INTRODUCTION

We thank Ofgem for the opportunity to respond to the ED2 business plan call for evidence. Elements of this response are confidential (commercially or otherwise), and we reserve the right to redact certain information prior to it being shared outside of Ofgem. However, we would be very happy to give evidence in the open hearings in March.

Since the publication of the DNOs' business plans in December 2021, we have been reviewing the proposals, meeting all six DNOs to better understand their positions and share our own observations on the likely shape of the rollout of EV charging infrastructure.

bp pulse operates the UK's largest network (by installed capacity) of public EV charge points. While we understand why some have characterised ED2 as "the electric vehicle price control" we recognise that both Ofgem and the DNOs are balancing multiple considerations in terms of this price control period, especially the need to control downstream retail energy bills. Nonetheless the evidence we submit here is focussed on the DNOs' essential role providing network connectivity for EV infrastructure in the interests of the EV drivers of today and of the future.

We also note that we are not experts in the economics of network investment and delivery. However, and despite the nascent status of the market, we already have significant experience of EV charging infrastructure in multiple territories, including countries where the rollout is more advanced than the UK.

The transition from ICE vehicles to electric vehicles is a critical part of the UK's net zero ambitions. In turn, the right EV charging infrastructure is critical if UK drivers are to have the confidence to switch to EVs. In its simplest terms, with EV adoption rates primarily dependent on vehicle supply, and with vehicle manufacturer output set to increase dramatically throughout this price control period it is essential that EV charging infrastructure keeps up with demand.

In this evidence we will share our observations on the DNOs' business plans in this respect, and how we believe the transition to EVs is best factored into Ofgem's and DNOs' thinking as ED2 business plans are finalised.

CONTENTS

We have divided this evidence into three parts:

PART 1 - Why ED2 matters to the roll-out of EV infrastructure

1.1 Initial frame

We would like to frame our response around four key questions:

a. Whether the business plans place sufficiently detailed focus on:

    a. the *speed* of delivery of appropriate grid connections for EV charging infrastructure and

    b. the importance of maximising utilisation of existing grid capacity to deliver upgraded connectivity?

b. Whether the business plans' assumptions on *where* and *how* EV drivers (including fleet drivers) will charge fully acknowledge clear existing trends, and whether the proposed uncertainty mechanisms will be able to respond to rapid changes in behaviour and demand?

c. Whether Ofgem and the DNOs rely too heavily on 'flexibility solutions' as a means of meeting future energy needs within the next 5 years, to the extent that DNOs' business plans may be unable to deliver the capacity required for the EV infrastructure that the market demands. In particular, we are concerned that Ofgem and the DNOs place too much reliance on the required proactive behaviour change on the part of drivers in the short term, in a way that risks leading to underinvestment in the infrastructure that EV drivers require for fast and convenient charging.

d. Whether DNOs will be able to deploy the significant resources needed in back-office administration roles, as well as field teams, that will be needed for home and workplace infrastructure roll-out at speed, in addition to that required for higher capacity sites such as high-speed EV charging hubs.

1.2 bp pulse and our role in Britain's transition to electric vehicles

bp pulse is bp's global Electric Vehicle charging infrastructure brand, already operating in the UK, China, Germany and the USA. We have more than a decade of experience in delivering charging infrastructure. Today, our network in the UK is made up of more than 8,000 charge points, including close to 1,000 rapid (50kW) and ultra-fast (100kW+) chargers. We have also installed more than 50,000 home charging devices (including more than 15,000 smart chargers) in domestic properties, as well as several thousand charge points in workplaces and depots. We have historic data covering millions of charging sessions and our current annual run rate is close to 4 million charging sessions on home chargers and almost 2 million charging sessions on our public charging network.

a. We are one of the only charge point operators in the UK with experience of home, workplace, fleet and all segments of public charging. Our home charging business installs more than 1,000 smart charge points each month, exposing us to some of the challenges in this segment including looped supplies, maximum demand constraints and isolation requirements.

b. From the end of June 2022, all new private workplace charge points will also have to be smart and as we continue partnering with some of the UK's largest fleets as they transition to electric vehicles.

c. We install charge points in workplaces, typically in car parks for commercial vehicles and employee's private vehicles, and often help customers through the process of upgrading connections at their sites to supply this additional infrastructure. Our fleet charging team is focused on helping corporate customers to transition to electric vehicles at scale, including the electrification of depots with large numbers of charge points requiring significant capacity, using optimisation techniques including prioritisation analysis for multi-site clients.

d. In public charging, our priority is the expansion of the UK's ultra-fast charging network, including the deployment of 150-300kW chargers on bp forecourts across the country, and the development of new charging hubs, typically featuring at least six and as many as 24 ultra-fast chargers offering speeds of up to 300kW. We are also creating dedicated high-powered fleet charging hubs to deliver additional rapid and ultra-fast charging on the public network.

e. Over the last three years, we have more than doubled the size of our rapid and ultra-fast charging network and have a total installed capacity of around 100 MW, exposing us to the challenges of grid connectivity for high power charging sites. Between 2018 and 2021, bp pulse almost tripled the size and capacity of its rapid and ultra-fast charging network, in order to meet the rising demand for DC charging. Over that period, demand on our network grew almost tenfold, rising from an annual consumption of around 2.9 GWh in 2018 to around 25 GWh last year.

1.3 The role of ED2 in Britain's transition to electric vehicles

We welcome the work Ofgem has been carrying out to ensure that the energy system facilitates the roll-out of charging infrastructure by market providers such as bp pulse.

We understand that Ofgem must ensure it is acting in the long-term interests of consumers – balancing the impact on bills with the delivery of the required infrastructure. We fully agree that unnecessary infrastructure investment is unwelcome as it would, by definition, not support EV adoption.

However, we are very keen for ED2 to be a price control period where DNOs are able to deliver EV infrastructure in an agile, timely way, driven by market demand.

We believe there is no way to achieve this without anticipatory investment, and we would note that the moment additional EV charging capacity is demanded by the market, is much too late to begin the process of securing investment for it.

We would argue that anticipatory investment in dedicated areas – aligned to market trends and informed by insight from charge point operators (CPOs) – could be seen as having a very low risk of regret. And, by ensuring that EV infrastructure providers can continue to rollout infrastructure ahead of demand, we will continue to be able to drive forward the transition from ICE vehicles to a cleaner transport system.

We strongly support anticipatory investment where risk of regret is low, but we recognise there is genuine uncertainty in some areas. We would therefore favour automatic or agile uncertainty mechanisms, so that DNOs can respond quickly as specific demand crystallises. We are also very keen to ensure that DNOs are sufficiently resourced to respond quickly to the inevitable increase in demand in both engineering and administration.

Therefore, the need for controlled expenditure – with appropriate control mechanisms - needs to be balanced against the risk that the design and structure of the price control itself could hinder, rather than enable, widespread EV take-up.

PART 2 - Our understanding of the EV charging landscape

2.1 Current market position and likely trends

While charging infrastructure – both in terms of location and different rates of charging - will always remain a mixed landscape (with drivers looking for 'different speeds for different needs'), it is highly likely that acceleration of the EV transition will be tightly correlated with the roll-out of fast charging.

a. For those who have access to off-street parking at home, a home charger will undoubtedly be the most convenient option for most if not all of their charging. But those who lack access to driveway home charging will not necessarily be willing or able to charge primarily on slower on-street charge points.

b. While on-street charging has its place and may be the best option for some drivers, it has severe limitations – from low charging speeds and concerns about trailing cables where there is no dedicated charging bay – leading, to the inevitable consequence of parking-challenges and charging-challenges merging. The ability to scale up fast charging is likely to be significantly more important in supporting the EV transition. In the UK we are seeing a strong trend away from slow on-street charging, and in one of our more mature global markets there are already questions about whether low-speed street charging points remain viable.

c. The trend in a number of global markets and across multiple operators appears to be for higher speed chargers in hubs, with increasing numbers of chargers per site. We expect this trend to continue.

d. In terms of delivering the energy that electric vehicles need, rapid and ultra-fast chargers already appear to be delivering the majority of all public charging in the UK. On the bp pulse network, rapid and ultra-fast chargers make up around 30% of charge points, but account for around 80% of the energy supplied.

e. Convenient and local ultra-fast charging will be vital for giving people the confidence to switch to electric vehicles, even if they rarely need it. There are too many 'what if' scenarios where access to slower charge points alone would not be a good enough solution for customers – for example, fleet drivers in need of a charge in order to optimise their working day, finding an EV not sufficiently charged in the morning or having had a power outage overnight.

f. While private motorists were the earliest adopters of electric vehicles, one of the most significant sectors driving EV adoption over the 2020s will be fleets and businesses as they transition large numbers of predominantly diesel vehicles to electric. Fleet managers have told us that they will likely want to de-risk their charging strategy, which for on-the-go charging is likely to mean getting vehicles charged with certainty as quickly as possible, rather than facing the uncertainty of their EVs 'doing battle' with the existing fleet of ICE vehicles for on-street parking (and charging) spaces. We believe that ride-hailing and taxi companies will rely especially on this model.

g. Off-street charging on forecourts, at charging hubs and in car parks may also present fewer challenges than on-street infrastructure when it comes to the practicalities of charging, as well as accessibility. Many on-street chargers are not installed in dedicated bays, meaning that they are frequently blocked by petrol and diesel cars and cannot be accessed for an EV driver in need of charging – which may continue until the majority of cars are electric. It is worth noting that only a third of cars on the road are expected to be EVs by 2030. And while on-street charging may appear convenient to those who want to charge outside their home, it may be less attractive to other users of footways, including those with impaired vision and users of wheelchairs or walking aids.

h. Slower charging can offer the benefit of greater flexibility for the energy system, especially with smart home charging where drivers will be incentivised to charge at off-peak times, including via The Electric Vehicles (Smart Charge Points) Regulations 2021. However, public charge points are not in scope of the regulations, and it is doubtful whether consumers will engage in flexibility services in the public sphere to any great extent – especially if the financial benefits are limited.

Of course, when the first public charging units were installed (when the concept of 'fast' charging at the speeds seen today did not exist), nobody knew how and when the EV market or charging technology would evolve. However, with a decade of experience on our side, we have a much better idea of what drivers need from public EV infrastructure.

Neither bp pulse, CPOs, DNOs nor Ofgem will decide how the EV charging market evolves – customers (both domestic and commercial) will decide, for example, through their purchase and membership choices, and in the case of fleets their own electrification strategies.

We are concerned that there is insufficient attention given to these realities in the DNOs' business plans, with too much focus on the near-term impact of flexibility solutions and delivering street parking locations, and insufficient focus on connections for the high-speed charging which will almost certainly be required, and which – even if existing capacity is optimised – will require reinforcement at greater scale and speed than in the past.
However, despite these trends, there remains great uncertainty in precisely how, when and where EVs will be charged. While on the one hand we were disappointed by the lack of detail on this point in the business plans, it is currently the case that the ability to exactly predict capacity upgrade needs is very limited, hence our emphasis on the importance of the ability to install dynamically to meet demand as it is needed and as market dynamics inevitably shift over time.

2.2 The commercial imperative

It is important that Ofgem ensures DNOs are able to meet the demands of their customers, as we seek to meet the demands of ours.

DNOs will be responsible for enabling the scale up required in every EV charging segment, including home, fleet and workplace, and on-the go:

a. Home charging at scale will require unlooping of supplies and upgrading of domestic fuses

b. Fleet and workplace charging is likely to need reinforcement at commercial premises

c. The expansion of on-the-go charging networks will require significant grid capacity upgrades and grid work, especially along major road networks – including motorways - and in urban centres

If DNOs cannot enable the delivery of EV infrastructure in line with the requests of Charge Point Operators over the ED2 period, it will risk delaying the transition from ICEs to low carbon transport. By contributing to range anxiety or poor customer experience in the early years, it could slow the uptake of EVs. The lack of confidence in EVs caused by negative coverage of early adopters' experience could in turn make it challenging for policy makers to stick to existing targets (e.g. for the end of new ICE sales). At the very least, the issue could become highly politicised leading to significant consequences for governments, regulators, DNOs and CPOs.

It will also risk increasing the ultimate cost of delivering infrastructure for EVs when it is eventually provided in subsequent price control periods, rather than being built efficiently in line with growing demand. These outcomes would not be in the interests of either current *or* future customers.

Alongside ED2, we are aware that Ofgem is carrying out reforms to network charges that are designed to remove barriers to the provision of high-speed EV charging infrastructure.[1] However, the benefits of these reforms on incentivising charge point operators to build new charging infrastructure risk being lost if Ofgem's price control settlement does not allow (or incentivise) DNOs to provide the necessary network infrastructure that our charge points require. Lower project costs are extremely welcome – as some have been excessive to the point of being prohibitive – but this is only part of the concern. Connectivity is only valuable if it is delivered in a timely way.

2.3 A hierarchy of responsibilities

In summary, we believe in a hierarchy of responsibilities for EV charging infrastructure:

a. Charge Point Operators (such as bp pulse) are responsible for predicting and then meeting market demand for charging opportunities;

[1] https://www.ofgem.gov.uk/publications/access-and-forward-looking-charges-significant-code-review-updates-our-minded-positions

b. DNOs are responsible for delivering the connections that Charge Point Operators therefore require, and;

c. Ofgem is responsible for ensuring that DNOs are able to deliver the connections, in a timely, reliable and cost-effective way.

2.4 Outcomes from ED2 for EV users

We have focussed this response on the main outcomes that Ofgem must deliver to ensure it facilitates the building of necessary EV infrastructure, aligned with our four themes identified earlier. In this context, we consider that ED2 must achieve four key outcomes to ensure the EV charging rollout stays on track over the period:

a. A settlement between Ofgem and the DNOs that responds with agility to the evolving pace and nature of demand for EV connections. The ED2 settlement must enable and incentivise – rather than impede – DNOs to build quickly as demand materialises.

b. An Ofgem determination that reflects the uncertainty about how fast and how much EV users will change their 'fuelling' behaviour (e.g. compared to petrol car users), as well as realism about the likely extent of consumer behaviour change, and is therefore prepared for plausible scenarios that would necessitate more extensive network reinforcement to match the pattern of demand for high-speed, convenient charging infrastructure.

c. DNOs that are able to respond rapidly to increased connections workload (including back-office administration) that may come rapidly, and without significant lead time, while maintaining quality and speed of service.

d. DNOs that are able to facilitate EV infrastructure *in the location* where demand arises for it, and at the voltage/capacity required.

PART 3 - Our views on the ED2 business plans

3.1 Delivering connections, as well as new capacity, where and when it's needed

We would like to see more recognition of the value of existing network capacity in unlocking new EV charging infrastructure:

a. Once charge point operators (CPOs) have identified what charging infrastructure is required and where it is needed, DNOs need to be able to deliver the capacity to enable it in a timely fashion.

b. The speed at which capacity can be delivered is as important as getting the amount of capacity required.

c. While the location of infrastructure is a key factor, collaboration between CPOs and DNOs may result in the identification of both available land and available capacity that would still meet the market demand identified.

d. Existing capacity may be available to bring new connections online, potentially in a graduated way, more quickly than upstream reinforcement can enable.

e. Incentivising DNOs to maximise existing capacity may both expedite the growth of charging capacity and allow reinforcement activity to be deferred or avoided. We would warmly welcome a specific financial incentive for DNOs on this point.

f. This approach is not uncommon among CPOs and DNOs already – sometimes referred to as 'matchmaking' – but formalising the practice as an incentivised activity would likely serve to support the pace of infrastructure expansion required.

g. It would appear to us a simple, easy, low-regret, high-impact mechanism as a project would not proceed unless a CPO agreed there was market demand.

h. Existing capacity may also be utilised as the starting point for a larger connection requirement, for example where DNOs could work with CPOs to deliver a sufficient connection to meet the immediate market demand and allow for the capacity to be throttled appropriately as the demand increases with further EV adoption.

3.2 Uncertainty mechanisms responsive to trends and changes in behaviour

bp pulse is not an expert in the regulation of energy networks, and we do not have access to the detailed information and data behind the DNOs' business plans. Hence, while we comment below on the specific mechanisms and features which will affect DNOs' rollout of EV connections, we have focussed our response on the main outcomes that Ofgem must deliver to ensure it facilitates the building of necessary EV infrastructure. However, we would make the following observations about the mechanisms proposed in DNOs' business plans:

a. We support Ofgem's efforts to avoid customers paying for building unnecessary infrastructure, and therefore agree with the principle of using uncertainty mechanisms to release funding for infrastructure when the level and location of demand is clearer.

b. We agree that there is uncertainty about the exact pace of EV adoption and how it will manifest throughout the DNO regions, but we have a high level of confidence that the market will accelerate very quickly throughout the rest of the 2020s[2], including significantly between 2023 and 2028.[3]

c. While the uncertainty mechanisms will also allow DNOs to respond to changes in EV charging behaviour, we can look to the vast amount of data we already have to help inform our forecasts in this respect:

    i. It is clear that there is already very high demand for the fastest forms of charging. As we have said previously, despite making up about 30% of our charging network, our rapid and ultra-fast chargers accounted for around 80% of the total energy that we delivered in 2021.[4]

    ii. In terms of monitoring demand, it is CPOs that will see any changes in behaviour and market trends first, so it is essential that Ofgem and the DNOs continue to consult with us during the ED2 period as we will provide evidence to support the need for triggering of any (non-automatic) uncertainty mechanisms.

d. Uncertainty mechanisms need to be designed and calibrated carefully to maximise the ability of DNOs to facilitate without delay the wide range of new EV connections that will be required over the ED2 period.

e. Any uncertainty mechanisms – be they volume drivers or reopeners – need to be sufficiently flexible (and approved quickly enough, if they are not triggered automatically) for DNOs to respond to demand, and need to provide enough incentive to make sure DNOs deliver additional capacity when it is needed.

f. As a particular example, we support in principle Ofgem's proposed Net Zero reopener if it is used to respond to a significant change in government policy around the siting and rollout of public EV charge points.[5]

3.3 Low risk investments

We would argue that there are compelling reasons for Ofgem to allow appropriate, targeted anticipatory investments in relation to network reinforcement needed to facilitate EV charging infrastructure, and that DNOs should be allowed to invest ahead of demand in cases where they are able to work with CPOs to identify areas which will very likely need reinforcement with limited risk of unnecessary expenditure.

[2] bp pulse projects around 10 million EVs will be registered between 2023 and 2030
[3] bp pulse projects around 7 million EVs will be registered between 2023 and 2028
[4] bp pulse network data
[5] For example, a change to what new cars and vans are permitted to be sold between 2030 and 2035, with the possibility that zero emission vehicles are the only options available.

a. Alongside agile uncertainty mechanisms, it is also important that Ofgem ensures DNOs baseline expenditure allowances can facilitate the rollout of EV infrastructure. We can already see clear trends emerging in our data with respect to how customers are charging today and how that has changed in recent years.

b. All indications point to out-of-home fast charging growing from its current base during ED2, meaning that Ofgem can approve early anticipatory investment in baseline allowances for fast-charging infrastructure, with relatively low risk of regret.

c. The certainty of this demand for high speed public charging is not only related to the inevitable increase in EV adoption among customers without the ability to charge at home (up to 40% of EV drivers in the long term[6]), but it is also rooted in the impending increase in EV adoption by large fleets of higher mileage drivers.

d. We do note that some DNOs have demonstrated in their business plans the pre-emptive investment they propose to facilitate EVs, whereas others instead propose to rely entirely on reactionary uncertainty mechanisms. We are concerned that reactionary measures may not be sufficient to deliver against demand and would welcome plans for anticipatory investment from all DNOs.

e. For all the reasons discussed above, we would caution against DNOs over-indexing on scenarios that extrapolate directly from current home charging trends, or assume extensive uptake of flexibility solutions. While driveways will be the primary charging location for drivers with one, the overall picture will shift as market penetration of EVs grows among households without driveways. As previously mentioned, we don't believe that there will be significant adoption of flexibility solutions during this price control period, sufficient to offset, for example, the growth in network capacity required to support drivers without access to home charging or the significant administrative burden of delivering the inevitable surge in home charger installations.

f. Some DNOs address the example of motorways, where they recognise the need to facilitate additional charge points, but there are many further examples where the need for new infrastructure is clear, including for urban and suburban charging hubs, and we would welcome more clarity on DNOs' plans for addressing this need. We would be very happy to discuss this with Ofgem in more detail.

[6] DCLG Homes Report 2010 finding 66% of homes with access to a form of off-street parking

3.4 The flexibility gamble

We are concerned that there is too much focus on flexibility solutions as a means to avoiding network reinforcement in the business plans, given how unlikely it is that these solutions will become viable at meaningful scale during the ED2 period. In particular, we are concerned that, by over-indexing on the extent to which network reinforcement can be avoided due to EV drivers changing their behaviour, DNOs risk being unprepared to deliver the network capacity needed for the EV infrastructure the market demands.

a. DNOs should put forward baseline funding requests for such 'low regrets' anticipatory grid reinforcement investment in their business plans, rather than relying too heavily on the prospect of demand-side flexibility reducing the need for these investments, at least in the next 5 years.

b. The peak for charging at home (which is likely to be mirrored by slower on-street charging) occurs at the same time as the early evening peak in electricity demand in the UK. So, a proliferation of on-street charging is likely to lead to even higher peak demand, as people return to their homes and plug in their vehicles.

c. Flexibility materialising at scale from slower out-of-home charging is very unlikely, but we are also extremely cautious about the flexibility that may be derived from home charging, not least as we see a relatively low level of engagement in smart charging from EV drivers who do charge at home.

d. Despite installing smart home charge points since 2019, we only see about 15% of home charging customers engaging in smart (slower speed or scheduled) charging, and no mainstream participation in vehicle-to-grid charging.[7] This may change in the longer-term, but it indicates a risk to rely on widespread proactive behavioural change in this pricing period. This level of engagement is something that has been seen in similar sectors, for example in consumers' willingness to install smart meters, which remain a blocker on many domestic homes participating in any kind of domestic flexibility.

e. Although the impact of The Electric Vehicles (Smart Charge Point) Regulations 2021 will be to ensure that all new private charge points from 30th June 2022 incorporate pre-set default charging hours which are outside of peak hours, our understanding of the regulations as they currently stand is that charge point owners will need to proactively accept these default pre-set charging hours, rather than off-peak charging occurring without any user intervention.

3.5 Resourcing the ramp-up in demand

We believe that it is vital that DNOs are able to resource appropriately, including in back-office administration, to maintain the pace of EV infrastructure roll-out:

[7] bp pulse internal data

a. DNOs will need to scale-up their workforce across different parts of their business to respond to EV-related connection requests during ED2. The specific resourcing requirements will vary for responding to connections requests to facilitate the different EV charging segments (e.g. at home verses high-speed charging hubs), but in order to ensure that DNOs do not block or hinder the transition to EVs, we believe it is important that Ofgem allows DNOs to build up the capabilities to ensure they are able to facilitate all types of EV connection request whatever scenario arises in practice.

b. If DNOs do not have the capabilities to plan and identify what reinforcement is necessary in light of a connection request, the benefits of agile uncertainty mechanisms will be lost, as backlogs in processing connections requests will delay the DNOs from triggering the uncertainly mechanism in the first place.

c. While much, if not all of the approvals process for domestic EV charging connections could be automated by the DNOs, there is likely to be significant resourcing required to tackle the challenges arising from the unlooping of service cables, which will inevitably be required, and the upgrading of main fuses in domestic properties.

d. For large scale workplace or fleet and on-the-go charging, we expect there to be a significant additional resourcing requirement associated with assessing and surveying applications for new connections, many of which may be complicated, with little scope for process automation.

e. Closer collaboration between CPOs and DNOs should result in DNOs being able to better understand the requirements and plans for such charging infrastructure, and DNOs being able to maximise existing capacity (as we discuss above) may not only reduce the need for network reinforcement, but also indirectly avoid additional resourcing requirements.

f. It is also vital that DNOs maintain their ability to respond to connection requests with urgency even as the volume of connections requests that DNOs face rapidly increases over ED2. It is vital that DNO business plans take account of this increase in workload across the different functions of the DNOs' business, both back-office and operational, and ensure that all DNOs plan to continue to improve the timeliness of their connection approval process, despite the increase in workload they will face.

g. Given the pace at which the market needs to move, lengthy 'front end' delays when assessing the commercially viability of sites can have a significant impact on our ability to meet EV users' demands, since it may make the difference between being able to secure an alternative available location.

h. As EV uptake increases both consumers and businesses will need ways of charging that match their needs and behaviours. DNOs will also need to consider that businesses – predominantly fleets – are very likely to need to rely on fast charging for much of their operational activity. While some depot-based fleets will invest in their own charging facilities, the relatively high upfront costs of doing so will likely mean that many fleets rely on the public charging network.

i. If fleets can't charge reliably and quickly they may not see a business case for EVs, and delay uptake. We already see demand from fleet drivers in our hubs in London, Amsterdam and China, including from the taxi and private hire sectors. Transport for London estimates that by 2025 taxis and private hire vehicles will account for 80% of all public EV charging demand in the city.

CONCLUSION

As one of the UK's leading EV charging providers, we look forward to ED2 in anticipation that it will enable the DNOs to deliver at the pace and scale required to unlock the infrastructure needed to support the rapid transition to electric vehicles.

We understand the challenges that DNOs face in delivering new connections and would welcome greater focus on maximising existing capacity first, to facilitate a rapid rollout of infrastructure that will in many cases avoid the need for upstream reinforcement.

Without exception, all of the DNOs have engaged with us positively in the last year, and demonstrate genuine commitment to, and understanding of, the essential role they will play in driving the UK's EV transition. This is warmly welcomed.

In our assessment, many of the business plans' projections around market growth and charging demand are too heavily focused on assumptions that EV drivers will choose to charge slowly on-street rather than quickly and conveniently at off-street locations. In addition, the impact of fleet customers, and their demand for ubiquitous nationwide ultra-fast charging, may be being significantly underestimated.

We respect the aim of ensuring that the impact of network investment on consumer bills is not unduly high while recognising the need to deliver expansive early infrastructure that will give consumers and fleets confidence when making the switch to electric vehicles. And although smart charging will play a role throughout the 2020s, we believe that its potential impact, at least in the near-term, may be being overplayed.

Finally, alongside their investments in systems and technology, we see it as critical that DNO invest appropriately in scaling up their teams to handle the inevitable surge in new connection applications related to rapid and ultra-fast public charging and large-scale fleet charge point developments.

We would welcome the opportunity to discuss our response to this call for evidence in more detail with Ofgem as part of the next stage in the process.

ENDS

Contact:

James Hutchinson, Head of Global Communications & Advocacy, bp pulse

james.hutchinson@bp.com