

MY ELECTRIC AVENUE



DRIVING TOGETHER
FOR A CLEANER FUTURE

MY ELECTRIC AVENUE



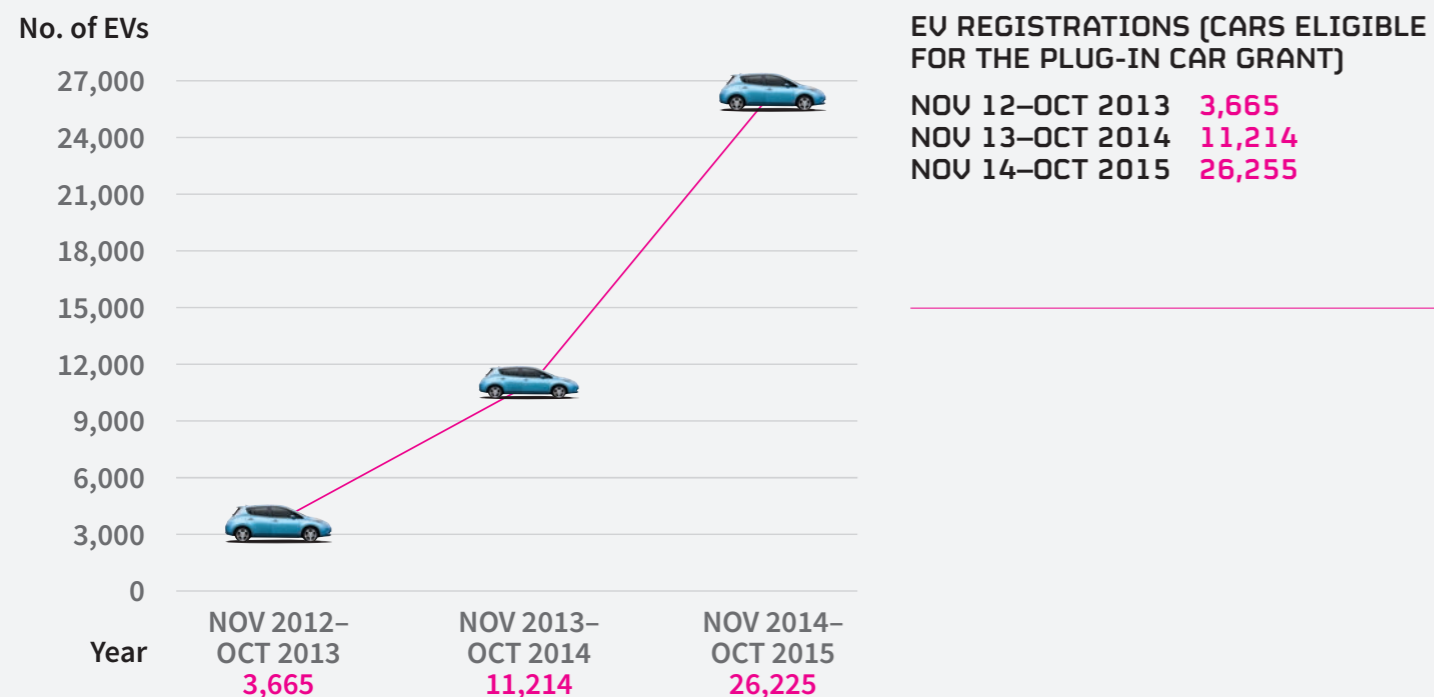
MY ELECTRIC AVENUE HAS BEEN TRIALLING NEW TECHNOLOGY TO HELP ELECTRICITY DISTRIBUTION COMPANIES MANAGE THE DEMANDS FROM INCREASING NUMBERS OF ELECTRIC VEHICLES.

THIS IS WHAT WE'VE LEARNT.

MY ELECTRIC AVENUE

716% RISE IN PLUG-IN CAR SALES OVER THE LAST TWO YEARS

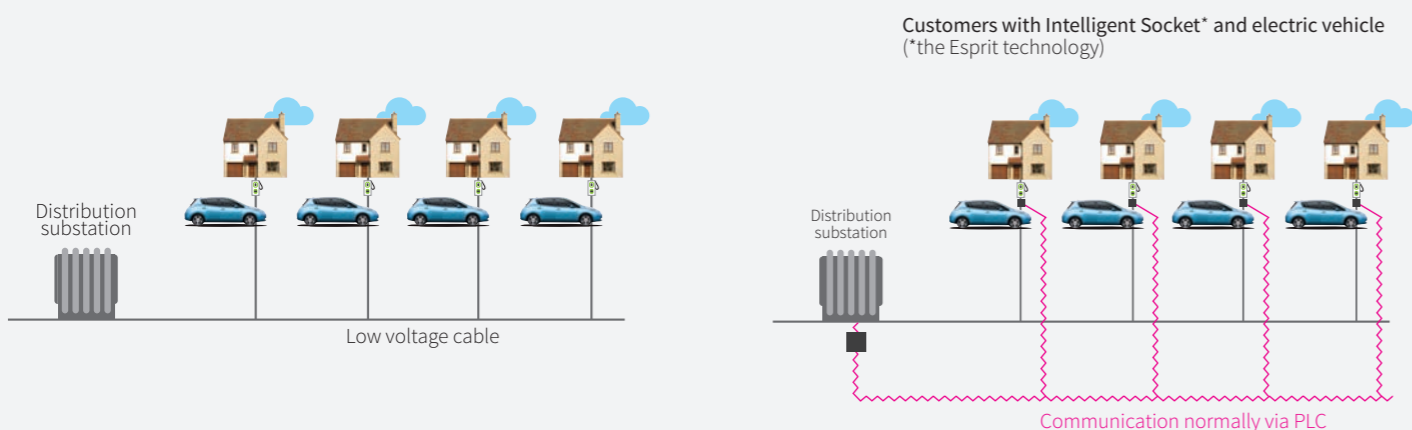
EV REGISTRATIONS (CARS ELIGIBLE FOR THE PLUG-IN CAR GRANT)



EV REGISTRATIONS (CARS ELIGIBLE FOR THE PLUG-IN CAR GRANT)

NOV 12-OCT 2013 **3,665**
 NOV 13-OCT 2014 **11,214**
 NOV 14-OCT 2015 **26,255**

CAN LOCAL ELECTRICITY NETWORKS COPE WHEN LARGE NUMBERS OF ELECTRIC VEHICLES ARE CHARGED AT PEAK TIMES?



IF NOT, WHAT CAN WE DO ABOUT IT?

FOREWORD

EA Technology is delighted to have led the My Electric Avenue project. The results mean that we now have a much better understanding of how the local electricity network is likely to cope as sales of plug-in vehicles continue to rise. In areas where there may be capacity challenges, we also have a solution that can help minimise the need to upgrade some networks – and this translates to some huge cost savings that you will see in this report.

So the headline outcomes from My Electric Avenue are impressive. However the actual journey down My Electric Avenue has also been very interesting.

When we first presented the idea for My Electric Avenue – including the need to recruit 100 neighbours to drive an electric car for 18 months as part of the trial – many people believed that it could not be done. But the project did indeed find 100 people who were interested to trial an electric car and associated new technology to control their charging. In fact many thousands of people expressed interest in taking part via our website.

A huge thank you needs to go to the ‘cluster champions’, who played a key role in leading the recruitment of the groups of neighbours who took part. Their enthusiasm about the concept of an ‘electric avenue’, which they passed on to the people they helped to recruit, helped to ensure the project was such a success.

Finally, I would like to thank all the project partners. They are listed elsewhere in this brochure, and all the partners that were there at the start of the project were also there at the end. Without such an effective team, My Electric Avenue would not have been able to present the learning outcomes contained in this report.

We now understand more about the ability of local electricity networks to cope with charging clusters of electric cars at peak times, but that doesn’t mean that our work is done. We now know that there is an issue, and EA Technology will continue to work with industry – the energy industry and the automotive industry – to ensure we can charge the ever-growing numbers of plug-in cars and also keep our lights on.

Robert Davis
 Chief Executive Officer
 EA Technology



CONTENTS

WHAT IS MY ELECTRIC AVENUE?	04
THE AIMS OF THE PROJECT.	06
WHY IS MY ELECTRIC AVENUE UNIQUE?	07
CAN LOCAL ELECTRICITY NETWORKS COPE WHEN LARGE NUMBERS OF EVS ARE CHARGED AT PEAK TIMES?	09
WHAT CAN WE DO ABOUT THE CAPACITY ISSUE WITH SOME LOCAL ELECTRICITY NETWORKS?	10
OTHER LEARNING FROM THE PROJECT.	11
THE SUCCESSES OF THE PROJECT.	13
MY ELECTRIC AVENUE PROJECT PARTNERS AND ROLES.	14
THE FUTURE.	16

WHAT IS MY ELECTRIC AVENUE?

MY ELECTRIC AVENUE, A PIONEERING OFGEM-FUNDED PROJECT, HAS BEEN EXAMINING THE IMPACT OF ELECTRIC VEHICLES (EVS) ON THE LOCAL ELECTRICITY NETWORK AS SALES OF EVS CONTINUE TO RISE.

THE PROJECT HAS BEEN ADDRESSING TWO KEY, PREVIOUSLY UNANSWERED QUESTIONS:

**CAN LOCAL ELECTRICITY NETWORKS COPE WHEN LARGE NUMBERS OF EVS ARE CHARGED AT PEAK TIMES?
IF NOT, WHAT CAN WE DO ABOUT IT?**

My Electric Avenue has been working with specially created clusters of neighbours around the country who have all been driving Nissan LEAF electric cars for 18 months. This has been carried out to mimic a future scenario where many people in an area choose to use a pure electric vehicle or plug-in hybrid electric vehicle (PHEV).

The project has been led by EA Technology, a trusted third party innovation technology deliverer, with project partners Scottish and Southern Energy Power Distribution Limited (SSEPD) (the lead Distribution Network Operator, or DNO), Nissan (EV supplier), Fleetdrive Electric (EV rental programme management), Zero Carbon Futures (charging point network developer) and Northern Powergrid (participating DNO). In addition there are two academic partners, the University of Manchester (providing network modelling support), and De Montfort University (providing socio-economic support). Ricardo has been providing independent technical verification to the project.

The project set out to look for ten 'electric avenues' – groups or 'clusters', with ten people or more – where each person would drive an electric car for 18 months to trial a new technology, 'Esprit', which would monitor and control the electricity used when their car was being charged.

The Esprit system is designed to avoid any potential power outages and damage to network infrastructure by temporarily curtailing high load devices to reduce the overall load on a single feeder or transformer.

Over 100 people in different clusters around Britain were successfully recruited to My Electric Avenue's Technical Trials. A further 100 people were recruited to the project's Social Trials; they also drove Nissan LEAF electric cars, but they didn't need to be in a cluster and they didn't have the Esprit technology fitted.

The project aimed to provide essential learning about managing the strain on the distribution network from the anticipated increased uptake of EVs, and to deliver a cost-effective solution to DNOs to reduce the need for network reinforcement and allow a faster uptake of EVs.

My Electric Avenue is the public-facing name for the Ofgem Low Carbon Networks Fund project which is officially titled 'I2EV - Innovation Squared: managing unconstrained EV connections'.



A BRIEF HISTORY

**NOV 2012:
PROJECT AWARDED
FUNDING**

**JAN 2013:
PROJECT FORMALLY
COMMENCED**

**MAR 2013–MAR 2014:
RECRUITMENT OF
CLUSTERS**

**JAN 2014–JUN 2015:
TRIAL UNDERWAY**

**JUN 2015:
END OF TRIAL**

**JUL–DEC 2015:
COMMUNICATION OF
RESULTS**

**DEC 2015:
END OF PROJECT**

**2016-2018:
LEGACY INITIATIVE**



THE AIMS OF THE PROJECT

THE AIMS OF THE PROJECT WERE SPLIT INTO TWO KEY CATEGORIES: COMMERCIAL AND TECHNICAL.

THE COMMERCIAL AIMS OF THE PROJECT WERE TO:

1. Demonstrate delivery of a LCN Fund project by a non-DNO on behalf of a DNO
2. Develop a novel commercial arrangement within which other SMEs could emulate the working practices of the project
3. Enable all procurement related to the project activity to be managed by a non-DNO
4. Evaluate the extent to which third party delivery accelerates deployment of LCN Fund projects.

THE TECHNICAL AIMS OF THE PROJECT WERE:

1. To learn customer driving and EV charging habits
2. To trial equipment to mitigate the impact of EV charging
3. To explore the network benefits of such technology.

The outputs that the project had to produce, as part of the contract with Ofgem, are called Successful Delivery Reward Criteria (SDRC). My Electric Avenue has produced a number of detailed SDRC reports, which can be found at: www.myelectricavenue.info

THIS REPORT PROVIDES A SUMMARY OF THE MOST SIGNIFICANT OUTCOMES FROM MY ELECTRIC AVENUE.

WHY IS MY ELECTRIC AVENUE UNIQUE?

1. THE FIRST PROJECT TO FOCUS PURELY ON THE IMPACT OF EVS ON THE LOCAL ELECTRICITY NETWORK

My Electric Avenue has been the first project to focus on how best to manage the local electricity network when a large number of EVs charge in the same street at the same time.

2. THE FIRST PROJECT TO DIRECTLY CONTROL DOMESTIC EV CHARGING

My Electric Avenue has been the first trial that directly controls domestic EV charging to prevent underground cables, overhead lines and substations being overloaded – as well as exploring the acceptance amongst EV drivers of direct control of their charging.

3. THE FIRST PROJECT WITH COMMUNICATION OF THIS TYPE FROM A HOUSE TO A SUBSTATION

Technical innovation: The first trial using technology which monitors and controls the demand on the local electricity network as a result of the charging of EVs, communicating from an individual's house or commercial premises to an electricity substation.

4. THE FIRST PROJECT OF ITS KIND MANAGED BY A PRIVATE COMPANY

Commercial innovation: This is the first time a private company, EA Technology, rather than an electricity company (i.e. a Distribution Network Operator or DNO) has led and managed an Ofgem Low Carbon Networks Fund project. It has created a blueprint for how DNOs and third parties can work together in this way in the future.



THIS HAS BEEN THE FIRST PROJECT TO FOCUS ON HOW BEST TO MANAGE THE LOCAL ELECTRICITY NETWORK WHEN A LARGE NUMBER OF EVS CHARGE IN THE SAME STREET AT THE SAME TIME.



CAN LOCAL ELECTRICITY NETWORKS COPE WHEN LARGE NUMBERS OF EVS ARE CHARGED AT PEAK TIMES?

MY ELECTRIC AVENUE'S 18 MONTH TRIAL SHOWS THAT SOME LOCAL ELECTRICITY NETWORKS WILL REQUIRE UPGRADES TO HELP MANAGE THE INCREASE IN DEMAND THAT COMES WITH MORE AND MORE PEOPLE CHANGING OVER TO EVS.

The results of the project's modelling has shown that across Britain 32% of low voltage (LV) feeders (312,000 circuits) will require intervention when 40% – 70% of customers have EVs, based on 3.5 kW (16 amp) charging.

Susceptible networks are typically characterised by available capacity of less than 1.5 kW per customer.

My Electric Avenue has analysed the various kinds of low voltage networks in the UK and four types are expected to experience issues due to the uptake of EVs at differing penetration levels.

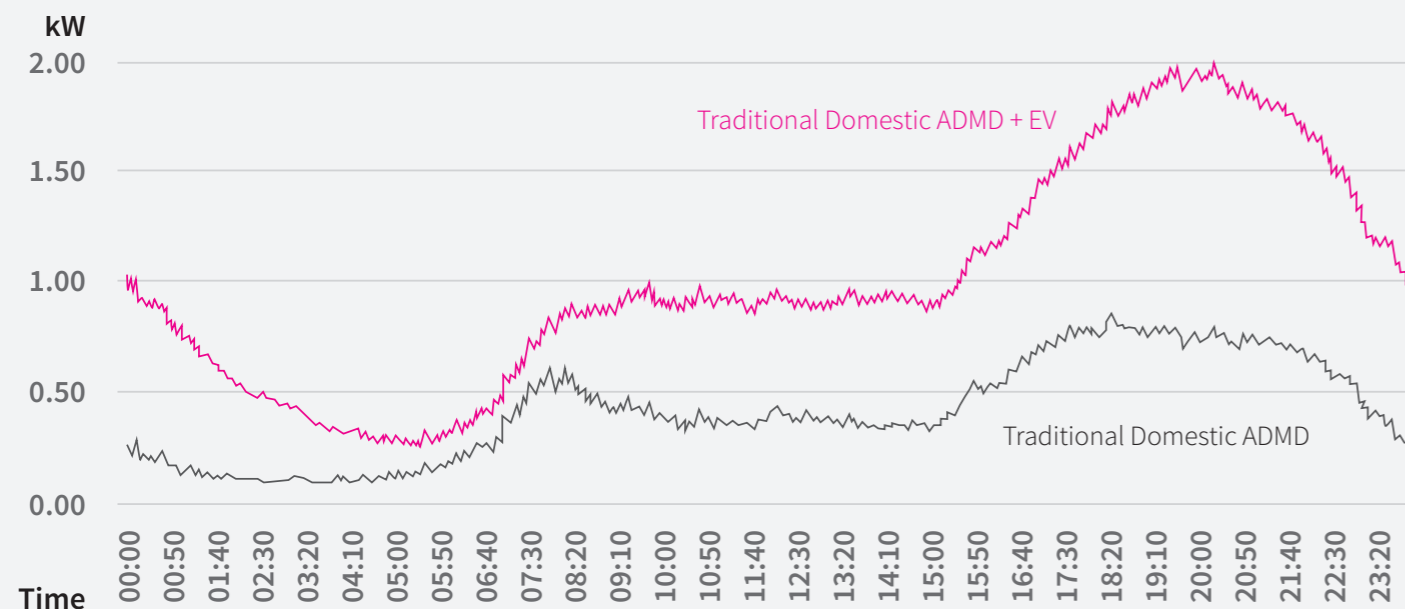
Traditionally, these findings would mean the replacement of underground cables in the street, however My Electric Avenue has been trialling a lower cost solution to this in the form of 'Esprit'.

It is worth noting that new EVs can charge at a rate (7kW) that is double that of the My Electric Avenue EVs (3.5kW), with charging rates and battery capacities continuing to increase further; more work is needed to understand what this means for local electricity networks.

FORECASTS SUGGEST THAT ESPRIT COULD SAVE AROUND £2.2 BILLION OF REINFORCEMENT COSTS UP TO 2050.

DOUBLING THE LOAD

THE AFTER-DIVERSITY-MAXIMUM-DEMAND (ADMD) TRADITIONALLY USED FOR DOMESTIC PROPERTIES IS 1KW; WITH THE INCLUSION OF AN EV THIS NEEDS INCREASING TO 2KW.



WHAT CAN WE DO ABOUT THE CAPACITY ISSUE WITH SOME LOCAL ELECTRICITY NETWORKS?

MY ELECTRIC AVENUE HAS BEEN TRIALLING A NEW TECHNOLOGY CALLED ESPRIT – AN INTELLIGENT CONTROL BOX, I.E. THE HARDWARE THAT IS ABLE TO CONTROL CHARGING – TO TEST IF THIS COULD HELP TO MANAGE THE LOAD ON THE LOCAL ELECTRICITY NETWORK AT TIMES OF STRESS.

The Esprit system employs demand side management techniques to protect power networks from potential overload that might be caused by the simultaneous recharging of numerous EVs on the same substation feeder. It does so by instigating temporary curtailment of recharging on a rolling basis (typically, in this trial, for 15 minutes each) across the local cluster of EVs.

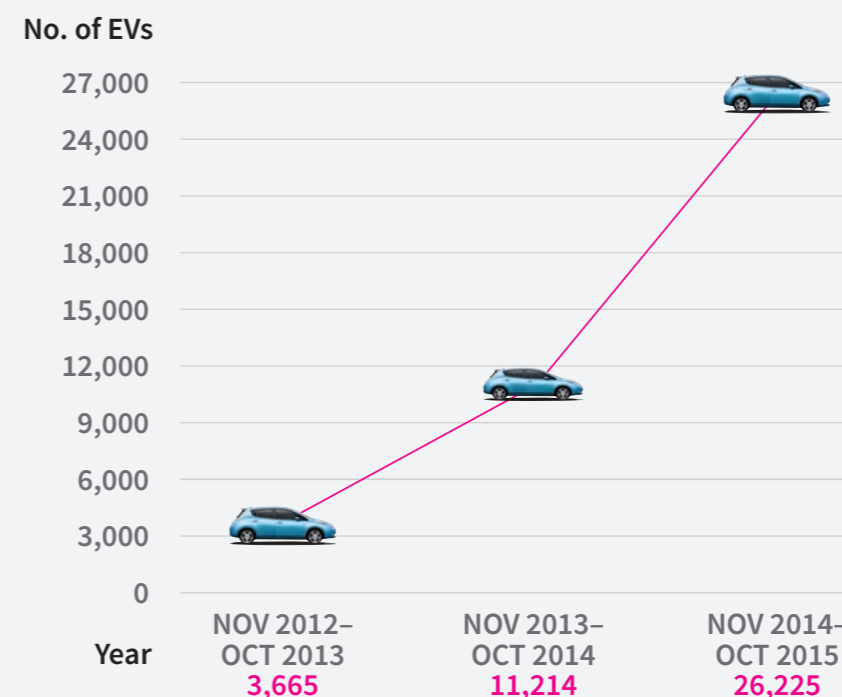
The project showed that this technology was successful in curtailing charging when necessary, and therefore Esprit has the potential to be a solution for DNOs to prevent roads being dug up and new higher capacity cables installed. By 2050 we think this will give an economic saving of around £2.2 billion.

Any project that is attempting to do something new that hasn't been done before is almost guaranteed to experience challenges. One such challenge for My Electric Avenue was the prototype version of Esprit. Issues were experienced with both the 'Mark 1' and 'Mark 2' versions, however by the end of the project sufficient curtailment of EV charging took place in all clusters and enough data had been recorded to provide meaningful results, and to prove the capabilities of the Esprit Technology.

Esprit also helps DNOs maintain network voltages. Large loads like EVs can affect the system voltage, Esprit typically allows an additional 10% of customers to connect EVs before this occurs. Esprit can also help make networks more efficient; by shifting demand away from peak times Esprit reduces the losses in feeders by about 9%.

716% RISE IN PLUG-IN CAR SALES OVER THE LAST TWO YEARS

EV REGISTRATIONS (CARS ELIGIBLE FOR THE PLUG-IN CAR GRANT)



OTHER LEARNING FROM THE PROJECT

WHAT HAVE WE LEARNT ABOUT PEOPLE'S CHARGING HABITS?

In addition to the data from the technology that controls the chargers, the University of Manchester has also analysed other data including that from Nissan's telemetry system. Findings include:

- During weekdays, charging is more likely to be before and after work (creating a morning and night peak)
- During weekends charging is more likely to be between 10am and 6pm.
- Approximately 70% of the EVs are charged only once a day
- More than 65% of vehicles are charged until the battery is full.

HAS THE TRIAL RESULTED IN ANY WIDER LEARNING ABOUT THE ELECTRICITY NETWORK AND LOW CARBON TECHNOLOGIES?

Participants became more aware of the electricity network and increased their understanding of it through pre-trial involvement with the project. Participants also became more aware of low carbon technologies and increased their understanding of them throughout the trial. This increase was primarily attributed to the actual experience of using an EV and charging points. However, project communications during the course of the trial, contact with the project team and the cluster champion, and the recruitment process all also played an important role. Participants also reported that their use of an EV helped to educate people in the wider community as "the EV provoked conversations with family, friends and beyond".

DID THE TRIAL PARTICIPANTS ACCEPT HAVING THEIR EV CHARGING EXTERNALLY CONTROLLED?

As well as testing the technical viability of Esprit, My Electric Avenue also assessed the EV drivers' acceptability of a DNO being able to curtail their charging.

Trials of Esprit were undertaken in the My Electric Avenue project to establish whether such third-party control of EV charging would have a negative impact on quality of service for EV users.

Throughout the project, data was gathered through questionnaires, interviews and focus groups from participants in the trial. Analysis of this data indicates that the use of the technology did not cause significant inconvenience or unacceptable loss of service to EV users, with the majority declaring themselves comfortable or very comfortable with Esprit being able to curtail their charging.

WHAT WAS LEARNT FROM THE WORKPLACE CLUSTERS?

My Electric Avenue primarily trialled Esprit with households, however there were also workplace charging clusters. The use of Esprit on the business network was enabled by artificially reducing the control threshold to a point slightly above the feeder's normal load, excluding the charging points.

ESPRIT TECHNOLOGY WAS SUCCESSFUL IN CURTAILING CHARGING WHEN NECESSARY, AND HAS THE POTENTIAL TO PREVENT ROADS BEING DUG UP AND NEW HIGHER CAPACITY CABLES INSTALLED.



WHAT WAS LEARNT ABOUT THE OFGEM BID AND PROJECT MANAGEMENT PROCESS?

The Low Carbon Networks Fund is an excellent mechanism of delivering innovation for the electricity networks and Ofgem should be commended for its establishment.

The bid and project management processes benefited from the (relatively quickly forged) strong working relationships between all of the project partners, and the tenacity of the core project team to keep the project focused on the agreed delivery schedule.

The business community will benefit from the wealth of learning derived from an SME having successfully managed and delivered such a major and groundbreaking project – it paves the way for other SMEs to enter into similar contracts with the advantage of that learning.

Learning from the bid process from the perspective of a third party lead was provided to Ofgem to aid refinement of future bid processes. Recommended improvements from the contractual arrangement have also been developed to assist with future collaborative working between a DNO and a third party SME.

INDEPENDENT PROJECT REVIEWS SHOULD BE CONSIDERED FOR FUTURE INNOVATION PROJECTS

The independent project review undertaken by Ricardo was highly valued by the project partners, as observations and recommendations by an unbiased source can identify areas where change is genuinely required. It can also offer an impartial, holistic view of a project such as My Electric Avenue, with stakeholders ranging from an industry regulator to an SME. For these benefits, it is strongly recommended that such an approach be considered for future innovation projects where the size and scope is sufficient to justify the extra expenditure.



SUCCESSSES OF THE PROJECT

"MY ELECTRIC AVENUE HAS BEEN EXCEPTIONALLY EFFECTIVE AND GOOD VALUE FOR MONEY." SSEPD.

"Scottish and Southern Energy Power Distribution hosted the project, contracting EA Technology to lead the My Electric Avenue LCN Fund Tier 2 project, as a trusted and informed third party delivery body. The success of customer engagement, recruitment and milestone delivery have met all expectations. EA Technology has created an excellent mix of partners and relevant expertise to the I2EV (My Electric Avenue) project, with a hands-on delivery approach that makes this project exceptionally effective and good value for money. I commend EA Technology's expertise in partnership brokering, customer engagement and dissemination of learning outcomes to any DNO or organisation seeking a dynamic, customer and output-oriented project partner or lead."

Stewart A Reid
Future Networks Manager
Scottish & Southern Energy Power Distribution

"THE 'BOTTOM UP' APPROACH TO CUSTOMER ENGAGEMENT HAS PROVED PARTICULARLY IMPRESSIVE, AND IS REAPING GREAT RESULTS." NISSAN.

"I was approached by EA Technology when the My Electric Avenue project was at bid development stage; impressed by the clear strategy that EA Technology had for the venture, it was a natural fit for Nissan to partner on this pioneering trial project. The project wholly aligns with Nissan's vision to place the UK at the forefront of the EV movement. The 'bottom up' approach to customer engagement has proved particularly impressive, and is reaping great results; adopting a new Nissan LEAF seems to be contagious. EA Technology's combination of project management, technical and 'people' expertise make it a company worth doing business with."

Olivier Paturet
General Manager Zero Emission Strategy
Nissan Europe SAS

"IT MAKES SENSE IN SO MANY WAYS – ENVIRONMENTALLY, FINANCIALLY – AND I'VE EVEN LEARNT A BIT ABOUT THE LOCAL ELECTRICITY NETWORK."

**JULIE SKEVINGTON,
TRIAL PARTICIPANT**

"My Electric Avenue project has brought our community together under a common purpose – and it's been great fun finding people to take part in our cluster. I've been out dropping leaflets through doors, talking to people in the shops to get them on board... and then driving a Nissan LEAF at the test drive event really sealed the deal for us. It makes sense in so many ways – environmentally, financially – and I've even learnt a bit about the local electricity network."

Julie Skevington
My Electric Avenue Trial Participant
South Shields



"THE FACT THAT SO MANY PEOPLE AROUND THE COUNTRY WANTED TO TAKE PART IN THE PROJECT WAS TRULY AMAZING." ZERO CARBON FUTURES

"When we embarked on the My Electric Avenue mission of recruiting participants onto the technical trials it seemed like an impossible task to achieve. But the fact that so many people around the country wanted to take part in the project was truly amazing and was certainly beyond anyone's expectations. Not only has this been a groundbreaking project, the results of which will really inform the future of EV manufacturers and electrical network management, but it has also raised awareness and promoted EVs more widely, which can only be beneficial to the electric vehicle industry. The professionalism in project leadership and the cooperation amongst the partnership established has really been significant in the success of the project, the learning and its results."

Lois Warne
Zero Carbon Futures

"THE LEARNING IS ESSENTIAL TO ENABLE THE FUTURE CONNECTION OF CLUSTERS OF ELECTRIC VEHICLES TO SOME NETWORKS." NORTHERN POWERGRID

"Northern Powergrid was pleased to be asked to support this project. The learning is essential to enable the future connection of clusters of electric vehicles to some networks without the need for costly and disruptive cable or substation replacement works."

Andrew Spencer
Trading & Innovation
Northern Powergrid

"THE BEST VEHICLE CHARGING PROJECT IN THE UK, IF NOT THE WORLD." ABB

"You guys have done such a fantastic piece of work with this project... it is fantastic as it is real... it is literally the best vehicle charging project in the UK, if not the world."

Martin Hale
ABB

Martin is Head of Marketing and Sales, UK & Ireland, for ABB's EV Charging Infrastructure Product Group. My Electric Avenue has engaged with Martin at various points along its project journey.

"WE'VE NOT SEEN COMMUNICATIONS AS WELL MANAGED FOR ANY OTHER PROJECT." RICHARD HARTSHORN, SSEPD

The recruitment of 100 members of the public in local clusters around Britain to lease an electric car for 18 months for the technical trials was seen as a significant challenge at the start of the project. However due to the creation of a communications strategy which focused on finding local champions to lead on recruiting other cluster participants, along with effective support from many My Electric Avenue partners including EA Technology, Fleetdrive and Zero Carbon Futures, the recruitment targets were exceeded, and within the timescale.

MY ELECTRIC AVENUE PROJECT PARTNERS AND ROLES

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. EA Technology has been the third party lead delivery body for My Electric Avenue providing the following input:

- The technology for the trials
- Project management, including management of the project finances
- Partner/supplier contract management and liaison.

www.eatechnology.com

NISSAN



Nissan has one of the most comprehensive European presences of any overseas manufacturer, employing more than 17,600 staff across locally-based design, research & development, manufacturing, logistics and sales & marketing operations. Nissan provided the LEAF electric vehicles required for the trials at preferential rates, enabling a significant discount over normal lease costs for the duration of the trials. Nissan allowed EA Technology access to internal recording of data from EV data loggers for use in modelling.

www.nissan.co.uk

NORTHERN POWERGRID



Northern Powergrid is the electricity distribution business for North East 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'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 has supplied access to substations supplying the trial clusters located in its licence areas, low voltage circuit information and design analysis to support the establishment of the clusters, and engineering resource to install, set up and monitor the Esprit equipment.

www.northernpowergrid.com

RICARDO



Ricardo has been responsible for the independent evaluation of the project and the technology. This included reviewing the approach and progress of establishing trials and also evaluating the validity of technical trials conclusions.

www.ricardo.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. It owns and is responsible for maintaining one electricity transmission network and two electricity distribution networks, comprising 106,000 substations and 130,000km of overhead lines and underground cables across one third of the UK. SSEPD has been the lead/funding Distribution Network Operator (DNO) for My Electric Avenue, providing:

- Access to network areas in the UK for undertaking the trials and associated support
- Liaison between EA Technology and Ofgem
- Role of project treasurer
- Project management support.

www.ssepd.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, vans and associated services to SMEs in the UK. Fleetdrive Electric managed the delivery and support of the EVs to trial participants in both the technical and social trials, and supported customer engagement for the trials.

www.fleetdrive-electric.com

THE UNIVERSITY OF MANCHESTER



The University of Manchester has been responsible for network modelling. This includes evaluating initial trials of the technology, carrying out a literature survey of the estimates of the additional load that EVs will cause, the potential for load shifting, and analysing the data from the trials to produce a network model based on the data collected. The University of Manchester has also been responsible for sharing the modelling data with Ricardo for independent assessment.

www.manchester.ac.uk

AUTOMOTIVE COMMS



Automotive Comms has been responsible for establishing, directing and carrying out the marketing, communications and PR strategy for My Electric Avenue.

www.automotivecomms.co.uk

ZERO CARBON FUTURES



Zero Carbon Futures is a 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. Zero Carbon Futures primarily managed the supply and installation of charging points and customer-end of the Esprit technology at participating premises. It also supported customer engagement throughout the project's lifecycle.

www.zerocarbonfutures.co.uk

DE MONTFORT UNIVERSITY



De Montfort University has been responsible for socio-economic modelling. This included carrying out a literature survey of existing knowledge of customer behaviour with regard to the use of EVs, the acceptance of direct control of appliances and identifying the types of data that need to be collected. De Montfort University has also been responsible for conducting pre, during and post-trial interviews with trial participants, analysing and collating this information for sharing with Ricardo for the independent assessment.

www.dmu.ac.uk

THE FUTURE

MY ELECTRIC AVENUE HAS SHOWN THAT LOCAL ELECTRICITY NETWORKS IN SOME AREAS WILL STRUGGLE TO COPE WITH THE CHARGING OF ELECTRIC CARS (WITH 3.5 KW CHARGING) WHEN 40-70% OF PROPERTIES CONNECTED TO A SUBSTATION FEEDER HAVE EVS. ELECTRIC CARS INCLUDE PLUG-IN HYBRIDS AS WELL AS PURE EVS, AND FORECASTS SUGGEST THAT THE MAJORITY OF NEW CARS ON SALE BY 2040 WILL HAVE SOME FORM OF PLUG-IN CAPABILITY.

My Electric Avenue has also shown that the issue of insufficient capacity can be managed by Esprit technology. However, action needs to be taken soon.

The project has highlighted the fact that communication takes place within the energy industry, and within the automotive industry, but little communication takes place between the two, and that is exactly what needs to happen to successfully address the issue of lack of capacity in some local electricity networks for electric vehicle charging.

Therefore as a legacy project, EA Technology will be facilitating cross-industry dialogue in the form of an Automotive-Utilities Working Group to ensure that the lessons learnt from My Electric Avenue are transformed into action: raising awareness of the issues and solutions, and exploring collaborative working opportunities. Organisations with an interest in this area are welcome to get involved; please speak to EA Technology via the contact details below.

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For more detailed technical learning visit:

www.myelectricavenue.info

CO2 SAVINGS FROM THE PROJECT

Another success of My Electric Avenue has been the CO₂ emissions savings from over 200 trial participants driving electric cars rather than petrol or diesel-engined vehicles. The Nissan LEAF has zero tailpipe emissions in terms of both CO₂ emissions and emissions such as NO_x and particulates that impact upon local air quality, and even if you take into account the CO₂ emitted from the UK's average energy generation mix used to charge the EVs, each Nissan LEAF has saved around 2,598 kgCO₂e of CO₂e emissions per car – that's a saving of around 550,000 kgCO₂e for all the cars on My Electric

Avenue's trials compared to their diesel-engined equivalents.* In addition, some participants installed solar panels during the course of the trial, a decision that was in part, influenced by the project, so furthering the uptake of low carbon technology.

* Carbon calculations based on data collected from 213 cars over the length of the trial

THANK YOU

EA Technology would like to thank all project partners for their dedication, enthusiasm and hard work in making My Electric Avenue a success story. Huge thanks also go to all cluster champions and communities taking part – without the engagement of these customers in the project, there would be no Electric Avenues.

'My Electric Avenue' is the public identity for the Low Carbon Networks Fund Tier 2 project 'I2EV – Innovation Squared: managing unconstrained EV connections'. The formal title 'I2EV – Innovation Squared: managing unconstrained EV connections' is used for contractual and Ofgem reporting purposes.



PROJECT LEADS



PROJECT PARTNERS



My Electric Avenue has received support from Ofgem through the Low Carbon Networks (LCN) Fund.