrid cars in 2035.

With nearly 6 in every 10 of last year's new vehicle registrations being fleet vehicles, the actions of professional drivers and commercial fleet owners will clearly have a significant impact on stimulating this new market and meeting London's environmental objectives. But half of the business leaders surveyed said that a lack of infrastructure, such as charge points, was the biggest barrier to making the switch to EVs.

This is undoubtedly an area where the public and private sectors are going to have to work together to ensure that the necessary infrastructure is installed and, crucially, installed in the right places. The London Data Commission recently demonstrated the potential impact of public-private data-sharing to gain insights that can help to unlock EV charging market constraints. It found that over 2,000 publicly-owned parcels of land in London match the suggested land size and likely power capacity requirements for charging hubs.

Continuing to develop these partnerships and insights will be critical to rising to the net zero and air quality challenges, supporting the post-Covid recovery, and keeping London moving.

Source: TfWM

Road to zero, a regional perspective

Transport for West Midlands

Andy Page
Future Mobility Lead

Mike Waters
Director Policy, Strategy and Innovation

The key driver for steering the adoption of Electric Vehicles (EV) in the UK is the Climate Change Act (2008), which following amendment, sets a target of net zero carbon emissions by 2050. To achieve this will require the transition of road vehicles to clean energy, and to this end the Government's The Road to Zero Strategy (2018) sets out the approach to achieving this target. A key commitment is the end of the sale of petrol and diesel cars by 2040, with consultation undertaken earlier this year to bring this date forward to 2035; there is speculation that this could indeed be brought forward further to 2030 with an announcement expected in November 2020.

As transport accounts for approximately a third of the carbon challenge significant changes are required and electrification is clearly part of this, but not the whole solution. There is an overall requirement to radically reduce the total energy consumption per person on transport, including by reducing the total trip miles consumed for all aspects of their life. Whilst the EV agenda is critical, we must also go beyond merely changing the form of energy consumption and reducing the air quality impact at point of use of vehicles.

To support the UK transition, the Government has set up the Office for Low Emission Vehicles (OLEV) which supports the early market for EVs through development of policy and provision of funding. The Plug-In grant schemes for cars, vans, taxis and motorcycles provide a reduction in purchase costs for ULEV and to date have provided £800 million to support the early market for such vehicles. Charging infrastructure to support take-up is supported through a variety of grants for charging at home in off street locations, as well as at the workplace. Of particular interest to local authorities is the On-Street Residential Chargepoint Scheme (ORCS) which covers part of the capital costs of installing charge points for residents who lack off-street parking. The grant rate is set at £6,500 per chargepoint for 2020/21. To date, 60 local authorities in the UK have provided over 2,000 charge points utilsing this funding – which is a positive start but much more will need to be done. Practically the roll-out of on-street residential charging has been relatively challenging, with a mixed reception from some residential areas which is reflective of the readiness of the market and level of demand from end users – essentially a classic 'chicken and egg' problem.

There is also a focus on installation of rapid charging across the network. Supported by the Rapid Charging Fund, the Government set out a policy vision in May 2020 to achieve 2,500 high powered charge points across England's motorways and major A roads by 2030, with 6,000 in place by 2035. Many local authorities have installed rapid charging infrastructure to support electric taxis using grant funding support from OLEV, indeed in the West Midlands we have seen installations undertaken in the cities of Coventry and Wolverhampton, with roll out in Birmingham over the next 2 years. The West Midlands also has proposed an accelerator initiative in the form of a ultra-rapid charging spine spanning our urban area – designed to boost consumer confidence, provide a recirculating funding stream and accommodate charging demand nearer to the origin and destination of trips for passenger and light freight movements.

The West Midlands Local Industrial Strategy sets out our region's aims to maximise the opportunities of electrification of transport for our local economy, which is the UK's backbone in the automotive sector. Key commitments include making the West Midlands a UK hub for battery research, development and manufacturing; delivery of the highest EV adoption and CAV share of vehicle use in the UK; and enabling the region to become the national centre for Connected Autonomous Vehicles and electric motor manufacturing and supply chain for EVs.

At TfWM we are taking a collaborative approach to electrification. Developed in partnership with our seven West Midlands local authorities and neighbouring Warwickshire CC, A West Midlands and Warwickshire ULEV Strategy developed early in 2020 sets out the regions' approach to infrastructure development and uptake of EV. Using a clear evidence based approach, the strategy sets out a requirement for up to 11,000 7kwh chargers and up to 1,600 rapid and ultra-rapid chargers by 2040, with a focus on the development of residential charging, local charging hubs and strategic charging hubs across the network. A programme for installation is now in place and funding opportunities are being identified, with many of our local authorities now commissioning work.

Supporting EV re-fuelling infrastructure only works if the grid can support it. Therefore there is also a particular focus on energy in the West Midlands, and the requirements for local energy infrastructure to support the transition to EV; Our Energy Capital team and TfWM are leading on this to support charging infrastructure roll-out and are working closely with a range of industry stakeholders. Central to our approach is looking across the sectors to balance transport demand with land use, industrial demand and sustainable generation. The West Midlands Energy Innovation Zones are the focus for finding new ways to do this and are supporting initiatives such as the UK Battery Industrialisation Centre – which is one of the many critical building blocks of the Industrial Strategy and economic recovery for the UK.

From the UK's motoring heartland

Coventry City Council

Sunil Budheo

Transport Innovation Manager, Coventry City Council

Coventry has a rich motoring history, dating back to the advent of cars. Continuing this legacy of motoring innovation and progress, the team at Coventry City Council and I have been busy securing Coventry's place at the forefront of the EV revolution in the UK.

After working with AppyWay to bring their sensors for real-time availability of parking to Coventry we expanded the sensors to all EV charging bays in Coventry City Centre and wider areas of the city. There are currently 39 rapid chargers and 72 bollard/lighting column chargers in six identified areas across Coventry facilitating charging for residents who do not have off-street parking facilities, including in key locations like taxi ranks. These are visible to anyone with the AppyParking mobile app and via VMS signage that guides drivers to parts of the city with available parking and available charging.

The sensors and signage have a number of benefits. From an EV driver point of view, they have full visibility of where charging is available in the city. For drivers in Coventry yet to make the transition to EV, it builds trust in electric vehicles, knowing that chargers are everywhere and available, alleviating the fear that they will run out of charge. For us, a local authority, we can prevent ICE-ing, where fossil fuel powered cars sit idly in EV charging bays. Through bay management and enforcement we can continue to discourage non-EV cars from parking in these bays.

Coventry City Council have been able to take this a step further, connecting sensors and charging infrastructure together with our enforcement software to manage overstays in EV bays. Coventry City Council can ensure that EV

charging stations are utilised correctly, only for those who are charging, and encouraging fully charged vehicles to move off the charging bays.

Whilst building the infrastructure is important, it is equally as important that the policy changes are in place to facilitate charging and uptake in electric vehicles. Coventry City Council have made the necessary traffic order amends to change parking bays to charging bays. The traffic order covering these bays prevents drivers from staying more than 2 hours. With rapid chargers installed across the city, most EV's should be fully charged within 30 minutes. 2 hours will cover all electric vehicles, accommodating the early adopters of EV's with older models that may charge slower.

In addition to policy and infrastructure, we are running a scheme to encourage taxi drivers to purchase an EV. The scheme enables them to purchase a vehicle at a lower cost, with drivers then able to make use of the rapid charging in taxi ranks.

The EV revolution in Coventry has continued this year even in the face of a pandemic. 2 new car parks are being built, with 35 chargers currently installed within the finished areas. The team and I are also looking to introduce multi chargepoint hubs in the surface car parks in the city. A strategic decision, to whether the hubs are slow, fast, rapid, or semi rapid will be made dependent on the specified usage of the car parks.

Another aspiration of ours is to see all workplace parking to have electric vehicle charging facilities. We will work with various service providers and appoint a best value for money service provider to work with the businesses within the city to progress with installing workplace charging units. Outside of the city, we are bringing charging to the residential areas. These chargers charge slower but are ideal for EV drivers who wish to charge overnight near their home.

Coventry City Council is committed to working with the West Midlands Combined Authority (WMCA), Transport for West Midlands (TfWM) and Warwickshire County Council to widen the existing rapid charge point network across the region. These stations will make it possible for EVs to travel easily across the West Midlands and beyond for business or leisure. The network will be accessible by any type of electric vehicle and will compliment the supercharger hubs proposed for installation in Coventry.

> “Much progress has been made but we know the EV revolution is just getting started. With initiatives like the ones mentioned we hope to get more motorists in electric vehicles, and more importantly we hope to get more businesses and fleets into EV's. If you build it, they will come, and this rings true for the EV revolution.”

Section 4

Solution Champions

Often working behind the scenes to improve driver and city experiences, solution integrators, innovators and consultants are integral to the path of fleet electrification. Armed with best in class methodology, data, and tools, solution consultants smooth the transition for cities and fleets to adopt low-carbon modes of transportation.

For cities, solution integrators and consultants can help navigate the tricky world of funding and grants, and help build a strategy towards electrification that is methodical and backed by data. For fleet managers, consultants can help overcome the barriers they face when it comes to electrifying. These include uncertainty around costs, and uncertainty around range and charging. By partnering with consultants, cities and fleets frequently get access to data and modelling that can lower overall implementation costs, limit the need for later integration, and all-in-all create a better experience for cities and fleets.

Completely different in their offerings, the next three contributors understand the pain points for cities and fleets on their EV journey. From law, smart cities and urban planning, to kerbside digitisation and management, the following showcase how solution innovators and consultants not only enrich the transition to EV, but are actually essential to it.

Breaking down barriers for fleet managers

Balázs Csuvár

Head of Delivery,
DG:Cities

As the UK brings forward the ban on fossil-fuelled vehicles to 2030, municipal and commercial fleet managers are under pressure to transition to a zero-carbon operation. It will be essential for the sector to provide them with the necessary tools and experience to do so.

Through our work, DG:Cities have identified that the challenges fleet managers face with regards to electrification are linked to their lack of previous experience with EVs, some resistance to change, range insecurity, and high or unknown infrastructural costs (both upfront and ongoing operational). All of these need to be taken into account and addressed, often on a site-by-site basis to enable transition. There are no one-size-fits-all solutions, but there are a few approaches that can help.

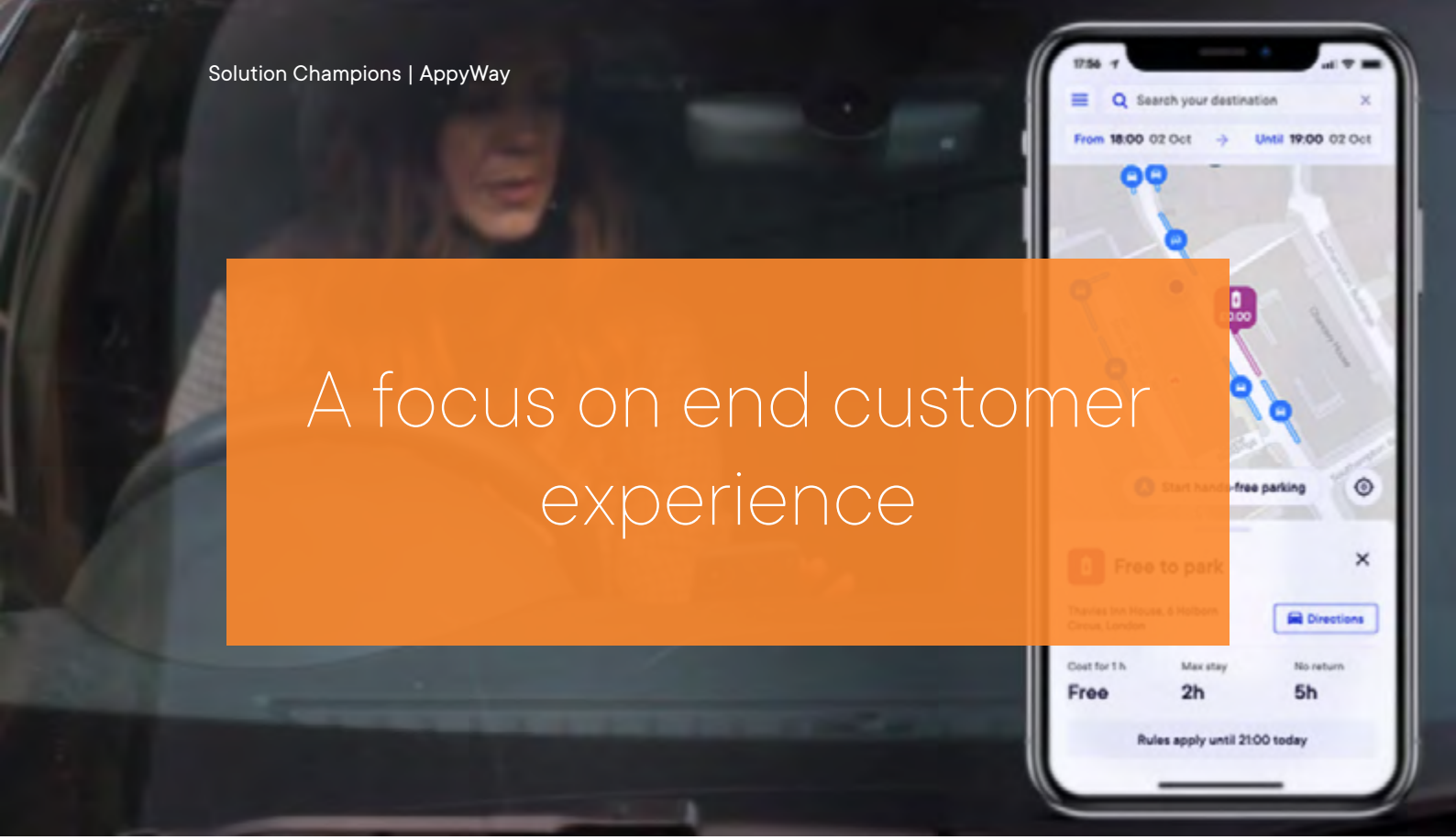
With our partners, we are working towards developing approaches and tools for fleet managers that can take them on the electrification journey. Our methodology looks at a holistic solution, focusing on reviewing vehicle fleets together with depot infrastructure and operational details. The solution needs to consider all of these elements together, as any change will have an impact on the whole system.

It is important to note that a fleet upgrade should not only be limited to changing diesel to electric, but take into account all potential requirements a fleet provider might have. Many municipal fleets are upgrading their driver job allocation software, procuring telematics devices or looking to

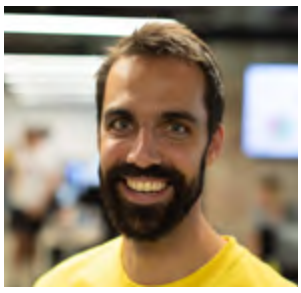
supplement their electricity supply with renewables. Planning and delivering the wider agenda together with electrification can be valuable to save on overall costs, limit the need for later integration and overall create a better fleet experience for both users and customers.

The role of fleet management is crucial in allowing for optimal infrastructure sizing, often a large cost item due to power upgrade requirements. If drivers can stagger their charging slots during the week, charge on-route where practicable or provide information to the charge points on when the vehicle will be next needed, charging can be scheduled over longer periods. Smart charging can therefore be optimised for minimum costs but also minimum overall network load. During the planning phase this can be optimised through modelling, ensuring that no excess infrastructure is built in.

> We firmly believe that the adoption and application of the approaches we have outlined will help accelerate the shift in the UK (and beyond) to low-carbon transport, helping aid a successful UK response to net-zero carbon commitments and the UK Clean Growth Strategy. Electrification of larger fleets will accelerate the deployment of EV infrastructure, as well as result in increased efficiencies in fleet operations that will result in better service delivery to citizens and savings for fleets.



A focus on end customer experience



Ben Boutcher West

Head of Mobility,
AppyWay

Parking and EV charging as it is today, has been put together by chance with a lack of joined up thinking in most areas. The integration remains non existent, fragmenting the user journey and leaving the relationship between parking and EV charging in separate silos. That is no ones fault but a direct result of multiple sectors having to come together to support the user experience, and support cleaner air and climate change initiatives.

For a long time we have campaigned to make parking part of the user's journey. Rather than have parking as an end of trip burden, instead turning it into an enabling facility for the trip's purpose. Parking-as-a-service, parking that promotes freedom of movement and access in our cities.

Parking is a dwell time event for cars which some say longer term, represents mobility gone wrong - today however it is necessary, while at work, while we sleep, at the doctors or groceries - parking is an ongoing challenge.

We recognise EV also experiencing dwell time while parked. We believe that EV dwell time whilst charging should not be a pursuit back to "100% charged" and should be considered as "charged enough" for the next trip's purpose. We say this because we understand bay utilisation. Charge points at offices are not economically viable if employees use them as parking bays over an 8 hour shift without moving off them and making them available for use by other EV drivers. These employees have a problem however, where do they park when moving within a completely full employee car park after rush hour?

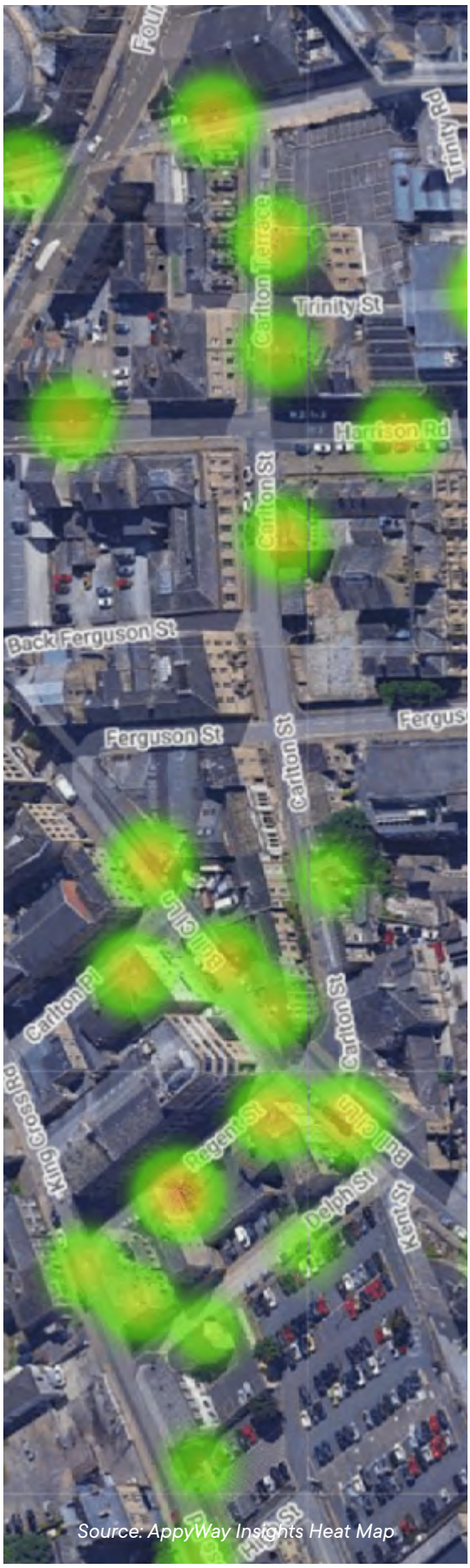
As Chris Pateman-Jones, Connected Kerb has said, 60% of UK residents do not have the ability to home charge. This means EV charging and parking is going to remain a local authority management issue for our streets and for our employers if we need to drive.

We fully support the increasing penetration of EV charge points on our streets but we still strive for the optimum consumer journey using initiatives such as; EV charge cards that integrate with parking, and continued aggregation across both services. From this we can ensure success for both industries - a consumer should be able to request a percentage amount of charge by a set end time matched to their trip purpose or planning. This capability would enable the DNO's and CPO's to manage the provision of EV supply within the allocated parking time, in a way that is agreeable to the performance across the grid.

A fresh look to partnerships and industry aggregation across the public and private sector would unlock parking payment contracts from their current silos. This would ensure the optimum user experience is maintained, is hassle free and supports more dynamic fleets without dedicated depos. This would give them greater access and a wider choice of charging, supporting their core business and not being a burden.

A number of our partners are enjoying huge uptake for their services, especially those CPO's installing within local authorities. We would like those authorities to take a fresh look at parking contracts to drive further growth, and make parking and EV charging far simpler for the public.

There is a lot more to be done before we get this level of service for consumers.



Source: AppyWay Insights Heat Map

The pace of change through the eyes of an EV champion

FootAnstey
Powering your ambition

Sara Sloman

Zero Emission Mobility
BD Manager,
Foot Anstey LLP

I live and breathe transport, I always have. I tried to leave the industry and came straight back because I deeply believe transport is integral to society – I know it creates growth, generates jobs and connects people and places. It also has a detrimental effect on our environment, so I have long pledged to do what I can to change that. I have delivered infrastructure centred project management for local authorities for nearly fifteen years, including overseeing the roll out of electric vehicle charging infrastructure. I was proud to receive the GreenFleet EV Champion Award in 2018 and featured on the EV100 Most Influential list in 2019 and 2020. I was invited to participate in a dignitary exchange visit with the Dutch embassy to explore how the Netherlands has embraced electric mobility and clean energy.

Now I am part of the Energy and Infrastructure team at leading Law Firm Foot Anstey LLP, working every day with charge point operators, fleet operators, land owners, local authorities, clean tech and energy companies. It strikes me, everyone wants the same thing, but there is a mismatch in the realm of the "infrastructure debate", leaving local authorities with a huge challenge on how best to provide and support this change for fleets and the public.

My trip to the Netherlands was life changing. They do things differently there – they have clear, robust and strategic vision. They grab the bull by the proverbial horns and and seemingly unreliant on government grants and much more reliant on a key hook, unreliant on government grants and much more reliant on a key hook or persuasion piece which works for their

businesses and for their environment. In the UK, we focus our minds in the form of catalysts such as The Climate Emergency and call for clean air zones, plus to an extent COVID-19 is another driving force for improved mobility options.

It strikes me that fleets are stuck at the heart of this. There is a growing need to develop a transformational national transport policy that places the needs of the consumer at its centre. This then needs to be translated by local authorities, developers, and operators into an interoperable, integrated system that gives customers options, reduces congestion, improves air quality and embraces data and technology. Fleets must evolve and some are understandably mistrusting of the push towards pure EV. They have long debated hydrogen, alternative fuels, leasing Vs ownership, incentives, penalties and constraints.

Fleet operators find themselves in a position where they are advised, encouraged and eventually forced to convert their fleet to EV and can feel disadvantaged financially to have to foot this bill. That's not to say central government financial support hasn't hugely galvanised and supported this motion towards cleaner fleets but the next challenge for them is navigating the otherwise complex agendas and systems of the local authorities.

There is public and private infrastructure popping up all over the country, and I believe that is what will generate the move for many fleet operations. The confidence piece around recharging both on the go, and back to base. Solutions such as robust electric vehicle charging infrastructure and improved cycle networks and hire schemes, can go a long way to helping reduce congestion and free up road space for fleets, whilst reducing carbon emissions and improving air quality in our cities. If I had a magic wand, I would see this happen faster. In the meantime, fleets will need to measure twice and cut once.

Right now, more than ever, there is a greater variety of vehicles available to fleets and EV focussed partners to help create a brilliant and robust EV charging for them including identifying the right kit in the right place and embracing home charging as a back to back option. The bottom line is, fleets don't need to do everything right now – they just need to do some things soon. Identify the, low hanging fruit on the fleet for obvious and easy conversion and getting that done, then developing a strategic plan including an invest to save programme to ensure a long-term goal which can be reactive to inevitable changes to policy and guidance.

> “Last of all, I plea that we all learn from one another and share views with the local authorities – give them first-hand insight into what fleets need to continue to be the backbone of our economy.”

Conclusions and calls to action

Throughout this eBook the contributors have struck a strikingly similar tone. Each contributor feels the urgency to reach net zero emissions, and see fleets as not just a piece in this puzzle, but also as a potential accelerator of electrification by guiding the market in that direction.

It's clear there are a number of challenges to overcome. Fleets are committed to helping the UK reach net zero emissions but as this document has highlighted there are common concerns across the electrification spectrum.

Fleets are concerned that incentives and charging infrastructure will not match the pace of their transition to EV. Phrases like "range anxiety" and "unknown costs" are often uttered by fleet managers trying to make a business case for electric vehicles. Local authorities face the challenge of balancing considerations such as location of charging, type of charging, grid capacity, local kerbside utilisation, kerbside restriction changes, regional light freight activities, and local resident and business uptake.

Whilst this seems like a sizable challenge for both fleets and city authorities to overcome, arguably they are ready and city authorities in particular have access to resources that will help them to roll out infrastructure and policy changes that are relevant to their region.

The contributors to this book have highlighted the calls to action to industry if we are to get more fleets to electrify.

Based on these contributions, we therefore want to propose a new "ABCD" approach encompassing the following:

Appropriate infrastructure – the report highlights research by Energy Saving Trust which found 60% of Uber drivers did not have access to off-street parking, rendering them unable to home charge. Similarly, 44% of Black Cab drivers in London do not have the ability to install a charger at home. The report therefore calls for a greater focus on providing more public on-street charging, including rapid and ultra-fast charge points.

Better incentives – fleets are a common source of second hand cars for individual drivers. Encouraging fleets to go electric therefore has a trickle-down effect which helps provide more affordable access to electric vehicles for private ownership, which AppyWay calls to be incentivised as much as possible through national and local tax and congestion policies.

Concerted collaboration – the report argues that knowledge sharing between cities, infrastructure, solution integrators, and consultants is the only way to ensure that the path to electrification is one that is sustainable, given the complexities involved.

Deeper data sharing – thanks to telematics, GPS, and other job fulfillment information, fleets hold a wealth of data that can be immensely useful in understanding where to locate charging points, so AppyWay urges fleets to share data with local authorities. Indeed, the report cites the example of The London Data Commission, which found that over 2,000 publicly-owned parcels of land in London match the suggested land size and likely power capacity requirements for charging hubs.

“

It’s incredibly encouraging to see that in some corners of the UK these actions are being undertaken, as is the case in the West Midlands. We still have a long way to go but with voices like the ones featured in this eBook leading the charge, net zero and an EV revolution seem much closer than 2050

”

Thank you

To all the contributors that brought their expertise and insights in bringing this valuable ebook to life :

Connected Kerb
Coventry City Council
DG:Cities
Enterprise
FootAnstey LLC
London First
SSE
Transport for West Midlands
Uber
Zipcar

Contact

Company Name :
AppyWay, Yellow Line Parking Ltd.

Company Address :
Upper Ground Floor
3-11 Eyre Street Hill

Contacts :
M : Info@appyway.com
W : www.appyway.com

Made In-house :
AppyWay Design
London

LinkedIn Twitter