**Specification for analysis to identify what the EV charging requirement for vans are.**

Tender Reference Number: JJ1/1121

**Specification of Requirements**

Invitation to Tender for analysis to identify what the EV charging requirement for vans are.

Tender Reference Number: JJ1/1121

Deadline for Tender Responses: 10th December 2021

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**1 Introduction and summary of requirements / Preamble**

The Climate Change Committee (CCC) is an independent, statutory body established under the Climate Change Act 2008. Our purpose is to advise the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change.

# 2 Background

In November 2020, the UK Government announced that all new sales of conventional petrol and diesel light-duty vehicles must end by 2030. Therefore, the automotive market will need to transition to electric vehicles.

The UK’s transition to EV’s will need infrastructure that takes into account the usage patterns of different drivers. Van drivers typically have different usage patterns to car drivers, making multiple stops a day and many only returning to their base once at the end of the day, whereas cars will usually make one stop before returning to base. Therefore, many vans will need recharging throughout the day at a public charging point. They will also need recharging when returning to base, whether at depot or at home, using public or private slow chargers.

Van drivers also primarily travel on local, rural and A roads so it is essential that chargers are also commonly located on these roads and not just on motorways. Currently, access to 24-hour public rapid chargers across the UK on these roads are limited, compared with that of petrol and diesel stations. Further, though the South-East has the highest proportion of van stock, London has the highest proportion of ULEV vans as a disproportionate share of public charging devices being rolled out are concentrated in London. Therefore, it is essential that the rollout of EV infrastructure is spread more evenly across the UK.

Survey results[[1]](#footnote-1) indicate that the usage of licenced vans range from carrying equipment, tools or materials, delivery/collection of goods, private/domestic non-business use, recreational/leisure and holidays and providing transport to others. Therefore, it is likely that vans travel to a range of sites, for example private residences, commercial premises and industrial estates, spending varying lengths of time at each destination.

As a result, the potential models that may be suitable for cars i.e. widespread provision of charge points in private venues (e.g. workplaces, shopping centres, and car parks) may not be suitable for vans. Options such as rapid charging hubs or on-street charging models could be more appropriate.

This research aims to define the differences between van and car usage patterns and assess the additional charging requirements needed when taking those differences into account.

The CCC previously commissioned Systra to determine the optimal UK charging network for electric vehicles. This research was undertaken in 2017 and did not give explicit consideration to van travel patterns, assuming that van drivers would be able to align their charging behaviours to those of car drivers. However, data from the Department for Transport’s van charging survey and report[[2]](#footnote-2) shows that this is not the case.

Other projects

There is also another project out for tender regarding analysis understand the costs and impacts of potential approaches to providing electric vehicle charging for households without private off-street parking. Results from this project will help inform research for EV charging requirements for vans. Contractors are able to bid for one or both projects. Please see specification JJ2/1121for more information.

# 3 Aims and Objectives

These are the key questions that this research should aim to answer:

* What will the charging behaviours of van drivers look like, and what sort of charge point infrastructure is needed to deliver this?
* How does an optimal public charging network for vans compare to an optimal network for cars 2025, 2030 and 2035?
* To what extent are the potential options for providing public charging infrastructure for cars able to support van charging requirements?
* What will be the additional cost of ensuring EV infrastructure is suitable for van drivers?
* How will the costs incurred by consumers for van charging differ to car charging, if van chargers must primarily use public charge points during the day?

We now discuss each of the five key research questions in turn, setting out the topics that the research should cover.

**Charging behaviour of van drivers and required infrastructure**

Van drivers’ usage patterns differ to that of car drivers. Therefore, the optimal charging network for van drivers may differ from the optimal network for car drivers. Therefore, this research should outline the key differences between usage patterns and charging behaviours to enable the understanding of what additional infrastructure may be required to meet the needs of van drivers.

**Optimal network for vans compared to an optimal network for cars in 2025, 2030 and 2035**

As outlined above, van and car driver usage patterns differ, therefore the optimal network for both is also likely to differ. This section of research should aim to quantify:

* + The length of trips typically undertaken by vans and cars
	+ Current and potential future distances travelled by electric vans and cars, on a single charge
	+ Current and potential future charging times
	+ Access to chargers (i.e. home charging/access to charging overnight)

Based on these findings, the research should then consider what approaches to public charging infrastructure deployment would be able to meet the needs of van drivers.

**Extent to which the current options for deploying public charging infrastructure for cars is able to support van charging requirements**

Building off the outcomes from the previous two research questions, determine whether the current options for deploying public charging infrastructure for cars will efficiently be able to support the charging requirements of van drivers. If these infrastructure approaches are likely to be insufficient, outline what additional infrastructure is required and the timelines for this.

**Costs and impacts to consumers**

This research should also aim to identify the additional costs required to provide charging infrastructure that will meet the needs of van users. This should cover how much investment would be required, under each scenario, to deploy the necessary infrastructure, including the cost of charging devices, the grid upgrades required and any other capital or operational costs. Wider costs should also be considered, for example, costs to the electricity system where there are peaks in demand and vehicle to grid developments.

Costs to consumers must also be considered and a comparison between costs for van drivers and car drivers should be produced. As vans make multiple stops throughout the day, it is likely that they will have to primarily utilise public charging devices, whereas car drivers usually make one stop and then return to base so can potentially make use of private charging devices. How would this impact the cost to van drivers compared with the cost to car drivers? Further, what differences will there be in costs for different van usage profiles (e.g. vans that visit multiple destinations versus those which spend longer durations at a single destination), and how might the need to recharge impact upon van operations?

# Methodology

This research should be conducted through a combination of reviewing existing literature and research as well as sourcing and analysing data relevant to addressing the questions outlined in the previous section.

The project should aim to build on previous research, outlining the optimal charging network for electric vehicles, and outline the key differences of the optimal charging network for vans compared with cars, identifying what else is required for vans.

Research to build on includes Systra research on Britain’s Electric Vehicle Public Charging Network[[3]](#footnote-3), the Department for Transport’s van charging survey and report[[4]](#footnote-4) and results from the recent specification put of by the CCC for “Understanding the costs and impacts of potential approaches to providing electric vehicle charging for households without private off-street parking” (ENTER TENDER REF NUMBER?).

The CCC can provide access to the reports and modelling produced by Systra for the CCC in 2017. This includes the inter-urban and parking-based Excel/VBA models, which may be of interest in understanding potential approaches to modelling charge point provision and utilisation. The CCC can also provide access to its Sixth Carbon Budget scenarios for EV uptake and its assumptions for key variables such as EV battery range, along with reports that explain its findings and the recommendations that it has made to Government in this space. In addition, early results and conclusions from the research project, also out for tender, on charging for households without private-off street parking will be shared to help inform the basis of this project, that should highlight the practical options for the deployment of public charging infrastructure. Data from the Department for Transport’s van charging survey and report can be utilised to provide an evidence-base to understand the differences between car and van usage patterns and aid in assessing what further charging infrastructure is required to suit the needs of van drivers.

The starting point of the research will be to define the charging behaviours of van drivers, as briefly outlined in Section 2, and define a set of scenarios that will be considered and a set of assumptions that can be flexed to deliver the scenario. The scenarios should reflect levels of electric vehicle uptake in line with CCC trajectories. The proportion of electric vehicles in the model that are plug-in hybrids and the proportion that are battery electric vehicles should be defined for each scenario.

The latest evidence from CCC work, industry and academia should be assessed to define a range of flexible assumptions used to deliver the scenarios:

* Current and potential future distances travelled by electric vans on a single charge. A couple of different potential future distances travelled by an electric van on a single charge should be defined and the model should be flexible enough that scenarios can be generated for each variation of these input assumptions.
* Current and potential future charging times (which will incorporate assumptions about the power transfer rate in kWh and battery size for both plug-in hybrid vans and battery electric vans). A couple of different potential future charging times for an electric van should be defined and the model should be flexible enough that scenarios can be generated for each variation of these input assumptions.
* The likelihood of all electric vans having the capability to use rapid chargers in future, as currently not all models support rapid charging. (Differing assumptions should be used for plug-in hybrid vans and battery electric vans). Several different likelihoods should be used and the model should be flexible enough that scenarios can be generated for each variation of these input assumptions.
* The number of chargers required to combat range anxiety.

Conclusions and recommendations should be drawn based on the findings of the research. The potential topics listed are examples of the types of questions that the CCC would find valuable to answer, but there may be others that appear of relevance during the course of the research. These conclusions and recommendations should be determined using the project team’s expert judgement based on the findings of the research.

# Outputs Required

The outputs required from the project include:

* Presentation of the interim and final results from the project to members of the CCC Secretariat and other interested parties.
* A transparent set of tables or Excel spreadsheet (or other appropriate way of visualising the findings) demonstrating the costs associated with each charge point model and showing how these were calculated.
* A summary document explaining the charge point deployment models that have been considered (including a range of public charging infrastructure models and varying possible views of consumer charging behaviour) and the key differences between the optimal network for van charging vs. car charging.
* Details of the consumer impacts that have been calculated for each model, including tables estimating the cost impacts for consumers who do not have access to private off-street charging.
* A technical report summarising the research methodology, the outputs and findings, and the key conclusions and recommendations for actions required to deliver effective charging infrastructure to support a widespread EV rollout.

# Ownership and Publication

The CCC will publish the report to provide an evidenced view of the actions that Government and industry should be taking to provide the infrastructure needed to ensure that van drivers are not negatively impacted by the UK’s EV transition. The CCC intends to use these findings as the basis for monitoring progress towards delivering this transition in an effective and fair manner, including through our annual Progress Reports to Parliament.

# Quality Assurance

All research tasks and modelling must be quality assured and documented. Contractors should:

* Include a quality assurance (QA) plan that they will apply to the modelling
* Specify who will take lead responsibility for ensuring quality assurance. This responsibility should rest with an individual not directly involved in the research or analysis.
* Provide a QA log to demonstrate the QA undertaken, which must identify who undertook the QA and the scope, type and level of QA that has been undertaken.

Sign-off for the quality assurance must be done by someone of sufficient seniority within the contractor organisation to be able to take responsibility for the work done. Acceptance of the work by the CCC will take this into consideration. The CCC reserves the right to refuse to sign off outputs which do not meet the required standard specified in this invitation to tender.

The successful tenderer will be responsible for any work supplied by sub-contractors and should therefore provide assurance that all work in the contact is undertaken in accordance with the quality assurance expectation agreed at the beginning of the project.

The CCC expects that:

* Economic analysis must be delivered in a simple, transparent Excel spreadsheet, where key assumptions (agreed with the CCC) are clearly stated. All assumptions and figures should be adequately referenced, and include any supporting workings. Any such spreadsheets will be the property of the CCC.
* Existing analysis and published research should be reviewed and considered in developing the scenarios and approaches to be analysed within this assignment.
* Analysis should appropriately reflect uncertainty regarding model inputs. Where appropriate, a sensitivity analysis of key parameters should be conducted.

# Timetable

The proposed timetable for the project is set out in the following table:

|  |  |
| --- | --- |
| Date | **Action/deliverable** |
| w/c 1st November | Advertise tender |
| 10th December | Deadline for responses to tender |
| w/c 14th March | Interviews (if required) |
| w/c 4th April | Kick-off meeting |
| w/c 9th May | Interim meeting |
| w/c 16th May | Summary document explaining the scenarios that have been considered |
| w/c 13th June | Interim report |
| w/c 11th July | Final report agreed with CCC, ready for publication |

The CCC is willing to be flexible with timelines and will consider alternative timetable proposals.

# Challenges

Tenderers should highlight any challenges or risks that they envisage in delivering all the outputs of the project, whether in terms of scope of the work, resources or timelines. Alternative suggestions will be considered if the risks are such that the project is unlikely to be able to be delivered in its current form.

# Working Arrangements

The successful contractor will be expected to identify one named point of contract through whom all enquiries can be filtered. A CCC project manager will be assigned to the project and will be the central point of contact.

# Skills and experience

 CCC would like you to demonstrate that you have the experience and capabilities to undertake the project. Your tender response should include a summary of each proposed team members experience and capabilities.

 Contractors should propose named members of the project team, and include the tasks and responsibilities of each team member. This should be clearly linked to the work programme, indicating the grade/ seniority of staff and number of days allocated to specific tasks.

Contractors should identify the individual(s) who will be responsible for managing the project.

# Consortium Bids

In the case of a consortium tender, only one submission covering all of the partners is required but consortia are advised to make clear the proposed role that each partner will play in performing the contract as per the requirements of the technical specification. We expect the bidder to indicate who in the consortium will be the lead contact for this project, and the organisation and governance associated with the consortia.

Contractors must provide details as to how they will manage any sub-contractors and what percentage of the tendered activity (in terms of monetary value) will be sub-contracted.

If a consortium is not proposing to form a corporate entity, full details of alternative proposed arrangements should be provided. However, please note CCC reserves the right to require a successful consortium to form a single legal entity in accordance with Regulation 28 of the Public Contracts Regulations 2006.

CCC recognises that arrangements in relation to consortia may (within limits) be subject to future change. Potential Providers should therefore respond in the light of the arrangements as currently envisaged. Potential Providers are reminded that any future proposed change in relation to consortia must be notified to CCC so that it can make a further assessment by applying the selection criteria to the new information provided.

Bidders are also able to bid for the tender regarding analysis to understand the costs and impacts of potential approaches to providing electric vehicle charging for households without private off-street parking. Contractors are able to bid for one or both projects.

# Budget

The budget for this project is £29,160 excluding VAT.

Contractors should provide a full and detailed breakdown of costs (including options where appropriate). This should include staff (and day rate) allocated to specific tasks.

Cost will be a criterion against which bids which will be assessed.

Payments will be linked to delivery of key milestones. The indicative milestones and phasing of payments can be adjusted and agreed with the contractor and Project Manager. Please advise in your tender response how this breakdown reflects your usual payment processes:

In submitting full tenders, contractors confirm in writing that the price offered will be held for a minimum of 60 calendar days from the date of submission. Any payment conditions applicable to the prime contractor must also be replicated with sub-contractors.

The Committee on Climate Change aims to pay all correctly submitted invoices as soon as possible with a target of 10 days from the date of receipt and within 30 days at the latest in line with standard terms and conditions of contract.

# Evaluation of Tenders

Contractors are invited to submit full tenders of no more than 35 pages, excluding declarations and CV’s. Tenders will be evaluated by at least three CCC staff.

CCC will select the bidder that scores highest against the criteria and weighting listed below, see the ITT for further information.

**EVALUATION CRITERIA AND SCORING METHODOLOGY**

|  |  |  |
| --- | --- | --- |
| Criterion | **Description** | **Weighting** |
| 1 | RELEVANT EXPERIENCE / DEMONSTRATION OF CABABILITY | 20% |
| 2 | MANAGING YOUR RELATIONSHIP WITH THE CCC | 10% |
| 3 | QUALITY ASSURING THE SERVICES YOU PROVIDE | 10% |
| 4 | MANAGEMENT STRUCTURE | 10% |
| 5 | PROJECT TEAM – SKILLS AND KNOWLEDGE | 20% |
| 6 | METHOD, ABILITY AND TECHNICAL CAPACITY – 10% | 10% |
| 7 | UNDERSTANDING OF REQUIREMENTS | 10% |
| 8 | RISK AND CHALLENGES | 10% |

**Scoring Method**

Tenders will be scored against each of the criteria above, according to the extent to which they meet the requirements of the tender. The meaning of each score is outlined in the table below.

The total score will be calculated by applying the weighting set against each criterion, outlined above; the maximum number of marks possible will be 100. Should any contractor score 1 in any of the criteria, they will be excluded from the tender competition.

|  |  |
| --- | --- |
| Score | **Description** |
| 1 | Not Satisfactory: Proposal contains significant shortcomings and does not meet the required standard |
| 2 | Partially Satisfactory: Proposal partially meets the required standard, with one or more moderate weaknesses or gaps  |
| 3 | Satisfactory: Proposal mostly meets the required standard, with one or more minor weaknesses or gaps. |
| 4 | Good: Proposal meets the required standard, with moderate levels of assurance |
| 5 | Excellent: Proposal fully meets the required standard with high levels of assurance |

**Scoring for Pricing Evaluation**

Price will be marked using proportionate pricing. Please see the example below.

Marking proportionate to the lowest price.

Price will be scored as set out below.

There will be a maximum of e.g. 20 marks

The lowest priced bid will receive the full 20 marks, all other bids will then be marked as set out below.

Proportionate Pricing scoring example

If 20% = 20 marks

|  |  |  |
| --- | --- | --- |
| Supplier | **Price** | **Marks** |
| 1 (lowest bid) | £25,000 | 20 |
| 2 | £30,000 | 25/30 \* 20 = 16.7 |
| 3 | £35,000 | 25/35 \* 20 = 14.3 |

**Structure of Tenders**

Contractors are strongly advised to structure their tender submissions to cover each of the criteria above and supply a price schedule specifying the daily rates (ex-VAT) you will charge for each level of your staff.

**Evaluation for Interviews, if held**

CCC reserves the right to award the contract based on applicants’ written evaluation only if one candidate emerges from the evaluation stage as significantly stronger than the others.

Should interviews go ahead, CCC will shortlist the top three suppliers with the highest marks from the written proposals. Interviews are provisionally expected to be held on w/c 14th March. If this date changes, CCC will notify applicants.

The areas to be covered in the interview, and markings allocated to each topic area will be sent to the shortlisted supplier prior to interview.

Further details of interviews will be sent to successful applicants on selection.

**Feedback**

Feedback will be given in the unsuccessful letters or emails.

1. Department for Transport (2021), [Final Van Statistics: April 2019-March 2020 (publishing.service.gov.uk)](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/978087/van-statistics-2019-to-2020.pdf) [↑](#footnote-ref-1)
2. Department for Transport (2021), [Final Van Statistics: April 2019-March 2020 (publishing.service.gov.uk)](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/978087/van-statistics-2019-to-2020.pdf) [↑](#footnote-ref-2)
3. Systra (2018), Plugging the Gap: An Assessment of Future Demand for Britain’s Electric Vehicle Public Charging Network [↑](#footnote-ref-3)
4. Department for Transport (2021), [Final Van Statistics: April 2019-March 2020 (publishing.service.gov.uk)](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/978087/van-statistics-2019-to-2020.pdf) [↑](#footnote-ref-4)