Greater London Authority response to the Office for Low Emission Vehicles' consultation and call for evidence on electric vehicle smart charging

Summary of response

The proposals set out in the electric vehicle smart charging consultation support the Mayor's EV and energy strategies. But it is vital that the regulation of smart charging supports a net zero energy transition as well as supporting the transition to EVs. Requiring energy storage with smart charging, and markets and regulated networks to provide better incentives (including tariffs that reward flexible charging) for consumers and financial sectors to invest in electric vehicles would offer more benefits for consumers and the energy system.

London's aims and objectives

The Mayor's Transport and Environment Strategies set out a clear commitment to zero-emission road transport, and achieving a zero-carbon city by 2050. The Mayor is keen to lead the way towards the shared goal of zero emission, as set out in the Government's Road to Zero Strategy, published in 2018. We therefore welcome the emphasis on the transition to electric vehicles within London's context of first prioritising mode shift and reducing overall car ownership and use.

The London Environment Strategy sets out an objective for developing smart, integrated energy systems using local and renewable resources. Furthermore, the Mayor of London's new Electric Vehicle (EV) Infrastructure Delivery Plan identifies an explicit need to explore alternative and smart power supply options, such as battery storage, so that we can accelerate the rollout of charge points in the capital.

To boost resilience and energy flexibility for the long term, London's energy networks must be smart, flexible and integrated across power, heat and transport, using local and renewable energy resources. The Mayor is responding to this need by running an energy innovation programme, with pilot projects like the Commercial Logistics EV trial, Sharing Cities and E-Flex vehicle-to-grid, showing how we can use electric vehicles to store, use and integrate flexible energy systems. If rolled out across London, this will help to alleviate pressure on the grid in real time and make sure London is resilient in the longer term, as we see more electrification of transport and the amount of locally generated renewable energy increases.

The Mayor is also working to make sure the costs of a net zero transition are as low as possible and do not fall to consumers. His energy innovation programme has identified between £0.6 to 5.1 billion in cumulative cost savings that could be seen in London by 2050 from having smarter, flexible and integrated energy systems. Much of this value could, and should, be passed down to consumers in reduced energy bills. Government must do all they can to ensure that these values are realised and passed down to Londoners.

London's 1.5C Compatible Climate Action Plan also sets out the case that there is not a significant need for costly and disruptive grid upgrades to deliver net zero energy compared to the current higher carbon, business as usual, approach. Smart charging of electric vehicles can help to remove and/or defer the need for costly grid upgrades in London.

Response to proposals

The proposals set out in the electric vehicle smart charging consultation support the Mayor's EV and energy strategies. But it is vital that the regulation of smart charging supports a net zero energy transition as well as supporting the transition to EVs. Requiring energy storage with smart charging would offer more benefits for consumers and the energy system.

A phased approach

A phased approach to smart charging regulation addresses the need to act now to embed the principle of smart charging at device level, whilst acknowledging the early stage and state of the market. Systems to ensure interoperability and security are essential, and evidence from the trials and demonstrations currently underway in projects like E-Flex is helping to determine what is required. A decision by Government on a long-term approach and direction of travel is needed but the results and conclusions of the trials and demonstrations should be taken into account when regulatory proposals are made. It is likely sufficient evidence and recommended approaches would be available from mid-2021.

Definition of smart charging

We agree with the proposed definition of a smart chargepoint, and also believe that any device intended for charging an electric vehicle, whether a chargepoint or smart cable, should be within the scope of smart charging regulations. The market for electromobility has witnessed considerable innovation, and it is clear that conventional chargepoint hardware will not be the only charging solution in the longer term. It seems sensible to currently exempt public chargepoints from smart functionality at this time. The default position for smart charging under this proposal is off-peak with random turn down of charging to manage demands on the grid. This may not be acceptable for public charging because it needs to be available any time of day to meet whatever demand is needed. Therefore, more evidence and possible alternative solutions are required before Government regulates.

If users' needs and expectations for public charging is not met this could have a detrimental impact to certain sectors – such as commercial fleets - who might rely on publicly accessible charging infrastructure. Further experience and evidence of possible mitigations and alternative solutions, including smart tariffs and linked storage, is required before any proposals to mandate smart functionality for public chargepoints.

To drive a competitive market and protect consumers' interests, we agree that any smart chargepoints should retain their smart functionality if the operator is changed, without the need to visit the premises in order to facilitate the switch to an alternative operator. On minimum charging power to avoid potential vehicle charging shut-downs, this should be guided by the advice of electric vehicle manufacturers. A default off-peak or reduced peak charging mode have some benefits and echo some other energy-saving techniques (such as stop-start in combustion engine vehicles) but won't address the need for future flexibility and real-time response. However, to protect the need for essential or urgent charging, an override should be easy to enable and have immediate effect.

Security

We agree with the approach of having both outcome-based security requirements alongside technical security characteristics, but because of the international nature of vehicle and charging infrastructure design and manufacture, consideration of proven equivalents (international standards) to a BSI standard should be prioritised alongside a BSI standard.

For issues as important as cyber security, there is a strong argument for an independent testing and assurance scheme – which the Mayor supports. On privacy, as with home smart appliances, a full risk assessment of actual or inferred user behaviour or other characteristics (which could be exploited either for commercial or criminal gain) should be undertaken with the objective understand if the Data Protection Act and GDPR are sufficient. On safety, the Mayor wholly agrees that smart chargepoints should be safe and reliable for Londoners to use. The infrastructure supply chain and its trade representatives (e.g. BEAMA) would be well-placed to advise on any other safety requirements.

Innovation

Smart charging regulations should provide adequate space for Vehicle-to-Grid (V2G) solutions. The Mayor and TfL is actively engaged in trialling and understanding the potential for bidirectional charging / discharging of electric vehicles in TfL's own fleets. At the moment, we do not have evidence that all of the value streams possible through V2G are available to the market, and therefore the commercial case is not clear. It would be premature to include specific requirements for V2G solutions in smart charging regulations. It is important that nothing prevents or jeopardises V2G functionality and the right type of charging infrastructure in the future since the system benefits of such solutions is in principle understood.

Further considerations

Finally, to ensure regulating for smart charging has the greatest impact, Government and Ofgem must:

- Ensure that energy supply companies roll out SMETS2 smart meters effectively, so consumers gain the maximum benefits they offer, including the smart charging of electric vehicles, as quickly as possible. However, the prescriptive use of smart meters for smart charging should be avoided and room for innovation should be enabled and supported. The national smart meter programme has been beset with issues and delay that is affecting consumer confidence and adoption. This must be addressed before any requirement to use smart meters to control charging is made.

- Address the very limited availability of smart energy tariffs. This is stopping consumers from realising energy bill savings from shifting when they charge their vehicle and/or returning power to the network from bidirectional charging. Providing demand-side response services to local and national network operators.

- Design and regulate energy markets that offer incentives for consumers, businesses and financial sectors to invest in electric vehicles and solar PV with battery storage. This will benefit and reward consumers and the energy system from more flexible use, storage and generation of energy. This consultation does not adequately cover the need for, and design of, the type of markets that must be in place for the values of smart charging to be realised and maximised.

- Address the concerns that Ofgem's existing network charging and wider market arrangements do not create the right incentives for smart charging and connecting clean, decentralised energy resources, like electric vehicles, to local networks. For example, they do not reflect the costs and benefits these resources can save and create for local networks and the whole energy system.

- Ensure that regulated energy networks are required and incentivised to enable smart charging to deliver a decarbonised net zero and resilient energy system as quickly as possible through Ofgem's performance-based framework for setting network price controls (RIIO Revenue = Incentives + Innovation + Outputs).

- Not assume that off-peak and randomised delay charging is the best way to manage electric vehicle charging demands. Markets serving customers and industry needs, including network operators, should help to ensure double peaking of charging is avoided and the consumer is rewarded for flexible charging.

- Local authorities should have access to accurate chargepoint data, such as geographical and live consumption data, to help ensure better electricity network planning by local authorities, resulting in better community place making and energy services.

- Geographical and live consumption data, combined with information on network capacity availability, should be open and shared (with the necessary aggregated and anonymised protocols in place) to help local authorities and transport authorities to plan for chargepoint infrastructure deployment to encourage uptake of EVs.