MY ELECTRIC AVENUE

Social Trials Information Pack

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1. Introduction

My Electric Avenue has been seeking clusters of at least 10 neighbours where each person will drive an electric vehicle (EV) for 18 months as part of a 'technical' trial to test a new technology. The technical trial places are now almost full. However, people can now get involved through the My Electric Avenue social trials.

The social trials will still enable you to be part of the UK's largest EV trial to test and shape the electricity network of the future. You can lease a new electric Nissan LEAF through My Electric Avenue as part of the social trials.

There are only 100 places available under the social trials. Anyone living in the UK can apply.

Purpose of the social trials

The social trials are designed to give us confidence in the results of the technical trials for two reasons:

1. To enable a statistical comparison of the behaviour of participants taking part in our technical trials, regarding driving and charging habits to the larger population, and,
2. To check that the participants within the trials are a true representation of the population as a whole.

The social trials will also enable an understanding of EV customer behaviour and implications for monitoring and controlling EV charging in future

Taking part in the social trials

You can lease an electric Nissan LEAF through our My Electric Avenue social trials. The lease will be arranged for 18 months, at a specially negotiated rate, although this will not be at the same reduced rate as the technical trials. You can live anywhere in the UK to take part in the social trials, and you apply as an individual or group. There is no requirement to have any technology installed to monitor and control charging at your home. Although the charging point is not provided as part of the social trial, we can signpost you to a provider that should be able to install a charge point for no cost, or at fraction of the normal market cost (subject to factors such as suitability of the premises).

As part of the trial, data will be collected from the car to monitor driving patterns, capturing mileage and time of journeys.

All applications are subject to eligibility and availability. Unfortunately, we cannot guarantee that all who apply will be able to take part, and all applications will be subject to a successful credit check.

2. About the Project

Electric vehicles (EVs) are starting to become more commonplace on our streets, and small pockets, or 'clusters', of EV owners are already forming, placing more demand on the local electricity network.

Whilst there's plenty of capacity to deliver power for EV charging across the UK, if the charging requirements are concentrated in small areas and during peak demand, local feeders can become overloaded. With the development of even faster charging times, this problem shows no signs of fading.

The full size and scale of the problem that EV clusters could cause will only become apparent to Distribution Network Operators (DNOs), who own and maintain the electricity network, when they are already connected, demanding costly mitigation measures in short timescales.

EA Technology and Scottish and Southern Energy Power Distribution (SSEPD) are working together with partners under the Ofgem Low Carbon Networks (LCN) Fund to develop a ready-made low cost solution. EA Technology is developing an EV charge control system to balance out the charging cycles of EVs at times of network stress.

To test the system the trial will need to simulate a future EV network, and to do this, clusters of EVs need to be 'created'. To encourage customer participation, neighbours will be offered a 'group' deal; where they will be given a very low rental price for an EV for 18 months, if they all sign up together. In return, participants will allow their EV charger to be controlled, their EV data to be collected, and they will provide feedback on their experience. Recorded data will include the times of day they wish to charge their EV, and how far they drive between charging. Experience will be captured using surveys.

The success of this trial relies on close working between DNOs, technology developers, communities, EV manufacturers, academics, car leasing companies and most importantly, those taking part in each cluster!

What will be learnt?

The knowledge gained from My Electric Avenue project will be shared amongst network operators, government, the energy industry, the low carbon vehicle sector and the general public as a whole. The learning is focused around two core 'learning outcomes':

Commercial: To what extent does a DNO enabling a third party delivery of innovation accelerate deployment?

Technical: To what extent can DNO direct demand control facilitate the connection of low carbon technology?

There will be a series of reports and other project deliverables produced to demonstrate this learning. Visit the Project Library for the latest reports: www.myelectricavenue.info/project-library. In addition, newsletters will keep participants up to date.

The growth of electric vehicles

There are lots of EV sales forecasts in existence in various reports yet there is no industry consensus on the numbers of EVs by 2020. We're not expecting it to be easy to predict the exact number of EV sales in the UK in seven years' time, but the different forecasts have a massive range from around 100,000 to 1.5 million.

Starting with the Committee on Climate Change, it foresees the market for EVs and plug-in hybrids will have to reach 16% (of all new cars sold) by 2020 in order to achieve the UK's targets.

The UK Department for Transport (DfT) scenario for 2020 is for 1.2 million EVs to be on the road, and 350,000 Plug-in Hybrid Electric Vehicles (PHEVs) - so around 1.5 million in total.

Other forecasts for the numbers of electric vehicles by 2020 are significantly lower. The European Automobile Manufacturers' Association (ACEA) says 3-10%, LMC Automotive predicts 8%, and Morgan Stanley reckons that, globally, there will only be 4.5% battery EVs by 2025.

The Institute of Economic Affairs (IEA) predicts 1.1 million EV and PHEV sales globally by 2015, 6.9 million by 2020, and 106 million by 2050.

Taking an average of the above, around 10% of new cars in the UK to be plug-in vehicles by 2020 seems like a reasonable maximum. The total UK new car market each year is approximately 2 million cars - so this would equate to around 200,000 EVs (all types) sold in 2020. Add this to the number of EVs already on the road between now and 2020 and there could be 1 million EVs on the road by the end of 2020 - i.e. in seven years' time. The minimum figure is likely to be 250,000 EVs by that stage.

Read more here: 7 reasons why electric vehicle sales are likely to grow from their current low numbers in the UK

The need for the project

As sales of electric vehicles increase there is a need to assess the potential impact that a cluster of EVs may have in a local area served by one electricity feeder. In the event of all EVs being recharged at the same time, and without any preparation, the load on the local electricity network may exceed the network capacity.

Objectives of the project

The project will provide essential information about managing the strain on the electricity distribution network from the anticipated increased uptake of EVs. It will also deliver a cost-effective solution to Distribution Network Operators (DNOs) that reduces the need for costly and disruptive network reinforcement, and increases the potential for a faster uptake of EVs. It demonstrates a new way of working with a third party leading one of Ofgem's Low Carbon Networks (LCN) Fund supported projects.

The local electricity network

The project focuses on the electricity network that supplies homes and small businesses - the Low Voltage (LV) network. Electricity networks are built to provide energy to customers in a secure, reliable, and sustainable way. The project will trial and demonstrate practical and cost-efficient solutions to alleviate the potential impact of clusters of EVs being charged on a local network. Find out about who does what in the electricity industry at: www.nationalgrid.com/uk/Electricity/AboutElectricity

We currently only have 100 places available for the social trials, so cars will be allocated on a first come, first served basis.

What you will be required to do

While taking part in the social trials you will be asked to provide feedback on the project and your driving habits. You will be sent two online surveys to complete over the duration of the 18 month trial period.

To allow us to collect data on the mileage and time of journeys, the car will automatically ask you to press a button each time you drive.

To find out more about leasing a Nissan LEAF as part of the My Electric Avenue social trials, contact us at myelectricavenue@eatechnology.com or register your interest at http://myelectricavenue.info/how-apply.

The Nissan LEAF

The Nissan LEAF is an all-electric five-door family hatchback. It needs no fuel such as petrol or diesel, and it has zero tailpipe emissions, no clutch or gears, and is virtually silent to drive. It needs to be plugged in to the electricity supply to charge it and while the LEAF has a range of around 80 miles* on a single charge, you are advised to consider how the vehicle would fit into your lifestyle and the charging facilities which are available to you if you embark upon journeys which are close to the vehicle's range. This could include, for example, workplace charging if your commute is close to half of the range of the vehicle, or publicly-accessible charge points.

* Range may be affected by a number of factors including driving style, type of driving, topography, and use of features such as air conditioning.

More information about the Nissan LEAF:
http://www.myelectricavenue.info/nissan-leaf

3. FAQs

The Project

What is the aim of My Electric Avenue?

My Electric Avenue is an important trial to learn about managing the strain on the electricity distribution network from the anticipated increase in electric vehicles (EVs). It will also deliver a cost-effective solution to Distribution Network Operators (DNOs), who own and maintain the electricity network. It reduces the need for expensive, disruptive network reinforcement (that we would ultimately pay for in electricity bills) and increases the potential for a faster uptake of EVs.

What's the problem that needs solving?

The forecasted growth in EVs is expected to cause an increase in peak-time demand for electricity; this effect will be seen both locally and nationally. At the local level there is a risk that low voltage cables could become overloaded if multiple EVs are connected for charging at the same time and during the normal daily peaks in electricity demand, e.g. the early evening peak at home when people return from work, or during the day at work. This situation may result in costly and disruptive cable reinforcement (i.e. digging up the roads).

What's the proposed solution?

EA Technology has developed monitoring and control technology. This solution will delay, and in some cases avoid, the need for additional electrical infrastructure - which would be costly and disruptive, as well as taking significant time - to accommodate the forecast increase in EVs.

What's the approach of the project?

1. To test the monitoring and control technology by recruiting 'clusters' of EV users, both residential and business; all people in a cluster must be fed by the same local electricity feeder. The 'Cluster trials', i.e. those participating in the trial as a group, aim to simulate a 2030 network. As a general guide, one substation feeder may supply one or two streets.

2. To monitor EV users in clusters and as individuals ('social trials') for behavioural and socio-economic data - e.g. their driving and charging habits will be recorded.

The results of these trials will be of interest and will be communicated to the GB electricity industry, to UK government, to the energy and transport industry and to the general public. We will begin to understand what an 'EV-ready' street of the future may look like, and what the implications might be for our electricity network.

Who are the project partners?

My Electric Avenue is led by EA Technology, with the following project partners:

- Scottish and Southern Energy Power Distribution Limited (SSEPD) (the host Distribution Network Operator, or DNO)
- Nissan (EV supplier)
- Fleetdrive Electric (EV rental programme management)
- Zero Carbon Futures (charging point network developer)
- Northern Powergrid (a collaborating DNO)

In addition there are a number of supporting partners:

- The University of Manchester (providing network modelling support)
- De Montfort University (providing socio-economic modelling support)
- Ricardo (providing independent technical verification)
- Automotive Comms (specialist in EV communications)

Who is responsible for different phases of the project?

EA Technology is the project lead and responsible for customer engagement and all 'usual' project management elements. Fleetdrive Electric will manage the rental programme; Zero Carbon Futures will install the charging points (technical trials only); De Montfort University will be in touch to do the surveys.

What is unique about the project?

This is the first time a private company, EA Technology, rather than an electricity company (i.e. a Distribution Network Operator or DNO) will lead and manage an Ofgem Low Carbon Networks (LCN) Fund project, and it will create a blueprint for how DNOs and third parties can work together in the future.

How is the project funded?

The project has received support from Ofgem through the LCN Fund. The Fund supports projects sponsored by the DNOs to try out new technology, operating and commercial arrangements. The objective of the fund is to support projects that help DNOs understand what they need to do to provide security of supply, at value for money, as the UK moves to a low carbon economy.

What subsidies and support have been provided?

The majority of funding for project delivery comes directly from Ofgem. Project partners are providing significant 'in-kind' support - we have brokered a unique deal with Nissan for reduced rental (which Ofgem is then subsidising further); Ofgem simply wouldn't pay for the entire subsidy. The full costs breakdown can be found in the bid paperwork, in the 'Project Library' section of the website.

What's happening elsewhere in the UK - other projects?

There have been no UK trials of a simple technology to address the issue of managing network overload from domestic electric vehicle charging - i.e. as My Electric Avenue is trialing. There have been other trials of electric vehicles in the UK, primarily to assess people's experience of using electric vehicles. The most

significant trials have been conducted through the Technology Strategy Board, see:

www.green-car-guide.com/trial-shows-electric-vehicles-already-satisfy-our-daily-needs.html

What are the channels of communication for the project?

For any queries or concerns relating to the Nissan LEAF, rental payments, maintenance, etc please contact Fleetdrive Electric on **08444 935579.**

For any queries or concerns about the project itself, contact EA Technology on 0151 347 2221 or via the project e-mail address myelectricavenue@eatechnology.com

What type of information will I be asked for during the trial?

De Montfort University will need information about you and your household, for example your age, gender, number of people in your household, etc. This will help to understand how different types of people and households use an Electric Vehicle.

De Montfort University will ask for information about your experiences in using the Electric Vehicle. This may include, for example, what types of trips you use your Electric Vehicle for, when you decide to charge your Electric Vehicle, and any concerns or problems you may have in using or charging your Electric Vehicle.

How often will I be contacted and how will information be collected?

You will be sent two online surveys over the duration of the trial period to complete. Each survey will take approximately 15 to 20 minutes to complete. The surveys will be web-based but if you are unable to complete them online De Montfort University can arrange for you to complete them over the phone.

How will the data that I provide be protected? Who will have access to my data, to what extent will it be visible in the project outputs and what will happen to it after completion of the trials?

The project operates under a Data Protection Strategy which can be found in the Project Library on the website www.myelectricavenue.info

5. The Partners

EA Technology

EA Technology is an employee-owned organisation offering high-tech instruments, software, electrical services and technical consultancy to the operators of power networks around the world. Through its Future Networks division it delivers innovative end-to-end solutions to facilitate the introduction of low carbon technologies to future proof electricity networks, resulting in lower cost connections, prompt adoption and reduced risk to business. **www.eatechnology.com**

Scottish and Southern Energy Power Distribution

Scottish and Southern Energy Power Distribution Limited, and its subsidiaries Scottish Hydro Electric Transmission, Southern Electric Power Distribution and Scottish Hydro Electric Power Distribution, are all members of the SSE Group. Through its Power Distribution business, it transmits and distributes electricity to over 3.7 million businesses, homes and offices in central southern England and the north of Scotland. **www.ssepd.co.uk**

Nissan

Nissan has one of the most comprehensive European presences of any overseas manufacturer, employing more than 14,500 staff across locally-based design, research & development, manufacturing, logistics and sales & marketing operations Last year, Nissan plants in the UK, Spain and Russia produced more than 528,000 vehicles - including mini-MPVs, award-winning crossovers, SUVs and commercial vehicles. Nissan now offers 24 diverse and innovative products for sale in Europe today, and is positioned to become the number one Japanese brand in Europe. **www.nissan.co.uk**

Fleetdrive Electric

Fleetdrive Electric is the UK's leading lease provider of Ultra Low Emission Vehicles. It is a division of Fleetdrive Management Ltd which provides cars and vans and associated services to SMEs in the UK. **www.fleetdrive-electric.com**

Zero Carbon Futures

Zero Carbon Futures is a recently established consultancy in North East England set up to deliver a range of local, national and international programmes all geared up to advance the region as a European leader in the production of low carbon vehicles. The company has a range of experience in the low carbon sector and is currently developing a centre of excellence for the LCV sector in Sunderland, North East England which will house pioneering research in energy storage and smart home technology. The company successfully managed the North East England's Plugged in Places programme, Charge Your Car, which has installed the UK's most

comprehensive regional EV charge point network throughout North East England, and is now developing a national UK Pay as You Go EV charge point network with its partner Elektromotive. For more information on our work, contact us at **www.zerocarbonfutures.co.uk**

Northern Powergrid

Northern Powergrid is the electricity distribution business for Northeast England, Yorkshire and northern Lincolnshire. The company is responsible for delivering power safely and reliably to the 3.9 million electricity domestic and business customers in this area and operates through its subsidiaries, Northern Powergrid (Northeast) Ltd and Northern Powergrid (Yorkshire) plc. Northern Powergrid is a wholly owned subsidiary of MidAmerican Energy Holdings Company. Northern Powergrid's network consists of more than 31,000 substations, 29,000 kilometres of overhead line and 62,000 kilometres of underground cable, covering an area of more than 25,000 square kilometres. Northern Powergrid is leading moves towards a low carbon electricity network through the UK's largest smart grid project, 'the customer-led network revolution'. Information on Northern Powergrid is available at **www.northernpowergrid.com**

6. Contact

If you would like any further information about the My Electric Avenue project, please get in touch:

Becky Lees

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My Electric Avenue

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For more information visit the project website:
www.myelectricavenue.info

Project leads

Scottish and Southern Energy
Power distribution

Project partners

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