

**SSE SUBMISSION
TO CMA MARKET
STUDY
EV CHARGING**

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ABOUT SSE

SSE is a UK-listed energy company with operations and investments across the UK and Ireland. It is primarily a developer, an operator and an owner of low carbon energy assets and businesses, with a strategic focus on regulated electricity networks and renewable energy.

Of specific relevance to Electric Vehicles (EVs), SSE's main interests relate to their integration into the electricity distribution networks through **Scottish and Southern Electricity Networks-Distribution (SSEN-D)**, who own and operate the electricity distribution networks in the north of Scotland and southern central England. SSEN-D published an [EV Strategy](#) in March 2020, and in July 2020 published 10 proposals on how EVs can help [Accelerate a Green Recovery](#).

2021 will be a critical year for ensuring electricity distribution networks can appropriately integrate the increased uptake of EVs (and heat pumps) as the RIIO-ED2 price control period for 2023-28 is due to be set out by Ofgem.

SSE is also directly involved in the design, installation and operation of EV charging infrastructure and other local energy solutions through **SSE Enterprise**, which is focussed on hub and depot charging solutions for bus and fleet operators, including providing over 300 charging points for electric buses in London.

SSE has wider interests in the GB electricity system through **SSEN-Transmission**, **SSE Renewables**, **SSE Thermal** and **SSE Business Energy**.

To lead by example on EVs, SSE committed to decarbonise its own fleet of 3500 vehicles by joining the Climate Group's [EV100 campaign](#) in July 2019.

In May 2020, SSE put forward policy proposals to secure a green recovery in its '[Greenprint](#)'. On transport decarbonisation it called for the UK to 'Lead the charge on Electric Vehicles', and adopt a 2030 phase out date for Internal Combustion Engine (ICE) cars and vans. Given this, SSE welcomed the Government's commitment on this in November 2020. In October 2020, we wrote to the DfT Secretary of state calling for the UK Government to commit to the [full decarbonisation of cars and vans in corporate fleets by 2030](#).

In November 2020, we were proud to be confirmed as a Principle Partner for COP26 in Glasgow in November 2021. To ensure COP26 can help accelerate ambition on clean road transport, we're keen for the UK to take a leadership position on the electrification of transport, and see EV charging infrastructure as key to delivering on the UK's ambition in unlocking EV demand.

SUMMARY

This submission includes an overview of SSE's views on deploying EV charging infrastructure cost effectively and equitably, with additional information provided on specific questions where relevant.

The submission focusses on three areas:

- Delivering the **most extensive EV charging network in the world by 2025**, by leveraging private investment through de-risking mechanisms and Local Area Energy Plans (LAEPs);
- Ensuring equitable access to EVs for all households and communities by ensuring EV charging infrastructure is considered a **universal service expectation**; and
- The importance of the upcoming **RIIO-ED2 price control review** period (covering 2023-28) to the integration of EVs (and heat pumps) into the electricity distribution networks.

SSE'S SUBMISSION

OVERVIEW – BUILD THE MOST EXTENSIVE EV CHARGING NETWORK IN THE WORLD BY 2025

- SSE views that the UK should seek to deploy **the most extensive EV charging network in the world by 2025**. To encourage international competition for this title, the UK should develop a range of metrics to measure this.
 - SSE views that a lack of access to EV charging infrastructure at appropriate speeds at home, in transit and at destination will present a barrier to EV uptake and hinder transport decarbonisation¹². As EVs get better and cheaper, Government should move ahead of this classic chicken-egg dilemma, and ensure extensive charging infrastructure is in place now which will mitigate range anxiety and accelerate consumer EV demand.
 - The UK Government is doing some excellent work on Project Rapid, ensuring ultra-rapid charging facilities will be available at Motorway Services Areas (MSAs) on the Strategic Road Network (SRN) in England. To ensure there is a coherent approach for drivers across Great Britain, **Project Rapid should be coordinated with the Devolved Administrations**. Similarly, Northern Ireland should collaborate with Ireland.
 - Whilst Project Rapid provides a positive top-down approach for deploying EV charging infrastructure, to ensure an extensive charging network a bottom-up approach will also be required and ensure a universal service. To deliver this, local bodies in coordination with electricity distribution network operators, transport authorities, local communities and other stakeholders should be empowered to **deliver bottom-up local EV charging infrastructure plans as part of Local Area Energy Plans (LAEPs) inclusion within RII0-ED2**.
 - To reduce the costs of deployment, **Government should seek to introduce de-risking mechanisms** to reduce the cost of capital for EV chargepoint deployment. Currently EV chargepoints expect a return of 15-20%³ due to uncertainty over demand, and this compares to expected returns other low carbon infrastructure of 5-10%. An example of where de-risking mechanisms (e.g. CfDs) have significantly reduced the costs of deployment is offshore wind, and this could be achieved on EV charging infrastructure too.

As an example of the importance of de-risking investments, reducing the cost of capital on a £1bn capital investment from 15% to 5% would save £1bn in financing costs over 15 years⁴. Put another way, a £1bn capital investment at 15% capital cost would cost the same over 15 years as a £1.7bn investment at 5%. Given this, there should be a greater focus on reducing financing costs in deployment of infrastructure, not just asset utilisation.

¹ PWC (2019) – [Consumer research in Rapid Charging, commissioned by National Grid](#)

² Deloitte (2020) – [Electric Vehicles, Setting a course for 2030](#)

³ PWC (2018) – [Powering Ahead! Making sense of business models in electric vehicle charging](#)

⁴ Cost of £1bn capital investment at 15% over 15 years = £2.4bn total project cost. At 5% would cost £1.4bn.

- De-risking demand could be achieved through pooling demand risk through facilitating **tenders for area-wide network of chargepoints** based on local EV charging infrastructure plans outlined in a LAEP, ensuring geographic coverage for uneconomic sites and interoperability. A single area-wide tender in the Netherlands deployed 20,000 public EV chargepoints in 3 of the 12 provinces in the Netherlands covering 3.2m people (as a comparison, the UK has 32,500 today for 66m people)⁵.

Policy Exchange more directly recommended demand guarantees in its recent report on capital investment as part of the COVID recovery⁶. Either option would enable the cost of capital to be reduced in line with other low carbon infrastructure, and in combination could deliver significant private investment in EV charging infrastructure.

- To avoid infrastructure gaps and ensure equitable access to all households and communities, SSE believes that **EV charging infrastructure should be considered a universal service provision**, similar to Broadband⁷.
 - Universal service was raised by the Committee on Climate Change in its recent [annual progress report to Parliament](#) - *'Government, regulators, local authorities and industry working together to establish mechanisms by which en route, destination and on street electric vehicle charging can approach universal service expectation, and accelerate investment in charging points to enable it'*.
 - SSE is concerned that without bottom-up local EV charging infrastructure plans, the following **infrastructure gaps** may appear. Government should act to ensure potential gaps do not emerge.
 - **Households without access to off-street parking.** 75% of local authority housing and 50% of the private rented sector households do not have access to off-street parking, compared to 19% of owner-occupied households. Importantly, a lack of access is commonly found in urban areas which will have the most to gain from the air quality improvements⁸.

Government should consider further options to expand on-street charging facilities trials and assess driver preferences and its impact on EV uptake. Policy Exchange suggested this could be done through an Electricity Towns initiative⁹. Alternatively, electricity Distribution Network Operators (DNOs) could run deployment trials within their areas through RIIO-ED2, similar to Scottish Power Energy Networks (SPEN's) Project PACE¹⁰.

⁵ Total (2020) – [Total will install and operate up to 20,000 new EV charging points for 'Metropolitan Region Amsterdam Electric'](#)

⁶ Policy Exchange (2020) – [Why the Government should spend more on capital](#)

⁷ Ofcom (2020) – [Broadband universal service](#)

⁸ Ministry of Housing, Communities & Local Government (2018) – [English Housing Survey](#)

⁹ Policy Exchange (2020) – [Why the Government should spend more on capital](#)

¹⁰ Scottish Power Energy Networks (2020) – [Project Pace](#)

- **Communities reliant on footfall like town centres and seasonal tourist areas**, as identified by the National Infrastructure Commission¹¹. Infrastructure gaps could have a significant economic and social impact on these areas.
- To ensure that an extensive charging network is in place, and that no communities are left behind, SSE believes that the Government should consider measures to put in place an **EV chargepoint deployer of last resort**.

These infrastructure gaps can be avoided by tendering for an area-wide network to bolster the economic rationale for a delivering a larger number of chargepoints by grouping sites together. If the market does not deliver chargepoints at the identified sites within an LAEP, an option could be for electricity DNOs to deliver EV chargepoints where they may be currently uneconomic but can have maximise social value, as is being undertaken in New York State, USA¹². These chargepoints could then tendered to market once operational and commercially viable.

- To ensure EVs can be appropriately integrated into the electricity distribution network, it is important that through RIIO-ED2 (2023-28) and into RIIO-ED3 (2028-2033) price controls, **Ofgem takes full account of the evidence that shows the UK needs proactive and anticipatory development of the electricity distribution network**.
 - Pre-emptive strategic investment in the electricity networks will be needed to ensure they can accommodate the electrification of heat and transport. Ofgem's approach to RIIO-T2 for the electricity transmission networks was inconsistent with the Government's ambitions for net zero and a green recovery, adding barriers to investment now and inhibiting delivery of wider-societal benefits of a decarbonised energy system.
 - In its Future Energy Scenarios (FES) 2020, National Grid Electricity System Operator (NG-ESO), raised its range for Battery Electric Vehicles (BEVs) in 2030 from FES 2019 from 1.7-11.4m to 4.8-11.7m, reaching 30m by 2038-42¹³. FES 2021 due in July will be the first since the UK's phase out of Internal Combustion Engine (ICE) cars and vans sales date, and in addition with tech developments, it is likely include a higher number of EVs by 2030.

Not appropriately accounting for this EV growth in RIIO-ED2, could cause local grid instability and lead to increased cost and disruption to consumers over the long term. In a report for the Climate Change Committee (CCC), it was outlined that total electricity distribution network reinforcements could cost up to £81bn by 2035, £34bn more than if future electrification demand was appropriately taken into account from 2020¹⁴. To ensure a lowest cost outcome for GB electricity network consumers during the UK's transition to EVs it is critical that RIIO-ED2 that is to be determined 2021, reflect the potential growth of EVs given EVs are expected to reach upfront price parity with Internal Combustion Engine (ICE) vehicles by 2024¹⁵.

¹¹ National Infrastructure Commission (2018) – [National Infrastructure Assessment](#)

¹² New York State (2020) – ['EV Make Ready' program](#)

¹³ National Grid Energy System Operator (2020) – [Future Energy Scenarios](#)

¹⁴ Imperial College London and Vivid Economics (2019) – [Accelerated electrification and the GB electricity system](#)

¹⁵ UBS (2020) – [Cost Parity a Closer Reality?](#)

QUESTION RESPONSES – THEME ONE: DEVELOPING COMPETITION WHILE INCENTIVISING INVESTMENT

SSE's main views on the deployment of EV charging infrastructure is covered in the previous section, but further additional relevant information has been included below:

1. How is the EV charging sector developing and how will technological or other developments (for example smart technologies) impact sector development and competition?

Smart technologies create opportunities for active participation by EVs in electricity markets and emerging local flexibility markets. These opportunities will be more accessible to individuals with access to off street parking and those that are able to meet the upfront costs of purchasing low-carbon technologies such as an EV.

2. How well is competition between EV charging providers working at present in the different sector segments and what are the key risks to effective competition (including any emerging competition concerns)?

SSE does not currently have sufficient experience to respond to this question.

3. How can competition in the different sector segments be strengthened as the sector develops, either by building on current policies and/or through other approaches?

It should be considered that different sector segments have distinct and varied requirements and this impacts notably on not only the chargepoint asset investment cases but also the operational management of the charging networks. Consideration should be given to supporting roll-out of EV charging infrastructure across these varied EV users, e.g. private/domestic, Light Commercial Vehicles (LCVs) and in the longer term Heavy Good Vehicles (HGVs) in order to give the necessary charging services and provisions to enable a wider roll out of solutions for a breadth of EV users.

4. What are the main existing and potential barriers to entry and expansion for EV charging providers and how can these be addressed?

SSE does not currently have sufficient experience to respond to this question.

5. How can chargepoints be effectively deployed to ensure there is sufficient supply to meet future demand? What factors need to be taken into account?

'Project Rapid' to support ultra-rapid charging at Motorway Service Areas (MSAs) on the Strategic Road Network (SRN) in England is a welcome intervention to provide charging infrastructure at motorway services, and should be coordination across GB, similarly between Northern and Ireland.

This top down measure should be complemented by a bottom up approach that facilitates local authorities and communities to set out the infrastructure required to accommodate their net zero ambitions. This can be delivered through Local Area Energy Plans (LAEPs), which can link into Local Heat and Energy Efficiency Strategies (LHEES) in Scotland. LAEPs can be plans co-developed by local bodies and electricity distribution network operators (DNOs) to help identify lowest cost grid connections, with input from key

stakeholders, including transport groups, infrastructure providers, consumer bodies and network users to collect data and evidence of need. This process can help build a locally driven and endorsed energy plan that reflects local needs ensures infrastructure is prepared to accommodate the ambitions of local communities through, and would lower costs for electricity consumers through the efficient and long-term development of the electricity distribution system. This would in turn reduce disruption to local communities caused by road works from reducing the need for repeated network reinforcements by helping identify where new demands will emerge.

It is imperative that households without access to off street parking are not unduly disadvantaged or prevented from switching to EVs. The principle of universal service provision, as in broadband with Universal Service Obligation, should be embedded in the UK's shift to EVs. In England, whilst 78% of owner occupier households have access to off-street parking and will be able to access and benefit from low cost EV charging with time of use tariffs and other smart charging/flexibility services at home, this only includes 48% of the private-rented sector and just 25% of local authority housing¹⁶.

In addition to public funding for connections for Project Rapid, it would be also important to consider funding support or regulatory changes to ensure other infrastructure gaps do not emerge. From a point of social equity, alongside on-street solutions, areas which are economically dependent on consumer footfall, such as town centres and seasonal tourist sites, should be considered for targeted support. Whilst there will be benefits with a coordinated approach, particularly identifying locations charging infrastructure within areas of capacity within the electricity networks, this should be done in a way that facilitates innovative charging technologies and services to develop given how drivers will interact with charging infrastructure in the real world in unknown and will develop over time.

Commercial vehicles have high, regular usage and relatively high vehicle turnover and as such can be a key component in driving the early transition to EVs. Supporting the infrastructure needs of corporate fleets could help stimulate the economic deployment of EV charging infrastructure and the second-hand EV market which will be critical for ensuring equitable access to EVs. Rather than Motorway Service Areas (MSAs), their charging requirements will often be a relatively defined area around cities and towns.

The efficient and timely rollout of chargepoints relies on consistent and proactive data sharing. Currently there is no requirement for charge point operators and installers to share data with electricity distribution network operators (DNOs) in a timely fashion. This can lead to situations in which data is shared in bulk batches have a deleterious impact on DNOs ability to support customers' EV transition. Sharing of information in a timely or standardising this process will be a more cost-effective approach to preparing critical infrastructure for customers. SSE's network business, SSEN is developing an online portal for notifications and applications however obligations on charge point operators and installers will improve this process. This in turn could be facilitated within LAEPs.

6. What incentives are there for private investment in EV charging infrastructure including within the different sector segments? How might incentives need to change for the future growth of the sector and development of competition?

¹⁶ Ministry of Housing, Communities & Local Government (2018) – [English Housing Survey](#)

SSE's views on private investment in EV charging infrastructure is outlined in the overview and the following questions. It views that a greater focus should be given to de-risking mechanisms for EV chargepoints to reduce deployment costs.

Grouping EV chargepoint sites under area-wide tenders would allow lower deployment costs by pooling demand risk across a larger number of sites. It will avoid duplication of activity and associated cost, ensure interoperability and enable wider geographic coverage by grouping less and more-economic charging sites together.

A successful area-wide tender process for a network of public EV charge points in the Netherlands in January 2020 led to 20,000 charge points being contracted across an area covering 3.2 million people¹⁷. In comparison, as of December 2020 the UK had 36,000 public EV charge points for a population of 66.8m people¹⁸. The Dutch example could be replicated in the UK to accelerate the provision of EV charging infrastructure, more cost effectively by reducing financing costs.

7. What impact does public subsidy have on private investment incentives; are there any areas/gaps where public support is most likely to be needed?

As noted in the previous question and the overview, SSE views that there should be a greater focus on de-risking mechanism to leverage private investment into low carbon infrastructure, such has been achieved with offshore wind. Currently public funding is being used to top-up high-risk, high-reward business models. This could be achieved through local tenders as outlined in the overview.

Public funding should be used sparingly, and particularly given the current economic situation due to COVID-19. The Government's approach to EV charging infrastructure and other low carbon infrastructure should be to leverage private investment to help spur a green recovery. Any public funding should be focussed on measures which can best accelerate the transition to EVs and ensure an equitable approach.

8. What is required in order to ensure that rural / remote communities and those without off-street parking are well served by charging infrastructure?

EV charging infrastructure needs to be rolled out in a manner that delivers chargepoints in rural and remote communities. Importantly, given the relative, but not universal access to off-street parking, will be important to focus on rural/remote businesses to encourage consumer footfall from other areas.

Individual locations will offer different profiles in terms of profitability and usage. If left to the market those individual sites which are not likely to be as profitable may not be delivered, or there may be additional costs for businesses and communities to provide EV charging facilities to attract consumers. An approach which pools chargepoint locations, and includes uneconomic sites alongside economic sites, and puts these out to an area-wide tender should be adopted. Similarly to postal services, there is value to all in providing a full coverage of service, even if individually sites may be uneconomic.

¹⁷ Total (2020) – [Total will install and operate up to 20,000 new EV charging points for 'Metropolitan Region Amsterdam Electric'](#)

¹⁸ ZapMap (2020) – [EV Charging statistics 2020](#)

9. What role should local authorities play to help deliver EV charging in a way that promotes competition? What support would they need?

Local authorities should be supported to play an active role in delivering EV charging infrastructure, but often lack resources and technical capabilities, and view EV charging provision through the lens for business development rather than a service provision. As previously mentioned LAEPs are one route that could provide resource and capability to develop local EV charging infrastructure plans that can be used to run area-wide tenders.

SSE's network business, SSEN is a proud partner of the 'Strategic EV Partnership' alongside the Scottish Government, Transport Scotland and Scottish Power Energy Networks (SPEN) to support the cost effective deployment of an extensive EV charging network in Scotland. A range of pilot projects have been undertaken under the umbrella of this partnership and have identified ways in which local authorities can be supported. The [Electric A9 project](#) is one such example, which is focused on expanding and reinforcing Scotland's existing EV charge place infrastructure by developing multiple EV charging hubs along the A9 – the longest road in Scotland and known the 'Spine of Scotland' – which will help drivers in both rural and urban Scotland access the benefits of driving EVs. SSEN has supported the delivery of these charging hubs by seconding a member of staff to ensure much closer working between electricity distribution network operators (DNOs) and the Authorities to help inform where best to site the hubs, which resulted in better understanding of the connections process and more successful applications for connections.

10. What can be learned from the different policy approaches taken in the devolved administrations for the EV charging market's development.

From SSE's network business, SSEN's experience through the 'Strategic EV partnership' in Scotland, the closer links with Local Authorities, transport groups and local infrastructure strategy groups result in better coordination of activities and deliver of strategies both from a top-down and bottom-up perspective, ensuring there is consistency in approaches which at times has been a complaint of stakeholders in SSEN's other electricity distribution network area in central Southern England. There are also great examples of data sharing and promotion of these activities such as Charge Place Scotland chargepoint data. However, there is a question of replicability of this approach in England given the different governance structures.

There an issue is the alignment between more ambitious net zero target of 2045 in Scotland and UK policy and regulatory frameworks set to deliver net zero by 2050. In specific relation to EVs, it is important that Ofgem, through its RII0-ED2 price controls, supports greater ambition from devolved administrations and Local Authorities.

QUESTION RESPONSES – THEME TWO: EFFECTIVE CONSUMER INTERACTION WITH THE SECTOR

1. What challenges or difficulties related to chargepoints might act as a barrier to consumers switching from a conventionally fuelled passenger vehicle to an EV and how might these be overcome?

Chargepoint interoperability will be critical in delivering a positive customer experience in the UK's transition to EVs. The [EV Energy Taskforce](#) identified this as a key priority alongside the sharing of data within the EV sector that needs to be delivered.

The decarbonisation of corporate fleet will be important early role in the UK's EV transition both in reducing immediate emissions and, in relation to this question, stimulating the second-hand market, which will allow consumers to access lower cost EVs. 56% of new vehicles purchased are intended for corporate fleets, which in turn account for 1.5 million vehicles to the second-hand market annually¹⁹. Fleet vehicles may have difficulties in accessing charge points, but also prohibitive costs for grid connections for depot charging facilities, which could be alleviated through RII0-ED2 or through targeted public support.

2. What are the key challenges for consumers already interacting with the sector and how might these change over time as the sector grows?

SSE does not have sufficient experience of consumer interaction with EV charging infrastructure to respond to this question.

3. How do consumers decide which chargepoint services and providers to use? What information do consumers need to make this decision and at what stage in the decision-making process?

SSE does not have sufficient experience of consumer interaction with EV charging infrastructure to respond to this question.

4. Can consumers easily understand and compare charging tariffs in this sector and what barriers, if any, do they face?

This is an issue that has been identified by industry, most notably through the [EV Energy Taskforce](#), and is being addressed by BEIS and Ofgem given it will be important to ensuring drivers have confidence they can switch to an EV. SSE acknowledges interoperability as a key issue, but does not have any further insight into workstreams that are already underway.

5. Do particular groups of consumers face additional challenges to interacting with the sector and if so, who and why? How might these be overcome?

Chargepoint accessibility may act as a barrier for the 2.3m disabled blue badge holders in the UK. Alongside Connected Kerb and disabled motorist groups, including Disabled Motoring UK (DMUK), SSE's network

¹⁹ Fleet Intelligence (2018) - [Fleet Market Report 2018](#)

business SSEN is undertaking 'Equal EV', a project that seeks to understand the requirements and the barriers for disabled and vulnerable motorists to make the switch to EVs. Drivers with disabilities seeking to upgrade to an EV can face multiple obstacles to accessing charging infrastructure, such as heavy, trailing cables that are poorly designed for their use, disabled parking bays lacking charge points and obstructions such as bollards blocking easy access. Equal EV will identify obstacles to EV adoption and will recommend solutions for any barriers to adoption as well as develop and test a wireless charging solution. It will also explore opportunities such as utilising EVs to act as backup power supply to vulnerable households in the event of a power cut.

6. Are there any technological developments or tools that could support consumers to navigate the sector, for example by helping to make more informed choices?

SSE does not currently have relevant experience to respond to this question.

7. Are existing protections offered by consumer law and other measures (such as sector regulations) sufficient?

SSE would point to the work of the [EV Energy Taskforce](#), and ongoing work of BEIS and Ofgem, but does not have any relevant insight to respond to this question.

8. What, if any, open data measures are needed to support consumer interaction, such as through the growth of comparison sites and apps?

SSE does not currently have relevant experience to respond to this question.

9. What else is required to help ensure that the EV charging sector develops in a way that is responsive to consumer needs?

The overview provides SSE's view on what could be done to ensure the roll-out of EV charging infrastructure meets the needs of prospective EV drivers and electricity consumers.